

# Sensor Specifications

- [Xsens Sirius series performance specifications](#)
- [Xsens Sirius series sensor specifications](#)

This section presents the performance and the sensor component specifications for the calibrated Sirius series products. Each product has passed the Xsens calibration process individually. The Xsens calibration procedure calibrates for many parameters, including bias (offset), alignment of the sensors with respect to the PCB and to each other, and gain (scale factor). All calibration values are temperature dependent and temperature calibrated. The calibration values are stored in the non-volatile memory of the module.

In addition, some calibration parameters are continuously improved and/or re-estimated through the on-board sensor fusion algorithms during normal operation of the product.

## Xsens Sirius series performance specifications

Orientation performance specifications

Parameter	Condition	Xsens Sirius IMU	Xsens Sirius VRU	Xsens Sirius AHRS
Roll/Pitch*	Static [RMS]	N/A	0.2°	0.2°
	Dynamic (car, 25m/s) [RMS]	N/A	0.25°	0.25°
Yaw*	Dynamic (car, 25m/s) [RMS]	N/A	Unreferenced	1°

\* Orientation estimates also include [Uncertainty](#) output

## Xsens Sirius series sensor specifications

Sirius series gyroscope specifications

Gyroscope specification[1]	Unit	Value
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Standard full range	[°/s]	±300
In-run bias stability	[°/h]	7
Bandwidth (-3dB)	[Hz]	400

## Gyroscope specification[1]

	Unit	Value
Noise density	[°/s/ $\sqrt{\text{Hz}}$ ]	0.003
g-sensitivity (calibrated)	[°/s/g]	0.08
Non-linearity	[%FS]	0.06
Scale Factor variation	[%]	0.5 (typical) 1.5 (over life)

## Sirius series accelerometer specifications

### Accelerometer[1]

	Unit	Value
Standard full range	[g]	$\pm 8$
In-run bias stability	[ $\mu\text{g}$ ]	15
Bandwidth (-3dB)	[Hz]	470
Noise density	[ $\mu\text{g}/\sqrt{\text{Hz}}$ ]	15
Non-linearity	[%FS]	0.1

## Sirius series magnetometer specifications

### Magnetometer[1]

	Unit	Value
Standard full range	[G]	$\pm 8$
Non-linearity	[%]	0.2
Total RMS noise	[mG]	1
Resolution	[mG]	0.25

## Sirius series orthogonality specifications

### Parameter[1]

	Unit	Value
on-orthogonality (accelerometer)	[°]	0.05
Non-orthogonality (gyroscope)	[°]	0.05

Parameter[1]	Unit	Value
Non-orthogonality (magnetometer)	[°]	0.05

**[1]** As Xsens continues to update the sensors on the module, these specifications are subject to change.

# General Information

- [Ordering information](#)
- [Sirius series architecture](#)
- [Xsens Sirius series product variants](#)
  - [Xsens Sirius IMU](#)
  - [Xsens Sirius VRU](#)
  - [Xsens Sirius AHRS](#)

This document provides information on the usage and technical details of the Xsens Sirius series. The Xsens Sirius series robust trackers (S#X##A or S#X##B) are rugged (IP68) devices which can be connected to a host through RS232, RS422, CAN or CAN-FD interface, or through USB using the USB connection cable(included in the Sirius series Development Kit).

The [Family Reference Manual](#) supplements this document. It reports generic information on the Xsens generic products, such as output definitions, algorithm details and installation tips.

The [Xsens Sirius series Hardware Integration Manual](#) supplements this document. In this document, notes on typical application scenarios, printed circuit board (PCB) layout, origin of measurement reference system, stress related considerations, reference designs and handling information can be found.

For testing and prototyping, Xsens provides the Devlopment Kits (DK) for the robust tracker. Technical details of the Development Kit and its usage can be found in the [Xsens Sirius series DK User Manual](#).

The [MT Low Level Communication Protocol](#) document provides a complete reference for the protocols used to communicate with Xsens Motion Trackers on a low-level basis. The MT Low Level Communication Protocol document also describes the synchronization messages and settings in detail.

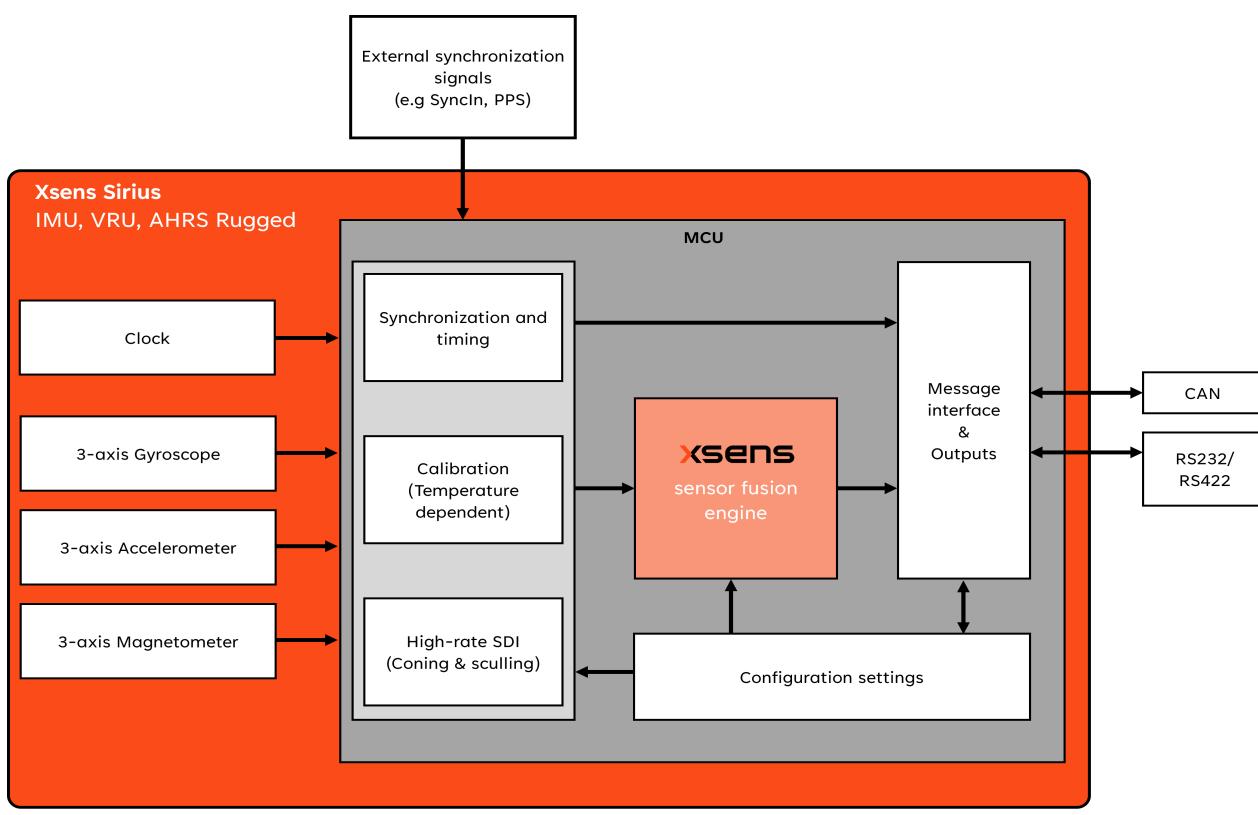
## Ordering information

Ordering information for Sirius series products

Product Family	Part Number	Product Name	Description	Packing
Xsens Sirius IMU	S1M43A	Xsens Sirius IMU Rugged - RS232	IMU, IP68, 8g Acc, 300dps Gyro, RS232/CAN(-FD) Inertial data	Box (MOQ 1 unit)
	S1M43B	Xsens Sirius IMU Rugged - RS422	IMU, IP68, 8g Acc, 300dps Gyro, RS422/CAN(-FD) Inertial data	Box (MOQ 1 unit)
Xsens Sirius VRU	S1V43A	Xsens Sirius VRU Rugged - RS232	VRU, IP68, 8g Acc, 300dps Gyro, RS232/CAN(-FD) Inertial data, roll/pitch/yaw (unreferenced)	Box (MOQ 1 unit)
	S1V43B	Xsens Sirius VRU Rugged - RS422	VRU, IP68, 8g Acc, 300dps Gyro, RS422/CAN(-FD) Inertial data, roll/pitch/yaw (unreferenced)	Box (MOQ 1 unit)

	S1A43A	Xsens Sirius AHRS Rugged - RS232	AHRS, IP68, 8g Acc, 300dps Gyro, RS232/CAN(-FD) Inertial data, roll/pitch/yaw (referenced)	Box (MOQ 1 unit)
	S1A43B	Xsens Sirius AHRS Rugged - RS422	AHRS, IP68, 8g Acc, 300dps Gyro, RS422/CAN(-FD) Inertial data, roll/pitch/yaw (referenced)	Box (MOQ 1 unit)
Xsens Sirius AHRS	S1A43A-DK	Xsens Sirius AHRS/VRU/IMU Rugged - Development Kit - RS232	AHRS/VRU/IMU Development Kit, IP68, 8g Acc, 300dps Gyro, RS232/CAN(-FD) Inertial data, roll/pitch/yaw (referenced)	Box (MOQ 1 unit)
	S1A43B-DK	Xsens Sirius AHRS/VRU/IMU Rugged - Development Kit - RS422	AHRS/VRU/IMU Development Kit, IP68, 8g Acc, 300dps Gyro, RS422/CAN(-FD) Inertial data, roll/pitch/yaw (referenced)	Box (MOQ 1 unit)

## Sirius series architecture



The diagram in the figure above shows a simplified architecture of the Sirius series motion tracker. The Xsens Sirius series motion tracker contains a 3-axis gyroscope, 3-axis accelerometer, 3-axis magnetometer, a high-accuracy crystal and a low-power micro-controller unit (MCU). The MCU applies calibration models (unique to each sensor and including orientation, gain and bias offsets, plus more advanced relationships such as non-linear temperature effects and other higher order terms) and runs the Xsens optimized strapdown algorithm, which performs high-rate dead-reckoning calculations up to 10 kHz, allowing accurate capture of high frequency motions and coning & sculling compensation. The Xsens sensor fusion engine combines all sensor inputs and optimally estimates the orientation at an output data rate of up to 400 Hz. The output data of the Xsens Sirius series is easily configured and customized for an application's needs and can be set to use one of various filter profiles available within the Xsens sensor fusion engine. In this way, the Xsens Sirius series limits the load and the power consumption on the user application's processor. The user can communicate with the module by

means of three different communication interfaces; RS232 or RS422 and CAN(-FD)[\[1\]](#). The USB interface is available using the USB connection cable which comes with a Development Kit or by using third party equipment (e.g. RS232 to USB converter).

## Xsens Sirius series product variants

The Sirius Robust Tracker is a fully tested self-contained module available as an:

- Inertial Measurement Unit (IMU),
- Vertical Reference Unit (VRU),
- Attitude and Heading Reference System (AHRS)

It can output 3D orientation data (Euler angles, rotation matrix or quaternions), orientation and velocity increments ( $\Delta q$  and  $\Delta v$ ), and calibrated sensor data (acceleration, rate of turn, magnetic field and pressure). Depending on the product variant, output options may differ.

### Xsens Sirius IMU

The Xsens Sirius IMU Robust Tracker is an IP68 rated IMU that outputs calibrated 3D rate of turn, 3D acceleration, 3D magnetic field. The S1M43A/S1M43B also outputs coning and sculling compensated orientation increments and velocity increments ( $\Delta q$  and  $\Delta v$ ). Advantages over a simple gyroscope-accelerometer combo-sensor are the inclusion of synchronized magnetic field, on-board signal processing and the easy-to-use synchronization and communication protocol. The signal processing pipeline and the suite of output options allow access to the highest possible accuracy at any output data rate up to 2000 Hz. Moreover, the testing and calibration is already performed by Xsens and results in a robust and reliable sensor module, which enables a short time to market for the users.

### Xsens Sirius VRU

The Xsens Sirius VRU Robust Tracker is a 3D VRU. On top of the functionality of the Xsens Sirius IMU, its algorithm computes 3D orientation data with respect to a gravity referenced frame: drift-free roll, pitch and unreferenced yaw. Although the yaw is unreferenced, it is superior to only gyroscope integration as a result of advanced on-board sensor fusion. The 3D acceleration is also available as so-called free acceleration, which has the local-gravity subtracted. The drift in unreferenced heading can be limited by using the Active Heading Stabilization (AHS) functionality. See [Signal processing and algorithms](#) for more details. The raw sensor signals are combined and processed at a high frequency to produce a real-time data stream with the device's 3D orientation (roll, pitch and yaw) up to 400 Hz.

### Xsens Sirius AHRS

The Xsens Sirius AHRS Robust Tracker supports all features of the Xsens Sirius IMU and VRU, and, in addition, is a full magnetometer-enhanced AHRS. In addition to the roll and pitch, it outputs a yaw (heading) output that is referenced to the Earth's magnetic field and calibrated sensor data: 3D acceleration, 3D rate of turn, 3D orientation and velocity increments ( $\Delta q$  and  $\Delta v$ ) and 3D magnetic field data. The raw sensor signals are combined and processed at a high frequency to produce a real-time data stream with the device's 3D orientation (roll, pitch and yaw) up to 400 Hz.

[\[1\]](#) RS232 and RS422 are available depending on the model, but a model with RS232 will not have RS422, and vice versa.

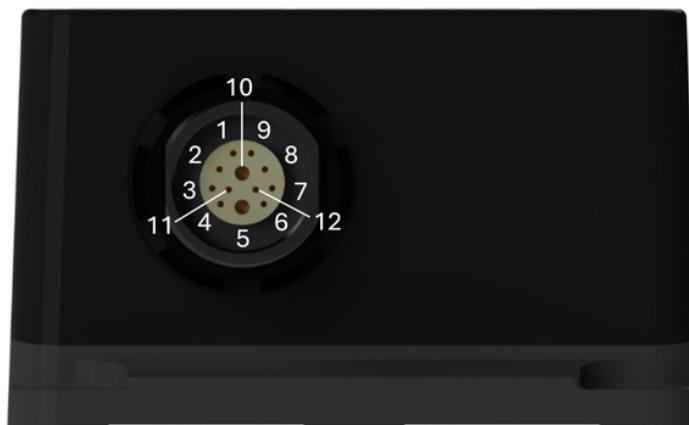
# Functional description

- Pin description robust trackers
  - RS232 variant
  - RS422 variant
- Peripheral interfaces
  - CAN (Controller Area Network)
  - RS232 with RTS/CTS flow control
  - RS422

This chapter describes the Sirius series pinout and gives details about the supported communication interfaces.

## Pin description robust trackers

Below figure shows the pin configuration of the Xsens Sirius series robust tracker.



Pin configuration of the Xsens Sirius series robust tracker

Below table shows the pin descriptions of the Xsens Sirius series robust tracker based on the interface variant.

### RS232 variant

Pin descriptions Rugged Sirius Host Interface with RS232

Pin	Name	I/O type	Description
1	CAN_H	I/O	CAN(-FD) bus differential high side
2	CAN_L	I/O	CAN(-FD) bus differential low side
3	SYNC_IN1	I	Multifunctional synchronization input

Pin	Name	I/O type	Description
4	SYNC_IN2	I	Multifunctional synchronization input
5	VIN	PWR	Power input
6	RS232_CTS	I	RS232 Clear To Send input from host
7	RS232_RxD	I	RS232 receiver input from host
8	RS232_TxD	O	RS232 transmitter output to host
9	RS232_RTS	O	RS232 Ready To Send output to host
10	GND	PWR	Ground
11	SYNC_OUT	O	Configurable synchronization output
12	GND	PWR	Ground

## RS422 variant

Pin descriptions Rugged Sirius Host Interface with RS422

Pin	Name	I/O type	Description
1	CAN_H	I/O	CAN(-FD) bus differential high side
2	CAN_L	I/O	CAN(-FD) bus differential low side
3	SYNC_IN1	I	Multifunctional synchronization input
4	SYNC_IN2	I	Multifunctional synchronization input
5	VIN	PWR	Power input
6	RS422_B	I	RS422 inverted receiver input from host
7	RS422_A	I	RS422 non-inverted receiver input from host
8	RS422_Z	O	RS422 inverted transmitter output to host
9	RS422_Y	O	RS422 non-inverted transmitter output to host
10	GND	PWR	Ground

Pin	Name	I/O type	Description
11	SYNC_OUT	O	Configurable synchronization output
12	GND	PWR	Ground

## Peripheral interfaces

The rugged Sirius series supports CAN(-FD), and RS232 or RS422 interfaces for host communication. For more detailed information on the interfaces please refer to the [Sirius series Hardware Integration Manual](#).

### CAN (Controller Area Network)

A Controller Area Network (CAN bus) is a robust standard designed to allow communication between devices in applications without a host computer. By default the CAN interface of the Sirius series does not have a termination resistor enabled. It can be used in a CAN bus that already incorporates the required termination. If used in a single device connection or when placed at the end of a CAN bus, the internal 120 Ω termination resistor can be enabled.

### RS232 with RTS/CTS flow control

The RS232 interface complies with the standard RS232 voltage levels. It includes hardware flow control through the RTS and CTS lines;

### RS422

The RS422 interface complies with the standard RS422 voltage levels. It replaces the RS232 lines of the default interface.

# System and electrical specifications

- Interface specifications
- System specifications
- Electrical specifications
- Absolute maximum ratings

## Interface specifications

Communication interfaces						
Interface	Symbol	Min	Typ	Max	Unit	Description
CAN*	$f_{CAN}$	10.0	250.0	1000	kbps	Host CAN Interface Baud Rate
RS232	$f_{RS232}$	4.8	115.2	1000	kbps	Host RS232 Interface Baud Rate
RS422	$f_{RS422}$	4.8	115.2	2000	kbps	Host RS422 Interface Baud Rate

\* CAN-FD supported baud rates: 2000 kbps, 5000 kbps, 8000 kbps

## System specifications

System specifications of Xsens Sirius Series Robust Trackers

		Min	Typ	Max	Unit	Comments
Size	Width		40.9		mm	
	Length		56.5		mm	
	Height		24.75		mm	
Weight			75		gram	
IP-rating			IP68			48 hours at 1 meter under water
Temperature	Operating temperature	-40		+85	°C	Ambient temperature, non-condensing
Power consumption		620	720	1000	mW	Depends on used interface and supplied voltage
Timing accuracy			10		ppm	Output clock accuracy can be increased using ClockSync functionality.
Output data rate			400	2000	Hz	Data rates larger than 400 Hz are available for RateOfTurnHR (2000 Hz) and AccelerationHR (2000 Hz) only

### EMC and Vibration Conformity

Short Name	Directive
REQUIREMENTS FOR THE CONTROL OF ELECTROMAGNETIC INTERFERENCE CHARACTERISTICS OF SUBSYSTEMS AND EQUIPMENT(EMC)	MIL-STD-461
TEST METHOD STANDARD ELECTRONIC AND ELECTRICAL COMPONENT PARTS(ENVIRONMENTAL)	MIL-STD-202

See Detailed certificate in the [Declare of conformity section](#).

### Electrical specifications

#### Supply voltage specifications

Symbol	Min	Typ	Max	Unit	Description

Symbol	Min	Typ	Max	Unit	Description
V <sub>IN</sub>	4.5	5	24	V	Power input voltage, with polarity protection

### I/O electrical specifications

I/O interface	Symbol	Min	Typ	Max	Unit	Description
CAN	V <sub>I(DIFF)(R)</sub>	-4.0		0.5	V	Recessive differential input voltage -12V < V <sub>(CANH, CANL)</sub> < +12V
	V <sub>I(DIFF)(D)</sub>	0.9		9.0	V	Dominant differential input voltage -12V < V <sub>(CANH, CANL)</sub> < +12V
	V <sub>O(DIFF)(R)</sub>	-500	0	50	mV	Recessive differential output voltage
	V <sub>O(DIFF)(D)</sub>	1.3	2.0	5.0	V	Dominant differential output voltage
	V <sub>O(L)(D)</sub>	0.5	1.5	2.25	V	CAN_L dominant output voltage
	V <sub>O(H)(D)</sub>	2.75	3.5	4.5	V	CAN_H dominant output voltage
	R <sub>TERM</sub>	110	120	140	Ω	Termination resistance (when enabled)
RS232[1]	V <sub>IL</sub>	-15		0.6	V	Low input voltage
	V <sub>IH</sub>	2.0		+15	V	High input voltage
	R <sub>IN</sub>	3	5	7	kΩ	Input resistance
	V <sub>OT</sub>	±5.0	±5.5		V	Driver output voltage swing

I/O interface	Symbol	Min	Typ	Max	Unit	Description
RS422[1]	V <sub>CM_IN</sub>	-7		12	V	Input common mode voltage
	V <sub>TH</sub>	-200	-125	-50	mV	Differential input voltage threshold
	ΔV <sub>TH</sub>		25		mV	Input hysteresis voltage
	R <sub>IN</sub>	96			kΩ	Input resistance (with termination disabled)
	R <sub>TERM</sub>	100	120	150	Ω	Termination resistance (when enabled)
	V <sub>OD</sub>	1.5		3.3	V	Differential output voltage ( $R_L = 54\ \Omega$ )
	V <sub>CM_OUT</sub>			3	V	Output common mode voltage
	V <sub>IL</sub>	0		0.6	V	Low input voltage
SYNC_IN1/ SYNC_IN2	V <sub>IH</sub>	1.2		5.5	V	High input voltage
	V <sub>OL</sub>	0		0.55	V	Low output voltage
	V <sub>OH_3V3</sub>	2.4		3.3	V	High output voltage at 3V3
	V <sub>OH_5V</sub>	3.8		5.0	V	High output voltage at 5V
SYNC_OUT	I <sub>O</sub>			±24	mA	Output current

## Absolute maximum ratings

Absolute maximum ratings

Parameter		Min	Max	Unit	Comments
Storage temperature	T <sub>S</sub>	-40	+90	°C	
Operating temperature	T <sub>0</sub>	-40	+85	°C	
Power input voltage[2]	V <sub>IN</sub>	-0.3	30	V	+/- 100 mV, max ripple 100 mVp-p

Parameter		Min	Max	Unit	Comments
CAN DC[2]	$V_{CAN\_DC}$	-58	58	V	Common mode voltage of CAN_H and CAN_L with respect to ground
CAN Differential	$V_{CAN\_DIFF}$	-17	17	V	Differential voltage between CAN_H and CAN_L
RS232/RS422 inputs[2]	$V_{RS232}$	-18	18	V	
SYNC inputs[2]	$V_{SYNC}$	-0.5	6.5	V	
SYNC outputs[2]	$I_{SYNC}$		$\pm 50$	mA	SYNC output current
Acceleration[3]			10,000	g	Any axis, unpowered, for 0.2 ms
ESD protection			$\pm 8000$	V	Human body model

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only. Functional operation of the device in these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability and lifetime.

[1] RS232 and RS422 are available depending on the model, but a model with RS232 will not have RS422, and vice versa.

[2] All voltages with respect to GND.

[3] This is a mechanical shock (g) sensitive device. Proper handling is required to prevent damage to the part.

# General information

- [Package information](#)
- [Ordering information](#)

This document provides information on the contents and usage of the Sirius series Development Kit. There are two Sirius series Development Kit options depending on the interface requirements: S1A43A-DK (RS232) and S1A43B-DK (RS422). Both Sirius series Development Kits (S1A43A-DK and S1A43B-DK) contain all the cables and accessories that are required to get started with a robust Sirius series tracker. In addition to the Sirius interfaces, this Development Kit includes an RS232 to USB cable or an RS422 to USB cable.

The [\*Sirius series Datasheet\*](#) provides information on the usage and technical details of the Sirius series. The robust Sirius series tracker supports an RS232 or RS422, and CAN(-FD) interface, as well as USB using the Development Kit's RS232 to USB cable or RS422 to USB cable.

The [\*Family Reference Manual\*](#) supplements this document. It reports generic information on the different series, such as output definitions, algorithm details and installation tips.

The [\*Sirius series Hardware Integration Manual\*](#) supplements this document. In this document, notes on typical application scenarios, origin of measurement reference system, stress-related considerations, reference designs and handling information can be found.

The [\*MT Low Level Communication Protocol\* document](#) provides a complete reference for the protocols used to communicate with Xsens Motion Trackers on a low-level basis. The MT Low Level Communication Protocol document also describes the synchronization messages and settings in detail.

The table below summarizes all available official documents for the Xsens industrial sensor modules product line.

Industrial sensor modules product documentation overview

MTi 1-series	MTi 600-series	Avior series	Sirius series	MTi 10/100-series
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Family Reference Manual				MTi User Manual	
MTi 1-series Datasheet	MTi 600-series Datasheet	Avior series Datasheet	Sirius series Datasheet		
MTi 1-series DK User Manual	MTi 600-series DK User Manual	Avior series DK User Manual	Sirius series DK User Manual		
MTi 1-series HW Integration Manual	MTi 600-series HW Integration Manual	Avior series HW Integration Manual	Sirius series HW Integration Manual		
MT CAN protocol Documentation					
MT Manager Manual					
Magnetic Calibration Manual					
MT Low Level Communication Protocol Documentation					
Firmware Updater User Manual					

## Package information

Package contents for Sirius series Development Kit

Component	Name
	Xsens Sirius AHRS Rugged - RS232/CAN(-FD) (Part #S1A43A)  OR  Xsens Sirius AHRS Rugged - RS422/CAN(-FD) (Part #S1A43B)



RS232 to USB cable  
(CA-MP-USB)

OR

RS422 to USB cable  
(CA-MP-USB-422)



12-pin Host interface cable  
(loose ends)  
(CA-MP-12-OPEN)

## Ordering information

Ordering information Sirius series Development Kit

Kit	Description	Package contents	Packing Method
Xsens Sirius IMU/VRU/AHRS Rugged - Development Kit - RS232 (or RS422)/CAN(-FD)	Development Kit for Xsens Sirius IMU/VRU/AHRS	<ul style="list-style-type: none"><li>• Xsens Sirius IMU/VRU/AHRS Rugged-RS232 (or RS422)/CAN(-FD)</li><li>• 12 pins multi-purpose cable (loose ends)</li><li>• RS232 (or RS422) to USB cable</li></ul>	Single unit

See [this](#) page for ordering information.

# Development Kit

This chapter describes the technical specifications of all components included in the Sirius IMU, Sirius VRU and Sirius AHRS Development Kit.

- [Cables](#)
  - [CA-MP-USB](#)
  - [CA-MP-USB-422](#)
  - [CA-MP-12-OPEN](#)

## Cables

### CA-MP-USB

The CA-MP-USB cable is a RS232 to USB cable that has the USB converter integrated at the end of the cable and consists of the following parts:

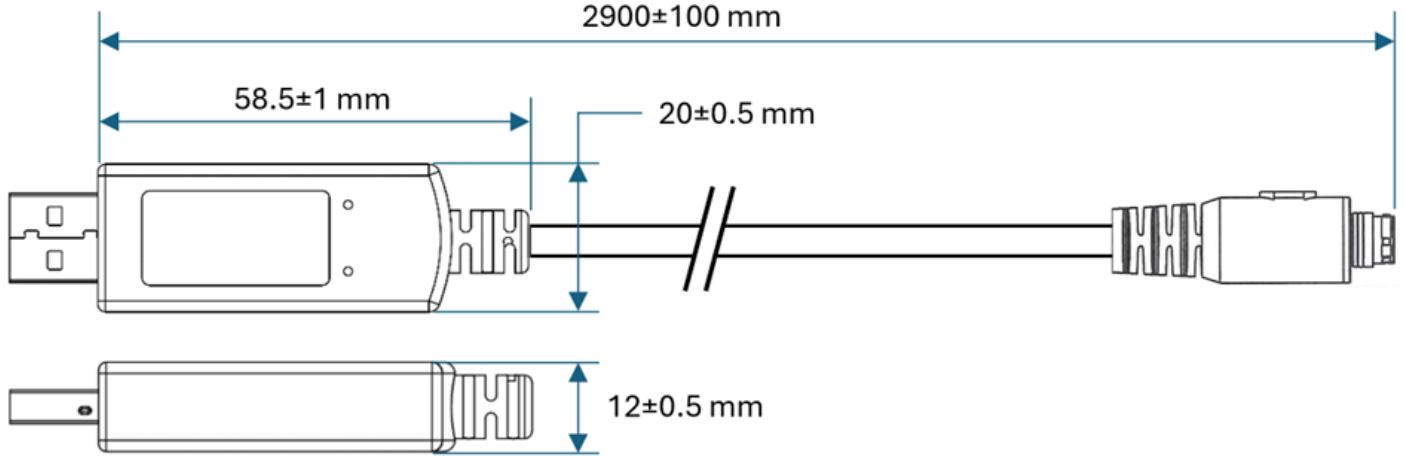
- ODU connector: A10WAM-P12XMM0-0000; AMC HD, break-away plug, 12 circuits.
- Cable: 2.9m length, 8 core, AWG28, shielded, UL, 40°C ± 85°C, 5.1mm diameter.
- USB converter.

The table below shows the pinning of the connections.

Connector pinning CA-MP-USB cable assembly

Function (Sirius)	Wire color	ODU pin no.
VIN	Red	5
GND	Black	10
RS232_RTS	Violet	9
RS232_TxD	Yellow	8
RS232_RxD	Grey	7
RS232_CTS	Orange	6
SYNC_IN2	Red/White	4
GND	Blue	12
SHIELD	-	SH

The figure below shows the cable length definition (from connector end-to-end).



Host Interface cable CA-MP-USB length definition

## CA-MP-USB-422

The CA-MP-USB-422 cable is a RS422 to USB cable that has the USB converter integrated at the end of the cable and consists of the following parts:

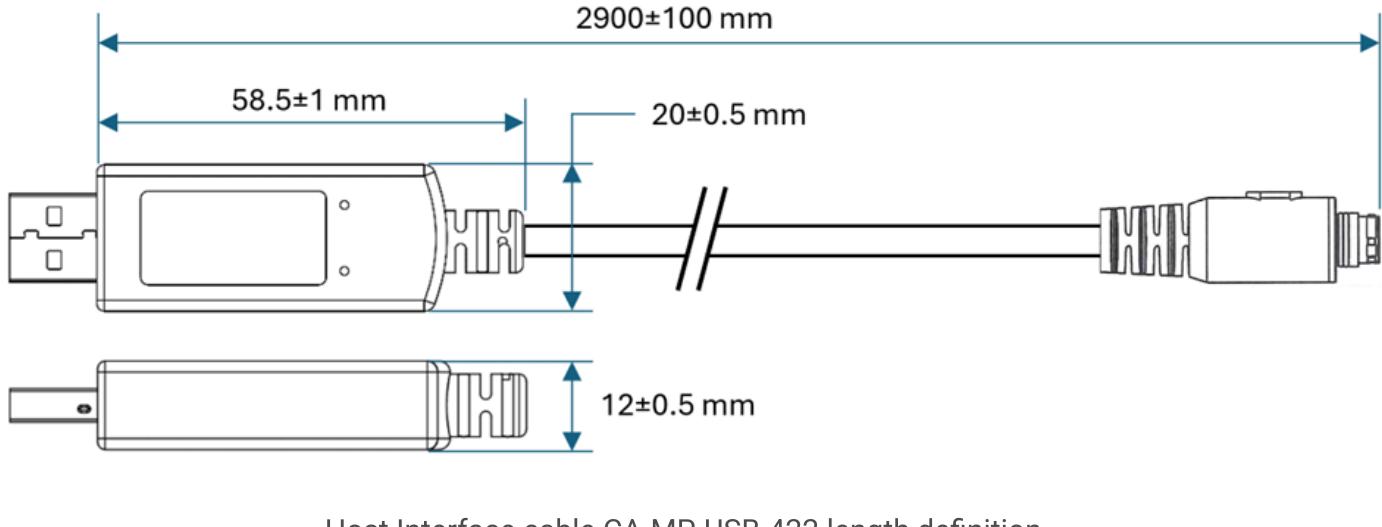
- ODU connector: A10WAM-P12XMM0-0000; AMC HD, break-away plug, 12 circuits.
- Cable: 2.9m length, 8 core, AWG28, shielded, UL,  $40^{\circ}\text{C} \pm 85^{\circ}\text{C}$ , 5.1mm diameter.
- USB converter.

The table below shows the pinning of the connections.

Connector pinning CA-MP-USB-422 cable assembly

Function (Sirius)	Wire color	ODU pin no.
VIN	Red	5
GND	Black	10
RS422_TX(+)	Violet	9
RS422_TX(-)	Yellow	8
RS422_RX(+)	Grey	7
RS422_RX(-)	Orange	6
SYNC_IN2	Red/White	4
GND	Blue	12
SHIELD	-	SH

The figure below shows the cable length definition (from connector end-to-end).



## CA-MP-12-OPEN

The CA-MP-12-OPEN is a 12-pin Host Interface cable assembly with open ends and consists of the following parts:

- ODU connector: A10WAM-P12XMM0-0000; AMC HD, break-away plug, 12 circuits
- Cable: 2.9 m, 12 core, AWG28, shielded, UL, 40°C - +85°C, 6.1 mm diameter

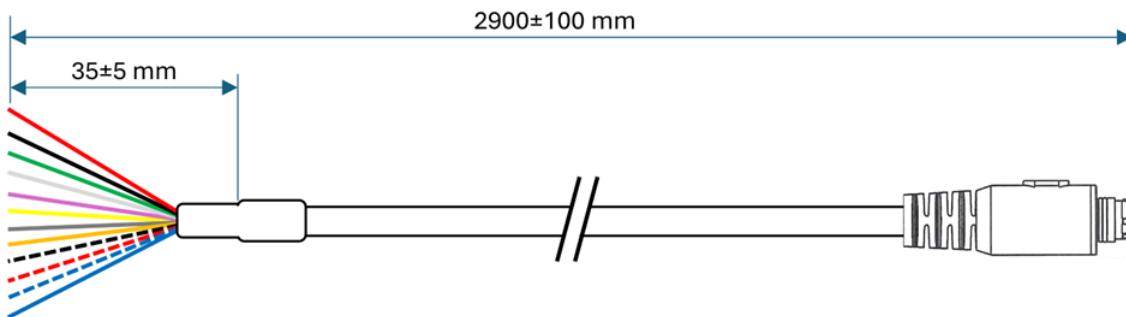
The table below shows the pinning of the connections. The shield of the cable is only connected on the ODU connector side.

Connector pinning Host Interface cable assembly

Function (Sirius)	Wire colour	ODU pin no.
VIN	Red	5
GND	Black	10
CAN_H	Green	1
CAN_L	White	2
RS232_RTS/RS422_TX(+)	Violet	9
RS232_TxD/RS422_RX(-)	Yellow	8
RS232_RxD/RS422_RX(+)	Grey	7
RS232_CTS/RS422_RX(-)	Orange	6
SYNC_IN1	Black/White	3
SYNC_IN2	Red/White	4

SYNC_OUT	Blue/White	11
GND	Blue	12
SHIELD	-	SH

The figure below show the cable length definition (from end-to-end).



Host Interface cable length definition

# Introduction

- [Software and documentation](#)
  - [Programming examples](#)

## Software and documentation

The Sirius series Development Kit is supported by the MT Software Suite, which includes the following software components:

- MT Manager
- Magnetic Field Mapper
- MT SDK including programming examples and documentation

Additionally, the latest firmware for the Sirius sensor can be downloaded and updated using the Firmware Updater which is separately available.

All software components can be downloaded from the Xsens website under the MTi Products section in the [Software download page](#).

For detailed instructions on the MT Manager, please refer to the [MT Manager User Manual](#). For guidance on the Magnetic Field Mapper software, consult the [Magnetic Calibration Manual](#).

## Programming examples

Inside the MT SDK folder of the MT Software Suite, programming examples can be found for various programming languages, including C++, C#, Python and Matlab. A [ROS node](#) is also available. These examples are based on the (open source) Xsens Device API (XDA). For more information and a complete overview, refer to [this article](#).