Xsens Vision Navigator

Accurate positioning during GNSS outages

- Full ROS compatibility
- Ethernet, WIFI, USB-C, UART and odometry in (CAN) connections

The Vision Navigator is a dual RTK GNSS/INS and vision- enabled navigation unit, for tracking accurate 3D position, velocity and orientation, in challenging outdoor- and GNSS-denied environments, supported by Visual Inertial Odometry technology.

With the Vision Navigator, position drift is distance-dependent as opposed to time-dependent as commonly found in traditional GNSS/INS devices.

The dual-antenna and built-in IMU provide reliable heading information even at low velocities or when standing still.

Additionally, it can accept wheel odometry data and has internal recording memory.

Vision Navigator has a browser-based GUI and is supported by ROS with resources in Github.

Sensor Fusion Performance

Roll, Pitch Yaw/Heading Position accuracy with RTK Position accuracy during GNSS outages Velocity	<0.4 deg 0.4 deg (1m antenna baseline) 1cm + 1ppm 0.75% of distance travelled ¹ 0.1 m/s
Gyroscope	
Standard full range	2000 deg/s
Noise Density	0.003 º/s/√Hz
Accelerometer	
Standard full range	16 g
Noise Density	65 µg/√Hz
GNSS Receiver	
Brand	u-blox
Model	ZED-F9P (2x, internal)
RTK correction input	RTCM 3.3
RTCM input port	Ethernet, Wifi or serial
Barometer	
Standard full range	260-1250 hPa
Total RMS noise	0.75 Pa

113.6 mm 129 mm

Starter Kit p/n: XVN-090D-1A-SK Single Unit p/n: XVN-090D-1A

To order, please contact sales@movella.com

Complete and detailed specifications are available at **mtidocs.xsens.com**

Mechanical

30 mm

Mechanical	
IP-rating	IP67
Operating Temperature	-30 to 85 °C
Casing material	Aluminum
Mounting orientation	With view of surroundings
Dimensions	129x113.6x30 mm
Connector	M8 8-pins x3, M8 4-pins x1, SMA x3, USB-C x1
Weight	420 g
Certifications	CE
Electrical	
Input voltage	4.5 to 36V
Power consumption (typ)	7.5 W
Interfaces / IO	
Interfaces	UART, Ethernet, Wifi, USB-C
Sync Options	SyncIn, SyncOut (PPS)
Protocols	ASCII, NMEA and ROS
Output Frequency	Up to 200 Hz
Software Suite	
GUI	Browser-based GUI
SDK (Example code)	Github C++ library
Drivers	ROS
Support	BASE by XSENS: online manuals,
	community and knowledge base

1 With wheel odometry.





Unless stated otherwise, all specifications are typical. Specifications subject to change without notice.