xNAV650 INS

Small, high performance inertial navigation system ideal for survey and mapping applications

Whatever the survey you're looking to perform, the xNAV650 inertial navigation system provides the **precision, reliability** and **confidence** you need when space is limited and payload weight is a factor.

The xNAV650 is the ideal partner for a wide range of survey and mapping applications including:

/ Building Information Modelling (BIM)

/ Infrastructure Monitoring

/ Mining

/ Coastal Monitoring

/ Geographical Surveys

/ Asset Management

/ Pipeline Exploration

/ Land Survey

/ Road Monitoring

OXTS
Survey

Our smallest inertial navigation system yet

With the xNAV650, users enjoy the same trusted, robust performance for which other OxTS inertial navigation systems have long been appreciated. It's smaller size ensures that surveyors can now benefit from highly accurate inertial measurements when space is limited.

xNAV650 INS
Time: **14:58:57.861**
Latitude: **-1.146393428°**
Longitude: **49.53679235°**
Altitude: **12.243 m**
Heading: **298.821°**
Pitch: **0.328°**
Roll: **1.373°**

Incredible accuracy in our smallest form factor to date
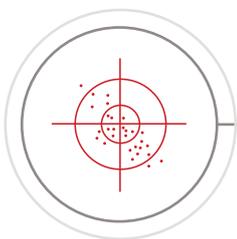
Precision positioning

The xNAV650 provides centimetre level positioning accuracy.
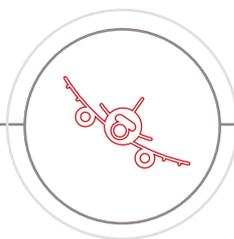
Highly accurate pitch and roll performance

The xNAV650 offers surveyors 0.05° pitch and roll measurements.

Multiple constellation support

The xNAV650 includes quad-constellation support (GPS, GLONASS, BeiDou and Galileo).

Why choose the xNAV650?

Small, lightweight INS

/ The xNAV650 is the optimal partner for survey and mapping applications where there are size and weight constraints

/ Weighing just 130 g and measuring only 77 mm x 63 mm x 24 mm the compact housing is ideal for UAV and Drone-based surveys

Complete navigation solution

/ Combining GNSS receivers, an inertial measurement unit, internal storage and a real-time processor all in one box, the xNAV650 delivers everything you need for a complete navigation solution

/ The xNAV650 comes with an extensive software suite to configure, monitor, post-process and plot your data
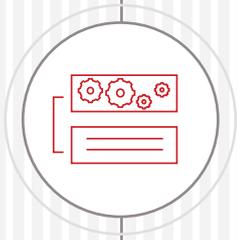
Simple, adaptable, manageable

/ The xNAV650 is simple to set up and configure. Simple wizards mean you can get up and running in minutes

/ The xNAV650 seamlessly integrates with external sensors, such as LiDAR scanners and cameras, to create a complete survey solution

/ All of the components are ITAR free for maximum flexibility when operating in multiple countries

Georeference pointclouds with ease

/ The xNAV650 INS can be used alongside OxTS Georeferencer to allow customers to quickly and easily georeference pointclouds from multiple LiDAR scanners

/ These integrated inertial measurements allow customers to streamline their survey operations and in turn increase ROI

/ The boresight calibration feature within OxTS Georeferencer allows customers to quickly and easily calibrate the angles between their survey and xNAV650 navigation device, speeding up the time to survey

Features

/ 2 cm positioning accuracy

/ Small, lightweight form factor

/ High-performance IMU sensors and GNSS receivers

/ ITAR free

/ GPS, GLONASS, BeiDou and Galileo as standard

/ Real-time output

/ Dual antenna as standard

/ Up to 250 Hz output

/ PPK post-processing engine

/ Add-on georeferencing software available

/ PTP time sychronisation

/ gx/ix™ tightly coupled GNSS/INS

/ Optional odometer input

OXTS *Survey*

Performance[1]

Model	xNAV650
Positioning	GPS L1, L2C GLONASS L1, L2 BeiDou B1, B2[2] Galileo E1, E5[2] SBAS PPP

Position accuracy (CEP)[3]	
SPS	1.5 m
SBAS	0.6 m
DGPS	0.4 m
RTK	0.02 m
Roll/pitch accuracy (1σ)	0.05°
Heading accuracy (1σ)[4]	0.1°
Dual antenna	✔ (standard)

Options

Output rate
Default: 100 Hz
Option: 200/250 Hz

Post-process Engine
Default: gx/ix™
Option: gxRTK (PPK)
PTP Time Synchronisation (optional)

Constellation
Default: GPS, GLONASS, BeiDou, Galileo

Georeferencing Software
Option: Georeferencing
Option: Boresight calibration

Hardware

Dimensions	77 x 63 x 24 mm
Mass	130 g
Input voltage	5–30 V dc
Power consumption	4 W
Operating temperature	-40° to 70° C
Vibration	10-500 Hz 1.42 g RMS
Shock survival	15 g, 11 ms
Internal storage	32 GB

Interfaces

Ethernet	10/100 Base-T
Serial	Configurable RS232
Digital I/O	Odometer input Event trigger input 1PPS output Camera trigger IMU sync output

Sensors

Type	Accelerometers	Gyros
Technology	MEMS	MEMS
Range	8 g	480°/s
Bias stability	0.08 mg	5°/hr
Scale factor	0.08%	0.3%
Random walk	0.06 m/s/√hr	0.48°/√hr
Axis alignment	<0.03°	<0.05°

[1] Valid for open sky conditions.
[2] Optional upgrade.
[3] Horizontal position accuracy. Vertical accuracy approx. 1.5x horizontal.
[4] Dual antenna accuracy with 2 m antenna separation.

The inertial experts since 1998

www.oxts.com