xNAV v3

Miniature GNSS/INS for weight restricted applications

The xNAV family of inertial navigation systems from OxTS combine GNSS technology with high performance miniature inertial sensors to deliver a complete navigation solution in a lightweight package.

Ideal for size and weight constrained applications.

>> Key features

- Low weight – from just 365 g including rugged anodised aluminium enclosure
- Dual GNSS receivers – stable heading performance in all conditions
- Survey grade GNSS – L1 only DGPS or L1/L2 RTK position
- High performance IMU – 0.05° roll/pitch accuracy
- No export control – ship and operate worldwide with zero hassle
- gx/ix™ technology – tight coupling navigation engine.
- Powerful post-processing and analysis tools – free NAVsuite software gives you complete control over your data
- Model variants to fit your budget – choose options and extras to suit your application or simply upgrade later

>> Applications

- LiDAR georeferencing
- Aerial photogrammetry
- Aerial mapping
- Mobile mapping
- UAV/UAS navigation

>> One box solution

Combining dual GNSS receivers, an inertial measurement unit, internal storage and on-board processor all in one compact box, the xNAV delivers everything you need for a complete navigation solution. Our extensive software package (NAVsuite) is also included, which features powerful post-processing and graphing software.

>> Tightly-coupled navigation engine

OxTS inertial navigation systems utilise our tightly-coupled navigation engine. Which includes single satellite aiding and our inertial relock features to maintain performance in harsh GNSS environments.

>> Easy integration

Integrating the xNAV into systems like UAVs couldn't be simpler. Mounting brackets are supplied to ensure a rigid installation. Standard NMEA messages, timing sync and trigger outputs as well as event input triggers mean the xNAV can be used with an array of sensors such as LiDAR scanners, cameras, and hyperspectral sensors. OEM board set versions are available for system integrators and we offer attractive discounts on top of our already low prices for bulk purchases.

>> Experts in GNSS and inertial technology

The xNAV systems use compact MEMS sensors in order to be as economical as possible, both in terms of price and power. But thanks to state-of-the-art calibration techniques and advanced algorithms in the xNAV, we are able to push the technology beyond its limits to deliver exceptional performance in a surprisingly small package. By seamlessly blending the inertial and GNSS data, the xNAV provides smooth, robust outputs even in poor GNSS environments.

>> xNAV models

Logging only Real-time	xNAV200 xNAV500	xNAV250 xNAV550

>> Performance[1]

Positioning	GPS L1 GLONASS[2] L1 SBAS	GPS L1, L2 GLONASS[2] L1, L2 SBAS
Position accuracy (CEP)[3]		
SPS SBAS DGPS RTK	2.0 m 0.6m 0.5 m	1.6 m 0.6m 0.4 m 0.02 m
Velocity accuracy (RMS)	0.1 km/h	0.1 km/h
Roll/pitch accuracy (1σ)	0.05°	0.05°
Heading accuracy (1σ)		
2 m antenna separation 4 m antenna separation	0.15° 0.06°	0.1° 0.05°
Dual antenna	Yes	Yes

>> Hardware

Dimensions	132 x 77 x 43 mm (all versions)
Mass	0.365 kg (200, 500) 0.395 kg (250, 550)
Input voltage	10–31 V dc
Power consumption	7 W typical (200, 500) 9 W typical (250, 550)
Operating temperature	-40° to 70°C
Specification temperature	-10° to 70°C
Environmental protection	IP65
Output rate	100 Hz 200/250 Hz[2]
Vibration Operating	0.002 g^2/Hz, 5–500 Hz
Shock survival	>1000 *g*
Internal storage	32 GB

>> Performance during GNSS outage[4]

Outage duration	Position mode	Horizontal position drift (RMS)
10 s	RTK	0.37 m
10 s	PP[5]	0.07 m
30 s	RTK	1.29 m
30 s	PP[5]	0.33 m
60 s	RTK	2.79 m
60 s	PP[5]	0.95 m

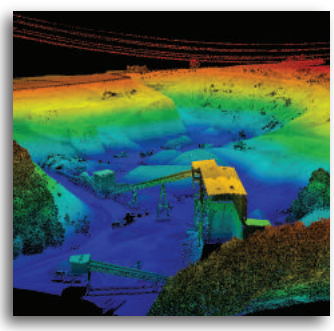
>> Sensors

Type	Accelerometers	Gyros
Technology	MEMS	MEMS
Range	30 *g*	300°/s
Bias stability	0.02 m*g*	3°/hr
Linearity	0.05% ±1 *g*	0.05%
Scale factor	0.01%	0.01%
Random walk	0.05 m/s/√hr	0.5°/√hr
Axis alignment error	<0.02°	<0.02°

>> Interfaces

Ethernet	10/100 Base-T
Serial	Configurable RS232
Digital I/O	Odometer input (single or quadrature) Event input trigger 1PPS output Camera output trigger[6] IMU sync output[6]

[1] Valid for open sky conditions and in the temperature range of -10° to 60°C.
[2] Optional upgrade.
[3] Horizontal position accuracy. Vertical accuracy approx. 1.5x horizontal accuracy.
[4] With odometer corrections and advanced slip configured.
[5] RT Post-process, forwards-backwards combined.
[6] Real-time systems only.



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OXTS Inertial+GNSS

Oxford Technical Solutions Ltd, United Kingdom
Email: sales@oxts.com
Web: www.oxts.com