xNAV v3

The high performance, lightweight INS for drone and UAV mapping

The xNAV v3 combines GNSS technology with high performance, miniature inertial sensors to deliver a complete yet compact navigation solution.

Capturing precision measurements for a range of applications including:

/ LiDAR georeferencing
/ Mobile mapping
/ UAV/UAS navigation
/ Aerial mapping
/ Aerial photogrammetry
/ Pedestrian mobile mapping systems
and more.....
Size and weight constraints are no obstacle with our xNAV INS

Compact and weighing just 365 g, the xNAV v3’s miniature appearance is proof that looks can be deceiving once the powerful performance components within are revealed.

One of the most competitively priced INS solutions for drone and UAV mapping, the xNAV v3 ensures the perfect blend of affordability and lightweight size without compromise on performance.

Powerful performance. Simplified usability.

Achieve even more precise results
The addition of a next-gen accelerometer delivers excellent stability and performance, resulting in accuracy of 0.05° roll/pitch guaranteed while GPS & GLONASS ensures positioning accuracy of 2 cm, even in difficult environments.

Simple “plug and play” set-up
Users can be up and running within minutes instead of hours, with seamless integration also available with 3rd party software and hardware.

Complimentary configuration software
Powerful post-processing and analysis tools including free NAVsuite software to give you complete control over your data.
Why choose the xNAV v3?

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.
/ Our additional paid georeferencing software add-on provides INS/LIDAR Boresight calibration and georeferencing capabilities to create basic, reliable point clouds.

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.

Simple, adaptable, manageable
/ The xNAV is easy to install and configure, with simple wizards to speed up the process.
/ All of the components are ITAR free for maximum flexibility when operating in multiple countries.

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.
/ 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.

Features
/ 2 cm positioning
/ Weighs just 365 g (200/500 versions)
/ gx/ix™ tightly coupled GNSS/INS
/ High-grade MEMS inertial sensors and RTK capable GNSS receivers
/ ITAR free – ship and operate worldwide
/ GPS and GLONASS as standard
/ Log more data with 32 GB of onboard storage
/ Extra low power consumption
### xNAV models

<table>
<thead>
<tr>
<th>Logging only</th>
<th>Real-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>xNAV200</td>
<td>xNAV250</td>
</tr>
<tr>
<td>xNAV500</td>
<td>xNAV550</td>
</tr>
</tbody>
</table>

### Performance

#### Positioning

<table>
<thead>
<tr>
<th></th>
<th>GPS L1</th>
<th>GLONASS L1</th>
<th>SBAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SpS</td>
<td>2.0 m</td>
<td>1.6 m</td>
<td></td>
</tr>
<tr>
<td>SBAS</td>
<td>0.6 m</td>
<td>0.6 m</td>
<td></td>
</tr>
<tr>
<td>DGPS</td>
<td>0.5 m</td>
<td>0.4 m</td>
<td></td>
</tr>
<tr>
<td>RTK</td>
<td></td>
<td>0.02 m</td>
<td></td>
</tr>
</tbody>
</table>

#### Position accuracy (CEP)

<table>
<thead>
<tr>
<th></th>
<th>SPS</th>
<th>SBAS</th>
<th>DGPS</th>
<th>RTK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.0 m</td>
<td>1.6 m</td>
<td>0.6 m</td>
<td>0.02 m</td>
</tr>
</tbody>
</table>

#### Roll/pitch accuracy (1σ)

<table>
<thead>
<tr>
<th></th>
<th>0.05°</th>
<th>0.05°</th>
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</thead>
</table>

#### Heading accuracy (1σ)

<table>
<thead>
<tr>
<th></th>
<th>0.15°</th>
<th>0.1°</th>
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</thead>
<tbody>
<tr>
<td>2 m antenna separation</td>
<td>0.06°</td>
<td>0.05°</td>
</tr>
<tr>
<td>4 m antenna separation</td>
<td></td>
<td></td>
</tr>
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</table>

#### Dual antenna

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
</table>

### Performance during GNSS outage

<table>
<thead>
<tr>
<th>Outage duration</th>
<th>Position mode</th>
<th>Horizontal position drift (RMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 s</td>
<td>RTK</td>
<td>0.37 m</td>
</tr>
<tr>
<td>10 s</td>
<td>PP³</td>
<td>0.07 m</td>
</tr>
<tr>
<td>30 s</td>
<td>RTK</td>
<td>1.29 m</td>
</tr>
<tr>
<td>30 s</td>
<td>PP³</td>
<td>0.33 m</td>
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<td>60 s</td>
<td>RTK</td>
<td>2.79 m</td>
</tr>
<tr>
<td>60 s</td>
<td>PP³</td>
<td>0.95 m</td>
</tr>
</tbody>
</table>

### Interfaces

- Ethernet: 10/100 Base-T
- Serial: Configurable RS232
- Digital I/O: Odometer input (single or quadrature), Event input trigger, 1PPS output, Camera output trigger⁶, IMU sync output⁶

### Hardware

- Dimensions: 132 x 77 x 36 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 Hz²
- Vibration operating: 0.002 g²/Hz, 5–500 Hz
- Shock survival: >1000 g
- Internal storage: 32 GB

### Sensors

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

1. Valid for open sky conditions and in the temperature range of -10° to 60°C.
2. Optional upgrade.
3. With odometer corrections and advanced slip configured.
4. RT Post-process, forwards-backwards combined.
5. Real-time systems only.