



DATASHEET

# SURVEY+ v3

Our flagship, high accuracy INS for land-based and manned aircraft mapping

The Survey+ v3 combines the best of GNSS positioning technology with high-grade gyrometers and accelerometers to deliver superior performance in a single enclosure.

## Capturing precision measurements for a range of applications including:

- + Mobile mapping
- + LiDAR survey
- + Aerial photogrammetry
- + Coastal surveys
- + Topographic mapping
- + Asset management
- + GIS data acquisition
- + Land survey
- + Road monitoring
- + Road profiling

[oxts.com](http://oxts.com)



# Our premier INS for surveying and mapping is better than ever before...

With the Survey+ v3, users enjoy the same trusted, robust performance that the Survey+ has long been appreciated for, but with next generation architecture to support both your existing and future mapping needs.



## Incredible accuracy. Flexible connectivity.



### Precision positioning

The best centimetre-level position accuracy of any of our surveying and mapping solutions to date.



### 0.03° pitch and roll performance

The Survey+ v3 delivers the highest roll and pitch accuracy of any of our INS solutions, achieving measurements of 0.03°.



### Optional LiDAR georeferencing software available

Easily combine the inertial measurements provided by the Survey+ with LiDAR data from a wide range of sensors.

# Why choose the Survey+ v3?



## Experts in GNSS and inertial technology

- + Advanced algorithms [gx/ix™] in the Survey+ seamlessly blend the inertial and GNSS data to provide a smooth, real-time 3D navigation solution, even when satellite signals are blocked or disturbed.
- + For ground-based applications, a wheel speed odometer can be used to reduce the drift even further.



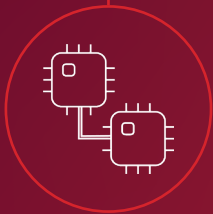
## One box, turnkey solution

- + Combining GNSS receivers, an inertial measurement unit, internal storage and a real-time processor all in one box, the Survey+ delivers everything you need for a complete navigation solution.
- + The Survey+ also comes with an extensive software suite to configure, monitor, post-process and plot your data.
- + PTP affords ethernet plug and play compatibility with many survey devices.



## Simple, adaptable, manageable

- + The Survey+ is easy to install and configure, with simple wizards to speed up the process.
- + It can seamlessly integrate with external sensors such as LiDAR scanners and hyperspectral cameras to provide accurate time, position and orientation data for direct georeferencing.
- + All of the components are ITAR-free for maximum flexibility when operating in multiple countries.



## Improved accuracy with advanced processing

- + A high raw GNSS data rate, coupled with forwards and backwards processing, means post-processed Survey+ data can achieve the highest level of accuracy.
- + Our custom gx/ix™ processing engine can further improve performance with single satellite aiding algorithms for position updates even with less than four satellites in view. Survey+ devices can also use our inertial relock feature to regain RTK/PPK lock quicker after an outage.
- + Up to 255 RINEX files per data run can also be used, to ensure the highest accuracy during long baselines.

## FEATURES

- + 1 cm positioning
- + New dynamic CPU
- + gx/ix™ tightly-coupled GNSS/INS
- + High-performance MEMS IMU sensors and GNSS receivers
- + ITAR-free
- + GPS, GLONASS, BeiDou and Galileo as standard
- + Real-time output
- + Odometer (wheelspeed) input optional
- + Dual-antenna as standard
- + Up to 250 Hz output
- + PPK post-processing engine
- + PTP time synchronisation optional
- + Add-on georeferencing software available

## PERFORMANCE<sup>1</sup>

Model	Survey+
Positioning	GPS L1, L2 & GLONASS L1, L2 BeiDou B1, B2 & Galileo E1, E5 SBAS PPP
Position accuracy [CEP] <sup>2</sup>	
SPS	1.5 m
SBAS	0.6 m
DGPS	0.4 m
PPP <sup>3</sup>	0.1 m
RTK	0.01 m
Roll/pitch accuracy [1 $\sigma$ ]	0.03°
Heading accuracy [1 $\sigma$ ] <sup>4</sup>	0.05°
Dual-antenna	Yes [standard]
Heave accuracy [1 $\sigma$ ] <sup>5</sup>	10 cm or 10%

## OPTIONS

### Output rate

Default: 100 Hz

Option: 200/250 Hz

### Post-process engine

Default: gx/ix™

Option: gxRTK [PPK]

### PTP time synchronisation

### Georeferencing software

Option: Georeferencing

Option: Boresight calibration

<sup>1</sup> Valid for open sky conditions.

<sup>2</sup> Horizontal position accuracy. Vertical accuracy approx. 1.5x horizontal.

<sup>3</sup> PPP requires TerraStar-C license.

<sup>4</sup> Dual-antenna accuracy with 4 m antenna separation.

<sup>5</sup> Heave output not available on 250 Hz systems.

## INTERFACES

Ethernet [x3]	10/100 Base-T
Serial [x2]	Configurable RS232
Radio	Configurable RS232
Digital I/O	Odometer input Event trigger input 1PPS output Camera trigger IMU sync output

## SENSORS

Type	Accelerometers	Gyros
Technology	Servo	MEMS
Range	10 g	100°/s
Optional	30 g	300°/s
Bias stability	5 $\mu$ g	3°/hr
Linearity	0.01%	0.05%
Scale factor	0.1%	0.1%
Random walk	0.005 m/s/ $\sqrt$ hr	0.2°/ $\sqrt$ hr
Axis alignment	<0.05°	<0.05°

## HARDWARE

Dimensions	184 x 120 x 71 mm
Mass	1.5 kg
Input voltage	10-48 V dc
Power consumption	14 W
Operating temperature	-10° to 50° C
Environmental protection	IP65
Vibration	0.1 g <sup>2</sup> /Hz, 5-500 Hz
Shock survival	100 g, 11 ms
Internal storage	32 GB