



OmniSTAR's G2 is a composite GLONASS/GPS positioning solution available worldwide. By utilising satellites from both constellations G2 can provide consistent and stable decimetre accuracy.

## Latest In Satellite Based Positioning

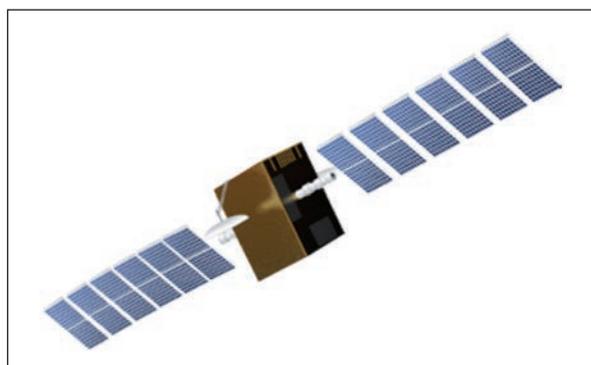
**G2 is a high performance navigation service combining the navigation satellites of both the American GPS constellation and the Russian GLONASS constellation, to produce a composite GPS/GLONASS position solution.**

The G2 service utilises OmniSTAR's global network of dual system reference stations to calculate 'orbit and clock' errors on a satellite by satellite basis for all 50 of the GPS/GLONASS satellites. From this G2 can provide consistent decimetre level accuracy positioning on a world wide basis OmniSTAR G2 corrections are now available globally on all of OmniSTAR's high power broadcast channels.

## Benefits of G2

G2 is the first real-time, precise, orbit and clock solution developed by a commercial company for GLONASS and also the first combined orbit and clock GPS/GLONASS solution from any real-time source.

- Reduces the effects of partial obstructions; these can occur during a survey of a dense urban environment.
- Reduce the effects of satellite interference that can occur during ionospheric disturbances.
- Increased stability. Being a dual frequency phase position solution the resulting computed position solution is extremely stable making it very suitable for position relative applications such as machine guidance.
- The 'orbit and clock' correction source is totally independent from those used for XP, being generated from an OmniSTAR owned and operated "Orbits & Clocks" monitoring network. G2 and XP offer OmniSTAR customers a fully redundant positioning solution using two independent correction sources.



American GPS constellation satellite.



Russian GLONASS constellation satellite.



Airborne geophysics using OmniSTAR G2.

# OmniSTAR G2

## Traditional DGPS Positioning

**In traditional differential GPS a reference station is located at a known point and differential (DGPS) corrections are computed by differencing the measured range against the computed theoretical true range.**

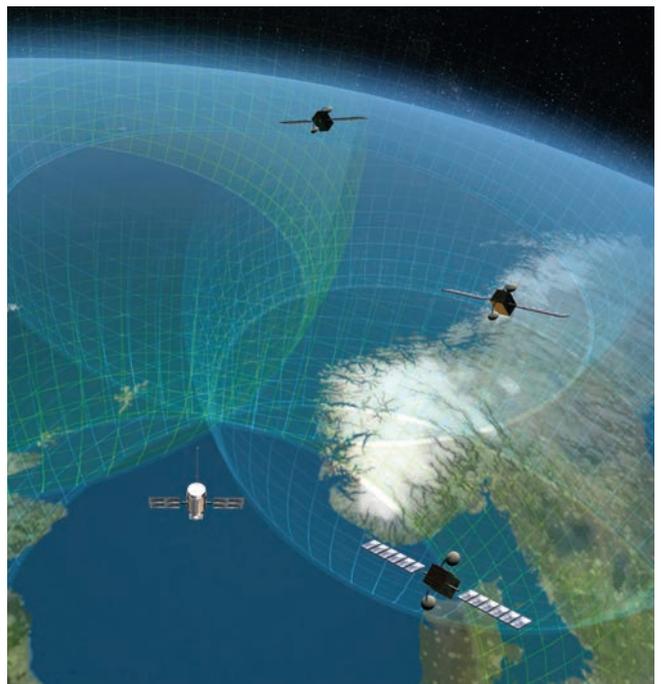
This differential correction combines the effects of satellite, space, and local atmospheric errors. These corrections are then transmitted to mobile user equipment; because the mobile is local to the reference station the errors are considered common by both reference and mobile.

## How is G2 different?

**OmniSTAR G2 is an 'orbits & clocks' dual frequency phase solution. OmniSTAR G2 satellite orbit and clock corrections are used with the computed ionosphere delay and the modelled troposphere delay - all these errors are then removed and a position solution calculated. This technique is known Precise Point Positioning (PPP) or 'state space' positioning.**

Differences between observed and broadcast satellite orbit and clock corrections are computed for each GPS and GLONASS satellite in real-time from the analysis of satellite observation data from a global network of GNSS monitor stations; these computed corrections are formed into messages and broadcast to the user equipment from OmniSTAR geostationary satellites.

OmniSTAR G2 'Orbits & Clocks' corrections in conjunction with OmniSTAR compatible GNSS receivers provide users with better than 20 cm position solution accuracy anywhere on the globe where OmniSTAR satellite correction broadcasts can be received.



### OmniSTAR

Vlietweg 17h  
2266 KA Leidschendam  
The Netherlands

Phone : +31 (0) 70 317 0900  
Fax : +31 (0) 70 317 0919  
Email : info@omnistar.nl