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.
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.