

# OmniSTAR 8300HP™ System



**OmniSTAR-HP is the wide area GPS augmentation system that provides High Performance positioning for the land based user. OmniSTAR-HP brings a wide area solution by using GPS carrier phase data and the elimination of modelled errors.**

The OmniSTAR 8300HP receiver brings customers low maintenance, cost efficient L-Band technology capable of decimetre-level accuracy autonomously with subscription to OmniSTAR's HP service but can also achieve submetre-level accuracy with a subscription to OmniSTAR's Virtual Base Station (VBS) service.

The device incorporates many features for flexible operation, including three bi-directional COM ports, a rugged enclosure, access to strobe signals and field-upgradeable software.

#### **OmniSTAR HP service**

OmniSTAR High Performance or OmniSTAR-HP is the latest dual frequency GPS augmentation service in the OmniSTAR family of network GPS solutions. OmniSTAR-HP provides robust and reliable decimetre level GPS solutions for many applications in addition to Survey, Aviation and Agriculture. Fugro, the parent company of OmniSTAR, is the first to deliver a wide area network DGPS solution with true decimetre positioning accuracy (95%). The Fugro organisation has many years of experience with wide area GPS solutions, including high precision short range Real Time Kinematic On-the-Fly GPS (RTKOTF) technology.

GPS user accuracy is limited by how well the different error sources are known at the user location. Standard DGPS techniques typically combine all errors (orbit, ionosphere, troposphere, clock and multipath) into single range (Prc) and range rate (Rrc) terms. As long as the reference and user GPS receivers see the same errors, then positioning information for the user will be very accurate.

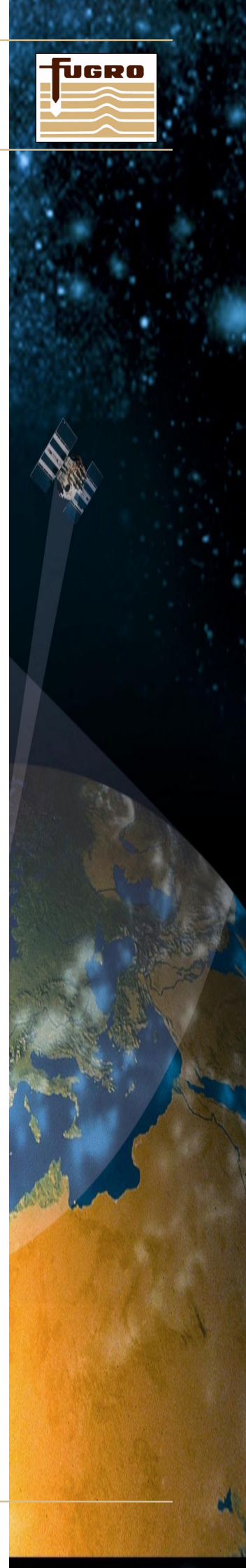
However, as the distance between the user and reference station increases, the effects of error decorrelation become significant, increasing the position error observed by the user.

Dynamic tests showed that in motion OmniSTAR-HP produced comparable results with static tests. By using dual frequency GPS receivers we can measure the true ionosphere at the reference and user locations, eliminating this error.

When we use this ionosphere free measurement with information contained in the receiver carrier phase data in an intelligent way, we are able to create wide area positioning results of unmatched accuracy and performance.

**OmniSTAR-HP provides decimetre level horizontal positioning at over 1000 km.**

OmniSTAR-HP service accuracy has been demonstrated as better than 10 cm, 95% in the horizontal plane (X, Y) and a vertical accuracy (Z) of 20 cm, 95% (2DRMS). Truly High Performance!



**Applications**

- GIS
- Agriculture
- UAV/ Remotely operated vehicles
- Photogrammetry
- Cadastre
- Pipeline, cable or fibre optic laying
- Inshore dredging
- Avionics testing
- Pre-survey tool
- Seismic survey
- Crane Monitoring
- Mooring
- Marine

**Specifications**

**Frequencies**

Automatic Scanning: 1525 MHz to 1559 MHz

**Environmental**

Operating Temperature: -40° to +75°C  
 Storage Temperature: -40° to +90°C  
 Humidity: Not to exceed 95% non-condensing

**Data inputs & outputs**

Serial Ports: 3 x RS-232  
 Data Rates: 300 to 921,600 bps  
 Strokes: 1PPS, marker input  
 Measurements: 5Hz (10-20Hz option)  
 Position: 5Hz (10-20Hz option)  
 Outputs Message: NMEA format  
 PALM, GGA, GGARTK, GLL,  
 GRS, GSA, GSV, RMB,  
 RMC, VTG, ZDA.

**Connectors**

Com1: 6 pin switchcraft EN3  
 Com2: 7 pin switchcraft EN3  
 Com3: 8 pin switchcraft EN3  
 Antenna: TNC female, 50Ω 5V  
 Power: 2 pin switchcraft EN3

**Power**

Power Supply: +7 to 15 VDC  
 Power Consumption: 5 W typical

**Position Accuracy**

HP:  
 Horizontal 0.10m 2DRMS  
 Height 0.20m 2DRMS

RTK (with base and radio link): optional  
 RT2 1cm + 1ppm

**Dynamics**

Velocity Accuracy: 0.03 m/s RMS  
 Acceleration: 4g  
 Velocity: 515 m/s max  
 Height 18,288 m

**Physical Characteristics**

	<b>8300HP</b>
<b>Weight: (kg)</b>	1.1
<b>Display</b>	None
<b>Size (mm) (L x W x H):</b>	180 x 154 x 71
<b>Control:</b>	No buttons No Power Switch

**OmniSTAR B.V.**

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