

Seatex DPS 700 with SeaSTAR HP, XP and G2 engine

A High Performance Differential GPS/GLONASS Position Reference System

The DPS 700 Position Reference System is a no-compromise DGPS/DGLONASS solution consisting of high performance software and hardware, tailored to applications demanding extremes of reliability, accuracy and autonomous integrity monitoring. DGPS/DGLONASS corrections from a wide variety of different service providers may be used simultaneously to take full advantage of multiple reference stations.

Ultimate positioning solution for Brazil offshore operations

The DPS 700 System benefits from the many integration and expansion options in the DPS series and is incorporating the best of the solutions you find in DPS 132/232 and DPS 200.

The combination of the complementary qualities of DPS 132/232 and DPS 200 into DPS 700 gives the best possible solution to the high ionospheric activity level in equatorial regions. The quality are:

- Removing ionospheric delay by utilising dual frequency GPS data (DPS 132/232)
- Improved satellite coverage by using data from both GPS and GLONASS satellites (DPS 200)

DPS 700 both removes ionospheric delay and offers improved satellite coverage by an optimum combination

Incorporation of DPS 200 flexibility

The unique DPS 200 has a built-in, real time quality control system that autonomously monitors the quality of the calculated position. This is in accordance with requirements in the UKOOA standard for offshore positioning accuracy and reliability.

The capability of the DPS 200 in this regard is greatly enhanced compared to traditional DGPS systems because of the increased numbers of satellites available using a combined GPS/GLONASS constellation.

Incorporation of DPS 132/232 capability for removing the Ionospheric Effects

Sunspot cycle 24 will reach it's peak in 2012 and this will affect the accuracy at DGPS systems.

The effect is specially noticeable in areas close to the magnetic equator and in polar regions.



Accuracy degradation of 15-20 m has already been observed. The DPS 132/232 is capable of combining code and carrier phase measurements from both GPS frequencies. This will increase the accuracy significantly in non-differential mode, and when ionospheric corrections are available from one or more reference stations.

DGPS/DGLONASS corrections from multiple Reference Stations

Differential corrections for GPS and GLONASS should be received from several reference stations in order to increase the reliability and accuracy and to fully utilise the unique MULTIREF capability included in DPS 700 HP.

This results in a primary position with improved quality compared to a traditional DGPS solution. Simultaneous reception and use of correction signals, including ionospheric corrections, from the nearest 12 reference stations will be used to calculate the vessel position.

Access to data from dual-frequency reference stations will nearly remove the influence of ionospheric effects. The correction signals used can be either transmitting in MF-bands (IALA radio beacon) and UHF frequency bands. (Petrobras Ref. Stations) or via satellite links like Inmarsat Standard A, -B or -M terminals and Spotbeam.

The position processing by our MULTIREF software included in DPS 700 HP will provide quality control and integrity monitoring in order to achieve the high-est possible position accuracy.

About Multiple Reference Stations benefit

In the context of ionospheric compensation two types of DGPS reference stations exist - those capable of using dual frequency measurements for estimating the ionospheric delay, and those that cannot. Including and combining corrections from both, an optimum position solution can be calculated. The clue is to increase the weight of the L1/L2 frequency reference station relative to the stations using the L1 frequency only. It is well known that the ionosphere disturbance may knock out reference stations sparated by a few hundred km rarely are knocked out simultaneously. With continues use of multiple station data, the ionospheric effect will be removed. An unlimited number of reference stations will be held in our calculations to provide an optimal DGPS/DGLONASS position.

Features

- GLONASS enhanced reliability, accuracy, availability and integrity.
- 24 channel "all-in-view" receiver
- Modular software and hardware provides flexibility for a wide variety of applications.
- On-line monitoring and display of quality data
- Graphical user interface
- Lever arm compensation
- UKOOA compliant
- More resistant to satellite shading
- 12 channel GPS, L1&L2
- Compensation of ionospheric delay in DGPS mode
- Multiple Reference Stations
- Multipath mitigation
- Target monitoring
- Gyro interface and lever arm compensation
- Tailored for DP operations
- Accuracy with HP 10 cm Horizontal
- Accuracy with HP 15 cm Height

Target monitoring

The DPS 700 HP includes a target-monitoring feature that provides a graphical display of vessel position relative to a desired target and associated quality information. Three circular position limits may be defined along with various visual and audible alarms.

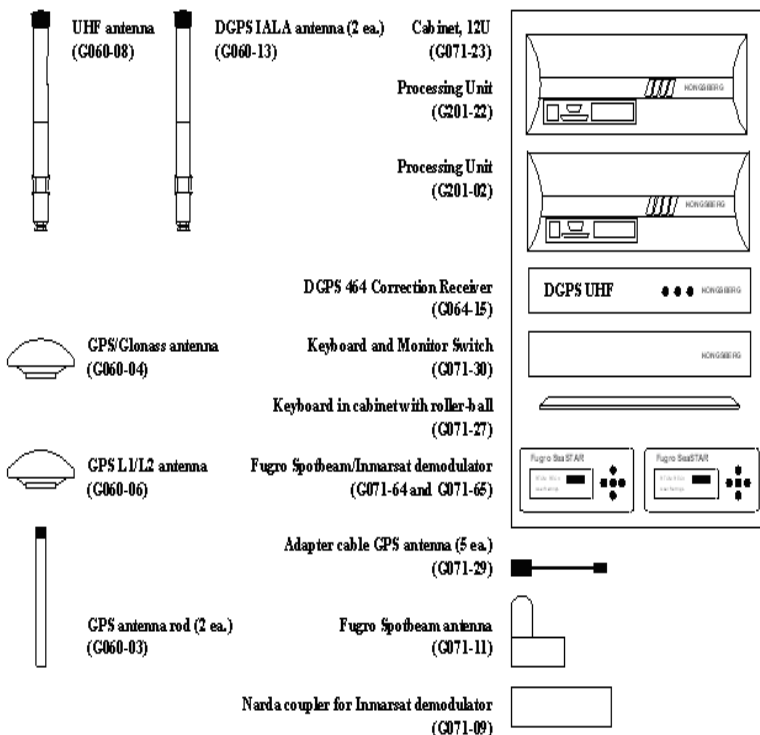
Technical Specifications

Cabinet (height 12U)
Overall dimensions: H-65, W-55, D-60 cm

Including:

- One DPS 200
- One DPS 132/232
- One DGPS UHF 465
- One Demodulator for Inmarsat
- One Demodulator for Spotbeam corrections, Keyboard/mouse and videosplitter.

Components Diagram DPS700



Further information

Complete technical information on a specific model type or peripheral hardware can be obtained from Fugro Seastar AS:



Fugro Seastar AS

Hoffsveien 1C
P.O.Box 490, Skøyen
N-0213 Oslo, Norway
Phone: +47 21 50 14 00
Fax: +47 21 50 14 01
Email: seastar@fugro.no
Web: www.fugroseastar.no