View8400 Software User's Manual

Monitoring and configuration software for the OmniSTAR 8400HP receiver



Issue 2, June 2005

Notice to Customers

This manual has been produced to provide instructions how to use View8400 version 1.2.2 software with your OmniSTAR 8400HP receiver. The manual has been clearly set out with simple instructions to ensure trouble free usage of the software.

This publication could contain technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the manual.

REVISION HISTORY						
Issue 1.0	August 2004	First Issue				
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Manual Reference: View8400 User's Manual

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Introduction

About This Manual

This manual has been produced to allow the typical user to easily control the OmniSTAR 8400HP from your PC.

Requirements

A windows 9X/ME/NT/2000/XP based PC with one RS232 COMM. Port is needed for the View8400 software.

Installation

Double click on the View8400 setup.exe file.

Follow the on screen instructions to install the View8400 software.

Starting the View8400 software

Connect the 8400HP to the computer

Before using the software the HP port of the 8400HP must be connected to the serial port of the PC via the serial cable that was provided with the 8400HP.

The View8400 software only works properly when connected to the HP port of the 8400HP.

Version 1.2.2 of the View8400 software can optional connect to the 8400HP with two serial ports, one for the HP port and one for the GPS port.

Start up the View8400 software

Click on the Windows Start button and select Programs -> OmniSTAR -> View8400 and click on View8400.

If you've chosen a different location for the software during the installation than go to that location to start up View8400.



osition			Subscription Details			_10
ition (dd.ddddf) Position (dd Date / Time	^g mm.mmmmi) Position (dd ^g mm'	**.****") ECEF	VBS Start date and time	Information Received	Warnings Needs Update	Г
nitude (dd ddddddaf)	Congitude (ddd dddddddf)	Altitude (n)	Expisy date and time	Almanac F Position F Time F	Expired Out of Region Wet Error Link Error	
elocity Lat (m/s)	Velocity Lon (m/s)	Velocity Height (m/s)	Time left (s)		CITIC TO	
TD dev of Latitude (m)	STD dev of Longitude (m)	STD dev of Height (m)	HP Start date and time	Stations used in HP solution	Warnings Needs Update	Г
umber of L1 Observations :	Number of L2 Observations	PDOP	Expiry date and time	Information Received Mapping message	Expired Out of Region Wet Error	Ē
ge of Data (sec)	Mode		Time left (s)	Epheneris F Measurements F Poston F	Datums Ellipsoids Global beams	
			Solution status	Velocity Solution fully converged	Satelites Static initialisation	F
GPS Correction Satellite	Status		Firmware Version	DX GPS Satel	lites	_10
cina negativy (nz)			Receiver model Ser	al number PRN EL	AZ CA P1 P2	TCS
ctual symbol rate	Signal quality	Antenna voitage (voits)	Firmiware version RAJ	4 size		
ervice ID	Bit Error Rate	Antenna current (mA)	VBS version HP	version		
	Unique word					

Once the program has started you'll see the following screen.

Figure 1 Main screen after start up

Connect View8400 to the 8400HP

From the main screen menu (see figure 1) click File -> Connect. The Select Com Port window will pop-up (see figure 2).

Select the serial port of the PC the 8400HP is attached to and configure the port using the Configure button. If you have two serial cables it is possible to use the 'Use two com ports' option.

The most common setting for the communication is 115200 baud, 8 data bits, 'N' parity and 1 stop bit for both the HP and the GPS port (port A).

After clicking OK from the Select Com Port window the program returns to the main screen and the labels should be filled with information from the receiver (see figure 3).

If you check "Auto connect at next start up" View8400 will automatically connect on the next start up using the last used Com settings.



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Select Com Port							
V U	se two com p	Configure HP					
HP	1	•	 Con	figure GPS			
GPS	2	•					
	Baud Rate:	Data Bits:	Parity:	Stop Bits:			
HP	115200	8	N	1			
GPS	115200	8	N	1			
Autoconnect at next start up							
C	OK Cancel						

Figure 2 Select Com Port window

osition			X Subscription Details							
ition (dd.ddddf) Position (dd ^e mm.mmmm") Position (dd ^e mm'	88.8888"] ECEF	< VBS							_
Date / Time -	16/Jun/2005 14:08:09	Althude (n)	Start date and time Not applicable Expity date and time [16/Jun/2006_00.00.00	Information Rec Remote Sites Almenac Position Time	eived	रा दा दा द	War Nee Expi Out Wet	nings ds Update ed of Region Error		
52.09643674	E 4.40614774	55.684	Time left (s)	-			Unk	Entor		
elocity Lat (m/s)	Velocity Lon (m/s)	Velocity Height (m/s)	Not Applicable							
			HP Start date and time	Stations used in	HP soluti	ion	a r-Wa	nings		
TD dev of Latitude [m]	STD dev of Longitude (m)	STD dev of Height (m)	Not applicable	521,571,431,40	0	_	Nee	ti Update		
.031	0.031	0.046	Expiry date and time	Information Rec	eived		Out	ed of Region		
umber of L1 Observations	Number of L2 Observations	PDOP	[16/Jun/2006 00:00.00	Stations	~	4	Wet	Error		
	6	2.78	Time left (s)	Ephemeris Measurements			Data	ms		E.
on of Data (sec)	Mode		Not Applicable	Position		P	Elips	oid: al haama		- 21
0	HP		Solution status	- Velocity		4	Sale	Res initializat	ion.	
			prosy converged	Solution fully con	werged	P				14
GPS Correction Satellit	e Status		Erroware Version	_DX	Tops	Satel	ites			يلد ر
535152998.532	> 30.0	nomal	Beceiver model 5	erial number	27	EL 63	AZ 0	A P1 9 34	92 34	CO CO
ctual symbol rate	Signal quality	Antenna voltage (volts)			10	57	296 4	6 32	32	50
438.213	14.9	6.2	1.0 Jun, 10, 2005 p1 2	AM 5020 D48	2	30 33 11	234 4	4 31 0 15	31	60
ervice ID	Dit Error Rate	Antenna current (mA)	-VPC until a H	P unuine	23	5	04 4	0 17	10	61
685	p	49.1	1.51	P Fittware v. nns.37			200 4		200	

Figure 3 Main screen after connection



Checking the status of the 8400HP

Position window

The position window (see figure 4) provides the current position of the antenna connected to the receiver.

It also provides the date and time, velocity, standard deviation values, PDOP value, Age of Data of the OmniSTAR correction signal, number of L1 and L2 observations and the positioning mode.

By clicking the tabs you can view the position in different formats.

Position		
Position (dd.dddd ^e) Position (d	d ^e mm.mmmm') Position (dd ^e mm'	ss.ssss") ECEF
Date / Time	06/Jan/2005 08:13:35	
Latitude (dd.ddddddd ^e) 52.0964302	Longitude (ddd.ddddddd ^e) 4.40609378	Altitude (m) 55.053
Velocity Lat (m/s)	Velocity Lon (m/s)	Velocity Height (m/s)
STD dev of Latitude (m)	STD dev of Longitude (m) 0.055	STD dev of Height (m)
Number of L1 Observations	Number of L2 Observations	PDOP 3.88
Age of Data (sec)	HP	

Figure 4 Position window



DGPS correction satellite status window

The DGPS correction satellite window (see figure 5) provides detailed information about the status of the connection with the OmniSTAR satellite.

DGPS Correction Satellite	e Status	
Actual frequency (Hz)	Eb/No (dB) 9.7	Antenna status
Actual symbol rate	Signal quality 13.8	Antenna voltage (volts) 5.3
Service ID	Bit Error Rate	Antenna current (mA)
	Unique word	

Figure 5 DGPS correction satellite status window



Subscription details window

The subscription details window (see figure 6) provides the OmniSTAR VBS and OmniSTAR HP subscription information.

Subscription Details			
VBS Start date and time Not applicable Expiry date and time J06/Jun/2006 00:00:00 Time left (s) Not Applicable	Information Received Remote Sites F Almanac F Position F Time F	Warnings Needs Update Expired Out of Region Wet Error Link Error	
HP Start date and time Not applicable Expiry date and time [06/Jun/2006 00:00:00 Time left (s) [Not Applicable Solution status [Fully Converged]	Stations used in HP solution 521,480,571,431 Information Received Mapping message Stations Ephemeris Measurements Position Time Velocity Solution fully converged	Warnings Needs Update Expired Out of Region Wet Error Link Error Datums Ellipsoids Global beams Satellites Static initialisation	

Figure 6 Subscription details window



Firmware version window

The firmware version window (see figure 7) provides the receiver model, serial number, RAM size and firmware versions.

Receiver model 8400HP	Serial number
Firmware version	RAM size
1.0 Jun,10,2005 p1	2048
VBS version	HP version
1.51	HP Firmware v. 1/ 00637

Figure 7 Firmware version window



GPS Satellites window

The GPS Satellites window (see figure 8) provides the PRN number, elevation, azimuth, C/A carrier to noise ratios, P/L1 carrier to noise ratios, P/L2 carrier to noise ratios, time since last loss-of-lock and satellite navigation status of the GPS satellites in view.

i GPS	GPS Satellites							
PBN	EL	AZ	CA	P1	P2	TC	SS	
9	43	134	46	28	28	157	0	
24	21	72	45	21	21	67	0	
4	21	70	45	20	20	13	0	
1	19	322	40	13	13	16	0	
30	61	260	51	34	34	144	0	
14	45	276	47	29	29	14	0	
5	84	68	50	33	34	224	0	

Figure 8 GPS Satellites window



Skyplot window

Click in the menu on View -> Skyplot to view the Skyplot window.

The Skyplot window (see figure 9) provides a skyplot of the GPS satellites in view and the OmniSTAR satellite. By clicking on the satellite icons the PRN, elevation, azimuth, C/A snr, P/L1 snr, P/L2 snr, and Nav. Status of the particular satellites will be shown.



Figure 9 GPS Satellites window



Scatterplot window

Click in the menu on View -> Scatterplot to view the Scatterplot window (see figure 10).



Figure 10 GPS Satellites window



Configure the 8400HP

Configure the OmniSTAR satellite service

From the main screen menu click Configuration -> DGPS service. The Select DGPS service window (see figure 11) will pop-up.

Select OmniSTAR as differential source and choose the right satellite for your region. To fill in a frequency and symbol rate manually choose Custom as the satellite.

Clicking OK will send the changes to the receiver. Clicking Cancel will discard them.

Select DGPS Service	×
Satellite Service:	
Differential source:	
OmniSTAR	•
Satellite:	
EA-Sat	•
Frequency (Hz):	
1535152500	
Symbol rate:	
2438	v
OK Ca	ncel

Figure 11 Select DGPS Service window



Configure the receiver ports

GPS board

From the main screen menu click Ports -> GPS -> Port A or Internal. If you have only one serial cable and do not use the 'use two com ports' option. A message box will pop-up saying to switch to receiver port A. This is because the port settings for the GPS board can only be changed through port A.

Switch to receiver port A and click OK. The Port settings window (see figure 12) will pop-up.

Clicking OK will send the changes to the receiver. Clicking Cancel will discard them. After this a message box will pop-up again saying to switch back to the HP port.

HP board

From the main screen menu click Ports -> HP -> External or Internal.

The Port settings window (see figure 12) will pop-up.

Clicking OK will send the changes to the receiver. Clicking Cancel will discard them.

Port A set	tings 🔀
Baud Rate:	115200 💌
Data Bits:	8 💌
Parity:	N
Stop Bits:	1 💌
ОК	Cancel

Figure 12 Port settings window

Note: The internal port of the GPS board communicates with the internal port of the HP board. These port settings should always be the same.



Configure the GPS receiver settings

From the main screen menu click Configuration -> GPS receiver settings. A message box will pop-up saying to switch to receiver port A. This is because these settings can only be changed through port A.

Switch to receiver port A and click OK. The GPS receiver settings window (see figure 13) will pop-up.

Clicking OK will send the changes to the receiver. Clicking Cancel will discard them. After this a message box will pop-up again saying to switch back to receiver port C.

T"	GPS receiver settings		×		
Г	GPS receiver parameters-		1		
	Positioning mode:	DGPS			
	DGPS max age (s):	300			
	Elevation mask (degrees):	5			
	PDOP mask:	30.00			
	Raw data management]		
	Raw update rate (ms):	100			
	Position update rate (ms):	100			
	GPS receiver options				
	Clear NVRAM				
	ОК	Cancel			

Figure 13 GPS receiver settings window



Configure the HP receiver settings

From the main screen menu click Configuration -> HP receiver settings.

The HP parameters window will appear (See figure 14).

HP Parameters	
Smooth mode:	
VBS seeding:	Ion 💽
Static initialisation:	Ion 💽
Autoscan search mode:	lon 💽
Frequency search span (KHz):	
Engine mode:	
OK	Cancel

Figure 14 HP parameters window

In the 8400HP manual an explanation of the different parameters is given.

Clicking OK will send the changes to the receiver. Clicking Cancel will discard them.



GPS receiver options

From the GPS receiver settings window click "GPS receiver options". View8400 will query the receiver and show the installed options in the GPS receiver options list (see figure 15).

GPS receiver options				_ 🗆 ×
Option name	Current	Purchased	Leased	Date 🔺
GPS	yes	yes	no	
GLONASS		no	no	
L1	yes	yes	no	
L2	yes	yes	no	
Cinderella	yes	yes	no	
Position update rate (Hz)	1	1	0	
Raw data update rate (Hz)	1	1	0	
Code differential Base	yes	yes	no	
Code differential Rover	yes	yes	no	
RTK Base	yes	yes	no	
RTK Rover (Hz)	1	1	0	
Memory (MB)	0	0	0	
Co-Op Tracking	yes	yes	no	
1PPS timing signal	0	0	0	
Event Markers	0	0	0	
In-Band Int. Rejection		0	0	
Multipath Reduction	no	no	no	
Frequency Input	no	no	no	
Freq. Lock and Output	no	no	no	
Serial Port A (Kbps)	460	460	0	
Serial Port B (Kbps)	0	0	0	
Serial Port C (Kbps)	460	460	0	
Serial Port D (Kbps)	0	0	0	
Infrared Port		yes	no	
Parallel Port		no	no	
Sp. Sp. Freq. Hop.		no	no	-
Print	Save	Lo	ad	Exit

Figure 15 GPS receiver settings window



Configure NMEA output

GPS port

From the main screen menu click Configuration -> NMEA output -> Port A. A message box will pop-up saying to switch to receiver port A. This is because these settings can only be changed through port A.

The Port A output window (see figure 16) will pop-up.

Clicking OK will send the changes to the receiver. Clicking Cancel will discard them.

Port A output		×
Message ID:	Period (s):	
🔽 GGA ——	-1	
🗖 GLL	-	
🗖 GRS ——	-	
🗖 GSA	-	
🗖 GST ——	-	
🗖 GSV	-	
🗖 ВМС ———	-	
🗖 VTG	-	
🗖 ZDA	-	
🔲 HP Debug		
ОК	Cancel	

Figure 16 Port output window



HP port

From the main screen menu click Configuration -> NMEA output -> HP port.

The HP Port output window (see figure 17) will pop-up.

At the moment of writing this manual it is only possible to output GGA, GSA and HP Debug data from the HP port.

Clicking OK will send the changes to the receiver. Clicking Cancel will discard them.



Figure 17 Port output window



Terminal mode

View8400 has a terminal mode, which can be used to send commands and text files to the receiver.

From the main screen menu click Configuration -> Terminal mode.

The terminal window (see figure 18) will pop-up.

The send button sends the command in the command combobox to the receiver HP port or the GPS port. If you do not use the 'Use two com ports' otion the commands can only be send to the HP port. With the Send text file button you can select a text file with several commands to send to the receiver. The close button closes the terminal window and returns to the main screen. The exit button terminates the whole program without returning to the main screen.

Terminal Terminal		×
Command		
	-	Send to HP
		Send to GPS
Answer		
		<u> </u>
Clear screen Send text file	Exit	Close

Figure 18 Terminal window

