Gemini Profiler with Survey Software

EIVA NaviScan

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Help & Support

First please read this manual thoroughly (particularly the Troubleshooting section, if present). If a warranty is applicable, further details can be found in a Warranty Statement at the end of the manual.

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- 3. A clear fault description.
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Contamination

If the product has been used in a contaminated or hazardous environment you *must* de-contaminate the product and report any hazards *prior* to returning the unit for repair. *Under no circumstances should a product be returned that is contaminated with radioactive material.*

The name of the organisation which purchased the system is held on record at *Tritech International Ltd* and details of new software or hardware packages will be announced at regular intervals. This manual may not detail every aspect of operation and for the latest revision of the manual please refer to <u>www.tritech.co.uk</u>

Tritech International Ltd can only undertake to provide software support of systems loaded with the software in accordance with the instructions given in this manual. It is the customer's responsibility to ensure the compatibility of any other package they choose to use.

Warning Symbols

Throughout this manual the following symbols may be used where applicable to denote any particular hazards or areas which should be given special attention:



Note

This symbol highlights anything which would be of particular interest to the reader or provides extra information outside of the current topic.



Important

When this is shown there is potential to cause harm to the device due to static discharge. The components should not be handled without appropriate protection to prevent such a discharge occurring.



Caution

This highlights areas where extra care is needed to ensure that certain delicate components are not damaged.



Warning

DANGER OF INJURY TO SELF OR OTHERS

Where this symbol is present there is a serious risk of injury or loss of life. Care should be taken to follow the instructions correctly and also conduct a separate Risk Assessment prior to commencing work.

1. Introduction

In order to be used as a bathymetric survey system the Gemini Profiler will be used in conjunction with additional software. Details are presented here for the EIVA NaviScan software package.

The basic principle of operation is that the Gemini Software communicates with the sonar head and then sends out data in a compatible format to the survey software. Usually the survey software is installed on a separate computer and they are connected via a network link.



Note

For more details of the software and after sales support for NaviScan please contact your sales representative or visit the EIVA website at <u>www.eiva.com</u>.

2. Hardware Setup for EIVA NaviScan

It will be necessary to run the Gemini Profiler off one computer and the EIVA NaviScan software on another computer. The two computers will be connected through an Ethernet LAN.

The survey system should be connected as follows:



Figure 2.1. EIVA NaviScan Hardware Configuration

3. Configure the Gemini Software

To set the Gemini software for use with a survey computer running EIVA NaviScan it will be necessary to configure the data output over an Ethernet port. The computer running the Gemini software will essentially be connected to two LANs, one for the Gemini Profiler head(s) and the other for the connection to the survey software.



Note

The computer running the Gemini software and the computer running the NaviScan software should be assigned IP addresses within the same subnetwork.

The network settings for the connection to NaviScan are located in the section titled Set up network data output in the Digitisation section of the Advanced tab (as shown in Figure 3.1, "Gemini Software Digitisation Settings"). The Format should be set to Tritech and the Hostname set to the IP address of the computer which is running NaviScan.

Set up network data	output
Hostname	192.168.1.123
Port	52905
Format	Tritech
Sample Rate	30000

Figure 3.1. Gemini Software Digitisation Settings

Once the network has been properly set it will be necessary to configure the Hub Setup so that the data from auxiliary sensors is passed through correctly.

In the Hub Setup tab ensure that the time synchronisation is set to GPS and the network data output is Framed.

i	Enable Comms	Hub ID	498	3					
Port	Mode	Sync	Baud	Decode	Max	Age	Hz	String	
A	ASCI	<cr></cr>	9600	TSS Std 1	2		0.0		
8	ASCI	<cr></cr>	19200	GPGGA ZDA	2		0.0		
С	Echo Port B	a 26.							
D	ASCI	<cr></cr>	9600	Speed of Sound	2		0.0		
E	ASCI	<cr></cr>	9600	HEHDT	2		0.0		
F	ASCI	<cr></cr>	9600	<none></none>	2		0.0		
G	ASCI	<cr></cr>	9600	<none></none>	2		0.0		
Н	ASCI	<cr></cr>	9600	<none></none>	2		0.0		
Pulse-	Per-Second (PPS)	Edge		Positive edge	2				
Time S	ynchronisation			GPS					
Netwo	ork data output			Framed					
				\	_				

Figure 3.2. Gemini Software Hub Setup

4. Configure EIVA NaviScan

In order to set up the Gemini Profiler it will be necessary to launch the NaviScan Config dialog. Each of the steps outlined below are performed with this dialog as a starting point.

4.1. The Gemini Profiler

From NaviScan Config click on Equipment→Add sensor.



Figure 4.1. NaviScan Config

Next, select the Echosounder option.

Echosounder
Sidescan
Position
Gyro
Motion sensor
Bathy
Auxiliary
Rawdata
Pipetracker
Dopplerlog
GPS Time
Runline Control
Theoretical Profile
Pos filter

Figure 4.2. Select Echosounder

Choose TritechMbe for a single head system or TritechMbeDual for a dual head system and then click OK to proceed.

<search filter=""></search>	Q	41/4	11
COMPANY	INSTRUMENT	D	-
Reson	SeaBat S9001 R-Theta		
Reson	SeaBat S9002 R-Theta		
Reson	SeaBat 81xx		
Reson	SeaBat 81xx(2-Heads)		
Reson	Reson Seabat7K		
Reson	Reson Seabat7KDual		
Reson	Reson 7k RawDetect 7027		
Reson	Reson 7k RawDet 7027Dual		
Teledyne Odom	Odom Echoscan		
Teledyne Odom	Odom ES3		-
Teledyne Odom	OdomMB1		
Teledyne Odom	OdomMB1Dual		
Tritech	SeaKing Profiler		1.0
Tritech	SeaKing Profiler Dual head		-
Tritech	ST1000 Profiler		
Tritech	ST1000 Profiler Dual head		
Tritech	TritechMbe		
Tritech	TritechMbeDual		

Figure 4.3. Choose Single or Dual Head

The Port settings window will now appear. Set the Port type to **UDP/IP Port** and enter the IP Address and IP Port number of the Gemini computer that will be used for the connection (as configured in Chapter 3, *Configure the Gemini Software*).



Note

The example in Figure 4.4, "Echosounder Port Settings" shows a computer running the Gemini software that is configured to use an IP address of 192.168.2.100 on Port 52905 (the default communication port).

Port type No Port	IP Port / Tir	neBox	settings	0 10		F2005	
COM Port	Address	192 . Loca	168 .	2 . 100	J Port	52905	Connect
	COM Port s	ettings					
O ATTU	COM port	-	Baudra	te v	Parity None	Data bit	Stop bit
Capture	[Odd	8	02
Show settings					🔿 Even		
RawData							
isting available ports -	note ports open	ed by	NaviPac	, NaviScar	etc will not be	included	

Figure 4.4. Echosounder Port Settings

Click on Connect and the new sensor will be added into the NaviScan Sensor listing

🔀 NaviScan - NaviScan Config	Concession in the local division of the loca	
<u>File Equipment View Options Tools Help</u>		
	< 🕅 ?	
🖃 🛱 NaviScan.bin	System	TritechMbe
🖨 🛱 Geodesy	Max beams pr	6000
ProjEllip UTM (north) WGS 84	Head 1 setup	
TTRE	Port setup	UDP 52905 192.168.2.100
Echosounder	Mount offset X	0 m
TritechMbe	Mount offset Y	0 m
	Mount offset Z	0 m
	Mount roll	0 deg
	Mount pitch	0 deg
	Mount heading	0 deg
	Draft	0 m
For Help, press F1	1	NUM

Figure 4.5. NaviScan Sensor Listing

4.2. 3rd Party Sensors

To add in any 3rd party sensors to be used with the system such as GPS Position, Motion Sensor or Gyro Compass launch the NaviScan Config dialog and select Equipment→Add sensor.

Position Sensor over UDP

To add in a sensor that is connected via the UDP interface first select Equipment \rightarrow Add sensor:

Echosounder	
Sidescan	
Position	
Gyro	
Motion sensor	
Bathy	
Auxiliary	
Rawdata	
Pipetracker	
Dopplerlog	
GPS Time	
Runline Control	
Theoretical Profile	
Pos filter	

Figure 4.6. Choose Position Sensor

In the Port settings dialog that is present select the **UDP/IP Port** option and make sure the IP Address and Port match the computer running the Gemini Software (in the example shown, the Gemini computer is on IP 192.168.2.50 using Port 52905).

File Equipment View Options Tools Help	NaviScan.BIN - NaviScan Config	1	1 24			_	
Image: Construction Instr. type Image: Construction Image: Construction	File Equipment View Options Tools H	elp					
Inst. type NetScanbin Geodesy Geodesy Setting: TM (north) WGS 84 Setting: TMF is Mount offset Y Mount offset Y Om Mount offset Y Om Mount offset Y Om Pot settings Pot settings Pot type IP Pot / TimeBox settings Extra stancy Os Sing layout S-CGA, Hhmmes.s.R. For the ports opened by NaviPac, NaviScen etc will not be included Sing available ports - note ports opened by NaviPac, NaviScen etc will not be included Note: Note: Setting: Note: Setting: Note: Mount offset Y Om Mount offset Y Om Sing layout S-CGA, Hhmmes.s.R. Extra stancy Os Sing layout Setting: OK cancel Note: Note: Note: Note: OK cancel Note: </td <td></td> <td></td> <td>* ?</td> <td></td> <td></td> <td></td> <td></td>			* ?				
For Help press F1	Navišcan.bin Geodesy	Instr. type User def. name User def. name Mount offset X Mount offset X Mount offset Z Use time in tele UseFixedAge Extra latency End char String layout	NMEA GGA NMEA GGA UDP 52905 192.168.2. 0 m 0 m 0 m 0 m 0 s 10 5GGA, hhmmss.ss, ill.	50 Port settings Port type No Port CDM Port UDP/IP Port TCP/IP Port ATTU Capture Show settings Listing available ports - ne	IP Port / TimeBox settings Address 192 . 168 . 2 . 50 Coal COM Port settings COM port settings COM 3 * 9600 * ote ports opened by NaviPac, NaviS can e	Port 52905 Connec Parity Data bit Stop © None 7 © 1 0 Ode 8 2 Even 2 stc will not be included	
For Help press F1		ocieccipor c securigs					
	For Help, press F1	J				N	UM

Figure 4.7. Select and Configure UDP Settings



Note

For UDP connections, make sure the Network data output is set to Framed in the Gemini Software as shown in Figure 3.2, "Gemini Software Hub Setup".



Other Sensors

Repeat the steps outlined for the *Position Sensor over UDP* to connect all the other sensors required for the system (e.g., GPS, Motion Sensor and Gyro).

GPS Time Over Serial Connection

If desired, it is possible to connect serial sensors directly to the computer running NaviScan. An example is shown here using GPS Time data, but the steps can be followed for any relevant serial device.

Select Equipment→Add sensor:

Echosounder
Sidescan
Position
Gyro
Motion sensor
Bathy
Auxiliary
Rawdata
Pipetracker
Dopplerlog
GPS Time
Runline Control
Theoretical Profile
Pos filter

Figure 4.8. Choose GPS Time

Choose the GPS device that matches the equipment being used, e.g.,

<search< th=""><th>Filter></th><th>Q 5/5</th></search<>	Filter>	Q 5/5
:ОМ	INSTRUM	DATASTRING
Ashtech	Not used Ashtech	\$PASHR,PPS,dddddd <cr><ff></ff></cr>
NMEA	NMEA ZDA	\$xxZDA.hhmmss.hh,dd.mm.yyyy.xx <cr><ff></ff></cr>
QPS	Quinsy time	<sbc><cr>df>#T aaaa bbbbbbb<<cr>df></cr></cr></sbc>
Trimble	Trimble (PPS)	UTC yy.mm.dd hh.mm:ss ab <cr><ff></ff></cr>
		OK Cancel

Figure 4.9. Choose GPS Device Type

Then in the Port settings page configure the COM port connection for the incoming GPS data strings and click OK when finished.

Port type No Port	IP Port / TimeBox settings					
COM Port UDP/IP Port	Local					
CCP/IP Port ATTU Capture Show settings	COM Port setting COM port COM9	gs Baudrate 9600 ▼	Parity None Odd Even	Data bit ⑦ 7 ⑧ 8	Stop bit 1 2	
RawData GPZDA,152829.00,12 CTS> GPGGA,152831.00, GPZDA,152830.00,12 CTS> GPGGA,152832.00, GPZDA,152831.00,12 CTS>	2,08,2013,,*68 ,,0,00,00.0,,M,,M,,*5/ 2,08,2013,,*60 ,,0,00,00.0,,M,,M,,*5/ 2,08,2013,,*61	9				

Figure 4.10. Select and Configure COM Port

The GPS Time sensor will now be included in the NaviScan Config sensor listing as shown in Figure 4.11, "Naviscan Sensor Listing (showing GPS Time)". Make sure that PPS usage is set to CTS.

NaviScan - NaviScan Config		Contraction of the local division of the loc	- • • ×	
<u>File Equipment View Options Tools H</u> elp				
	< 🕅 ?			
🖃 🗠 🛱 NaviScan.bin	System	NMEA ZDA		
금 Ceodesy 현 ProjEllip UTM (north) WGS 84 현 Dtumshift WGS84 to ED87 (Northsea) to ED50	Port setup	COM9 9600 N81)	
	PPS usage	CTS		
	String layout	<pre>\$xxZDA,hhmmss.hh,dd,mm,yyyy,xx<cr><lf></lf></cr></pre>		
GPS Time				
For Help, press F1				





Note

The Time message and PPS (using CTS) must be connected over a serial connection directly to the NaviScan computer (see Figure 2.1, "EIVA NaviScan Hardware Configuration").

Glossary

Ethernet	A family of computer networking technologies for local area networks (LANs).	
Gemini	Unless specified this can refer to any of the multibeam sonars in the Gemini range by <i>Tritech International Ltd</i> such as the Gemini Imager (720id), Narrow Beam Imager or Gemini Profiler (620pd).	
Gemini Hub	A rack mountable device capable of driving 2 Gemini sonars and multiple serial sensors and outputting the data to a PC network.	
GPS	Global Positioning System.	
LAN	Local Area Network	
PPS	Pulse Per Second	
RS232	Traditional name for a series of standards for serial binary data control signals.	