Genesis

Software Manual

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Tritech

Outstanding Performance in Underwater Technology

A Moog Inc. Company

Table of Contents

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.

Part I

Introduction and Basic Operation

1. Introduction

Genesis is Tritech International's all in one software interface for controlling, displaying and recording data from its full portfolio of echosounder, mechanical scanning and multibeam sonars. It can also be used to record data from cameras, Bathymetric units and the MicronNav USBL system.

It boasts a modern, dynamic user interface with highly integrated features and builds upon decades of experience in providing an easy to use user interface for the wide variety of subsea sensors manufactured by *Tritech International Ltd*,

Devices can be dynamically added, configured and setup within the Genesis GUI. Genesis is available for Windows OS®, Linux and Apple OS.

Throughout the manual, the following symbols may be used:


A computer mouse


Left click of the computer mouse


Right click of the computer mouse


Scroll wheel of the computer mouse

These mouse actions assume the mouse has been set up for right hand orientation.

Information in this manual is correct at time of writing for Genesis v1.0.0.4.

Note

The Genesis software is currently under ongoing development.
Therefore some features, although visible, may be deactivated in released copies of the software.

Note

The latest version of software will always be available from the www.tritech.co.uk website: www.tritech.co.uk
If you have any suggestions, or bug reports please report them to: support@tritech.co.uk.

2. System requirements

In order to install and run Genesis to its full potential, the operating system should meet the following system requirements:

	Minimum	Recommended
Processor	2GHz	2GHz dual core
RAM	1GB	2GB
Graphics	3D hardware accelerated graphics card.	
OpenGL	Version 2.0 or greater	
Display	1280x1024 (32bit colour)	1600x1200 (32bit colour)
Disk space	Install is 200MB, greater than 500GB recommended for log files	
Serial	Hardware based, or USB converters for RS232 or RS485 communications.	
Networking	100Mbit·s^{-1} (fast Ethernet)	1000Mbit·s^{-1} (Gigabit Ethernet)

Note

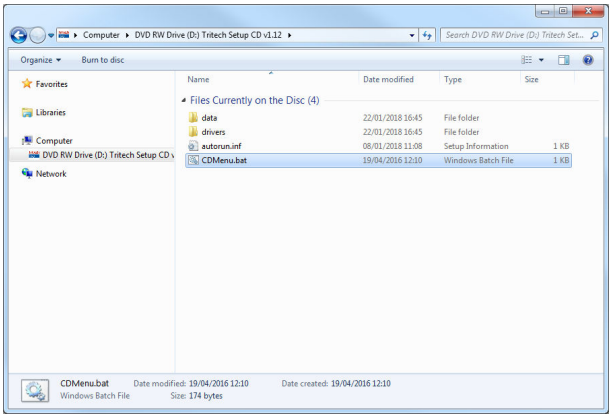
Genesis uses the OpenGL graphics library to display data from several of the supported hardware devices, so it is important that the computer being used has had all the latest updates for its graphics drivers installed.

3. Installation

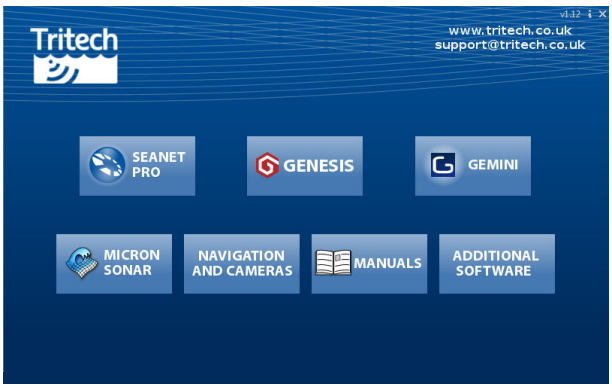
Genesis is provided with each purchase of *Tritech International Ltd* equipment on either CD-ROM or USB memory sticks. It can also be downloaded from the *Software Support* section of the Tritech website - www.tritech.co.uk.

Place the installation media into your computer and, after a short delay, the Installation Menu should be displayed.

If the Installation Menu does not appear, open the installation media and double click on the `cdmenu.bat` file. This will force the Installation Menu to open.



The Installation Menu allows you to install Genesis directly by clicking on the Genesis button. It also gives you access to older versions of software, as well as a full repository of *Tritech International Ltd* product manuals.



Once installed, run Genesis from the desktop shortcut icon with a double .

4. Basic Operation

When first run, Genesis will display its default screen, as shown below with the various on screen elements highlighted.

1. Data Display Area, or `View`
2. Drop Down Menus
3. Log File Controls and Data Tools
4. Device Bar
5. Online Control
6. Device Control
7. Settings
8. System Date Time
9. Co-ordinates

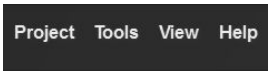
4.1. Data Display Area

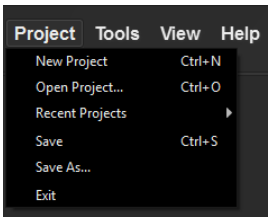
Genesis is capable of displaying data from multiple devices as well as multiple copies of data from the same device.

Data from devices are shown in a `View`. This `View` can be moved and zoomed while data is being recorded and displayed on screen.

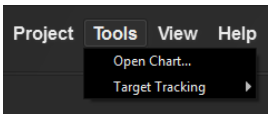
4.2. Drop Down Menus

The Drop Down Menus offer a constant selection of options that can be used to affect the onscreen operation of Genesis.

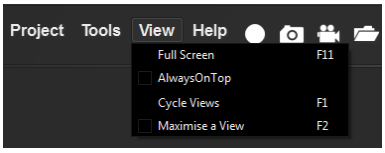




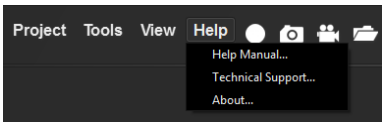
New Project clears the current view and removes all devices
Open Project loads a previously saved project and will attempt to use its devices and view settings
Recent Projects displays a list of the most recently saved projects for quick retrieval
Save will store the current Device and View settings into the current Project file
Save As will store the current Device and View settings into a user selectable Project file
Exit will close Genesis



Open Chart will allow the user to open navigational charts as an overlay onto the `View`. This feature is not currently available.
Target Tracking will allow you to select one of the available methods for identifying and tracking targets. This feature is not currently available.

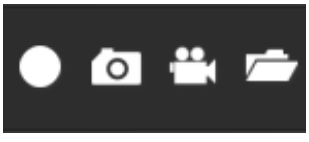


Full Screen enlarges the program window to cover the whole screen
Always On Top ensures the program always has the main focus onscreen
Cycle Views will cycle the devices views onscreen when multiple devices are in use
Maximise a View will take the active device and enlarge its view to fill the main screen



Help Manual launches the embedded help file
Technical Support displays details on contacting *Tritech International Ltd* for technical assistance
About displays details about the running version of the software

4.3. Log File Controls



The **Record** button begins the recording of a log file within Genesis. See Section 4.8, “ Settings ” for details on additional settings.

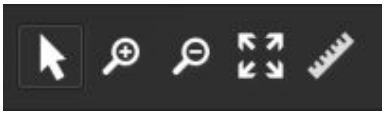
The **Snapshot** button saves the current onscreen display in a picture file. See Section 4.8, “ Settings ” for details on additional settings.

The **Video** button creates a video capture file, recording the display of the Genesis program. While recording log file data (via the **Record** button) it is usually best practice not to utilise the **Video** function, as it may affect the speed of actual data collection. See Section 4.8, “ Settings ” for details on additional settings.

The **Open Log File** button will allow you to replay previously recorded data. See Chapter 6, *Replaying Data* for more details.

4.4. Data Tools

The Data Tools let you manipulate the display of data within Genesis.



When **Select** is chosen, you will be able to move the data display around by holding  . Changing position with this method will not affect any offset position set within the devices positioning tab.

The **Zoom** buttons will zoom the data display in or out according to the button pressed. The same function can be achieved by scrolling the  up or down.

The **Reset** button will revert the active `View` back to its initial layout. For a single unit, this would usually mean the data display is centered within the screen.

Resetting the `View` will allow Genesis to automatically scale the display to accommodate the range setting chosen by the user.

Measurement allows you to perform simple point to point measurement on screen. The measurements taken will depend on the particular `View` active within Genesis. For example, a Sonar `View` would report measurements in terms of range and bearing.

4.5. Device Bar

The **Device Bar** displays all the devices added to Genesis, as well as ones that have been automatically detected.

4.6. Online Control

The Online Control button activates any configured devices, showing their data onto the relevant `View`.

By default, the Online Control is not active. Devices can be added to Genesis and will not update their `View`.

When  , the Online Control will be highlighted. Any configured device will be activated and their `View` updated with the appropriate incoming data.

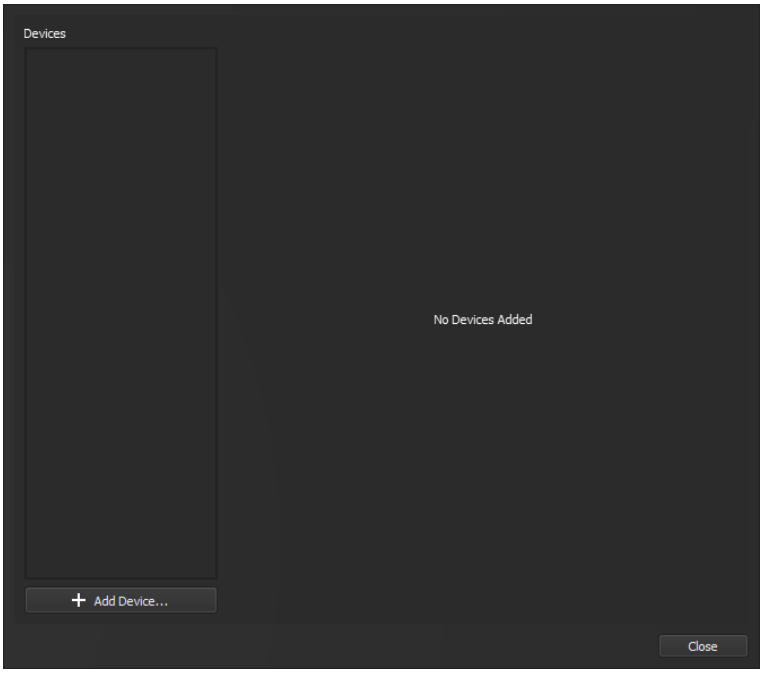
A second  will deactivate all devices.

4.7. Device Controls

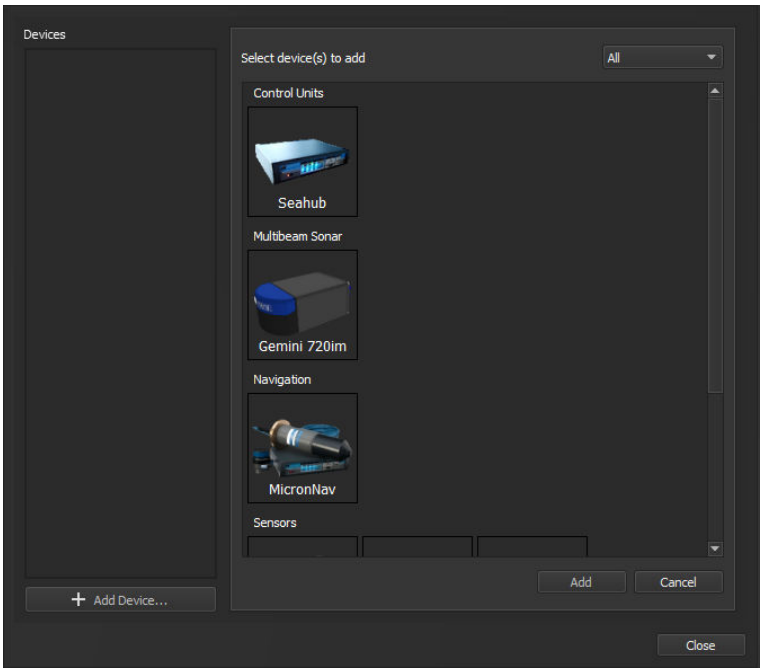
Devices allows you to add and configure devices in Genesis

4.7.1. Adding a Device

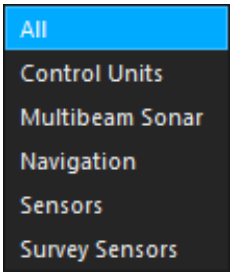
To add a device to Genesis, use the Devices button to open the Devices Panel.



Click on the Add Device button to show the available devices.

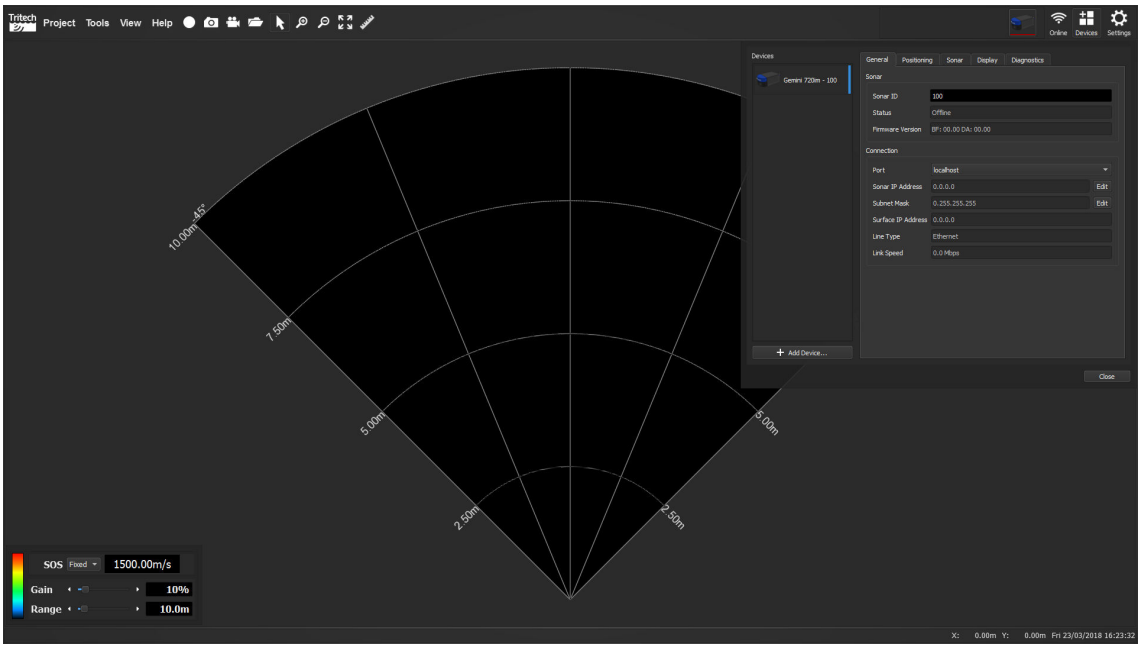


A filter option located at the top right of the panel that will help narrow down the list to only the type of devices that you wish to see.

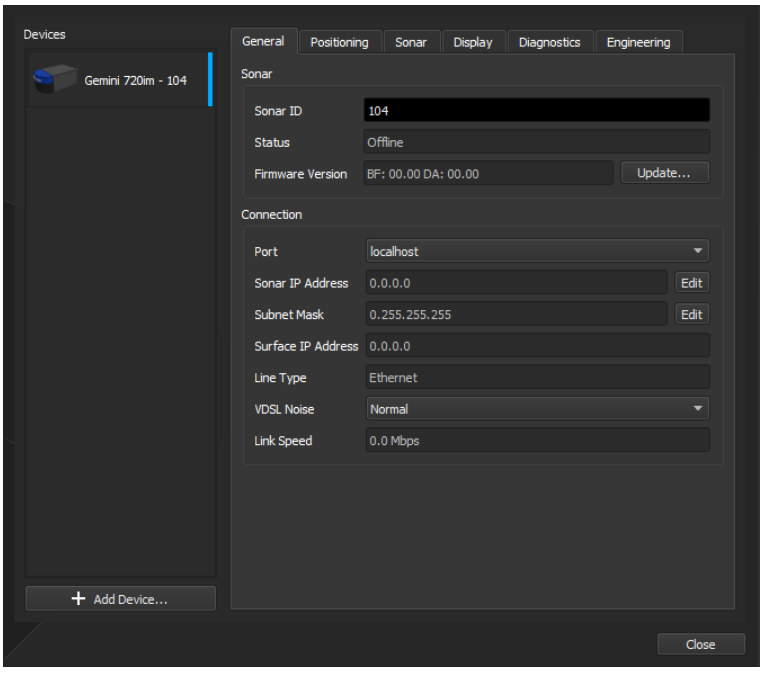


In the following example, a Gemini 720im is being added.

Immediately upon the 720im being added, Genesis will update the `View` to include the new device, whilst leaving the Devices Panel open.



The Devices Panel displays the various properties for the newly added Device.



As the properties for each Device depends on its function, these will be detailed in later sections of this manual.

4.7.2. Identifying a Device

When multiple devices are being used in Genesis, the Device Bar will show a graphic for each one. To identify a particular unit, hover the mouse over the graphic and a pop up will appear with the identity of that unit.

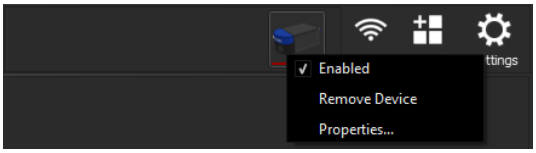
Along with each device having its own graphic, there is a small coloured status bar underneath each device. This allows a quick visual reference for the current state of that device.

The status indication may vary between device types, but for this example a Gemini 720ik is being used.

	A GREEN status indicates an active state. An active status means that the device is transmitting data back to Genesis.
	A YELLOW status indicates a standby state. A standby state can mean that the unit is ready for use, but the **Online Control** has not been activated.
	A RED status indicates an offline state. An offline state can mean that a unit has been added, but not sufficiently configured for use; or that the unit has been detected, but cannot be fully accessed - commonly due to IP address errors.
	A RED status with a warning triangle indicates an additional Alert state. Typically more information can be found by opening the Device Panel and checking the **Diagnostic** tab of the unit. A loss of communications would be a typically example where this may appear.

4.7.3. Device Menus

A  on a device will display the pop up device menu.



- **Enabled** - When checked, this allows the view to update with live data from the device. If unchecked, the data from the specific unit is removed from the `View` and the device is effectively paused.
- **Remove Device** - Deletes the device from the Device Bar. This option is not visible when a Gemini device has been detected - it will only become visible again if the device is powered down or fully disconnected from the computer.
- **Properties** - Opens the Device Properties window

4.7.4. Removing a Device

To remove a device from the `View` in Genesis, either:

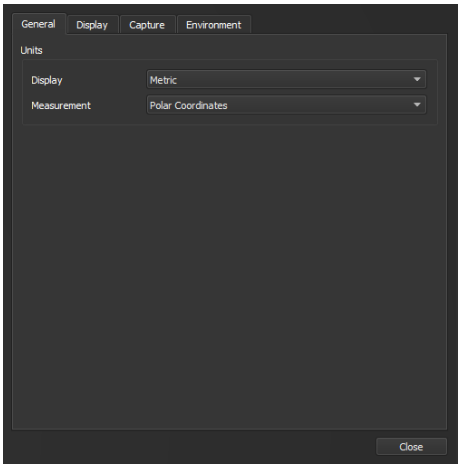
-  on the device icon within the Device Bar and select *Remove Device*
-  on the Devices button 

, then  on the Device icon on the left hand side of the Devices Panel and select *Remove Device*

4.8. Settings

To the right hand side of the Device Bar is the icon for the program settings. A  will bring up the settings panel which uses various tabs to simplify the settings.

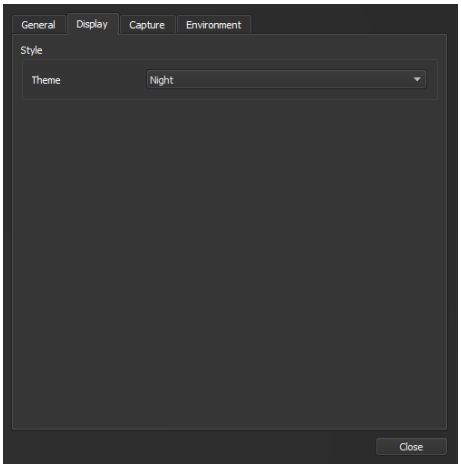
General Tab



Display
Change the basic units used for displaying data, either Metric (meters) or Imperial (feet).

Measurement
Change the way measurements are expressed onscreen, either Polar Coordinates (Range and Bearing in degrees) or Cartesian Coordinates (X and Y).

Display Tab

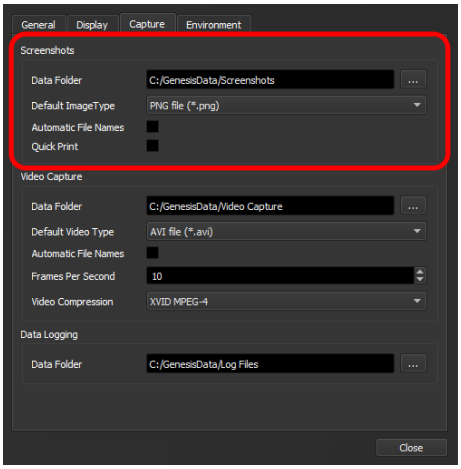


Theme
Change the colours used for the Genesis application. Choose from:

- Night
- Ocean

Capture Tab

Screenshots



Data Folder
The default location for storing screenshots. To change this, click on the '...' button and choose a new location from the location dialog window.

Default Image Type
The required file format for the screenshot. Images can be saved as:

- PNG
- JPEG
- TIFF
- BMP

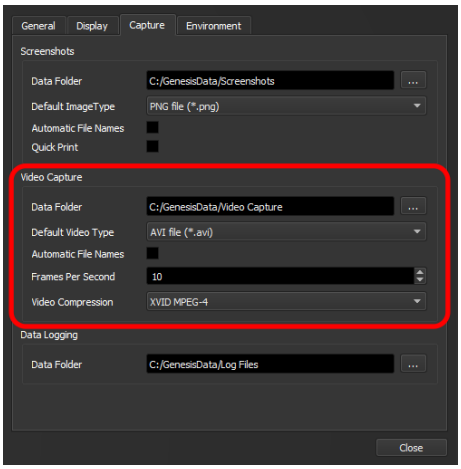
Automatic File Names
Enabling this option allows Genesis to make up filenames when creating screenshots. With this option disabled, Genesis will request a filename everytime a new screenshot is generated.
The standard form for the automatic file name is:

```
screenshot_YYYY-MM-DD-hhmmss.png
```

- **YYYY-MM-DD** - Year, Month and Day
- **hhmmss** - Hours, Minutes and Seconds

Quick Print
This option allows Genesis direct access to the default printer on the PC.

Video Capture



Data Folder
The default location for storing videos. To change this, click on the '...' button and choose a new location from the location dialog window.

Default Video Type
The required file format for videos. Images can be saved as:

- AVI
- WMV

Automatic File Names
Enabling this option allows Genesis to make up filenames when creating videos. With this option disabled, Genesis will request a filename everytime a new video is started.
The standard form for the automatic file name is:

```
video_YYYY-MM-DD-hhmmss.avi
```

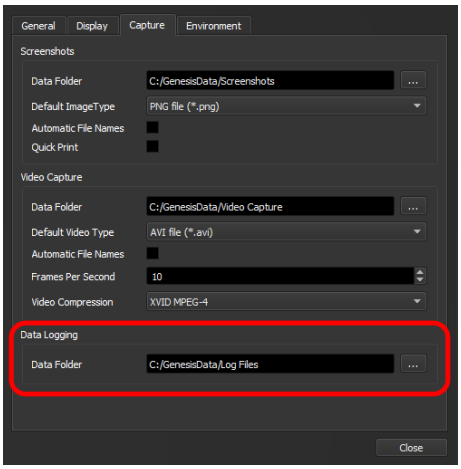
- **YYYY-MM-DD** - Year, Month and Day
- **hhmmss** - Hours, Minutes and Seconds

Frames Per Second
The desired FPS rate for the video recording. Note that the actual FPS may vary from the requested rate.

Video Compression
The video compression method to be used when recording the file.

- XVID MPEG-4 - Default option
- MPEG-4
- Motion JPEG
- Windows Media Video V7 - Only applicable for WMV Video Types
- Windows Media Video V8 - Only applicable for WMV Video Types
- Uncompressed - Fastest video save option, but produces extremely large file sizes

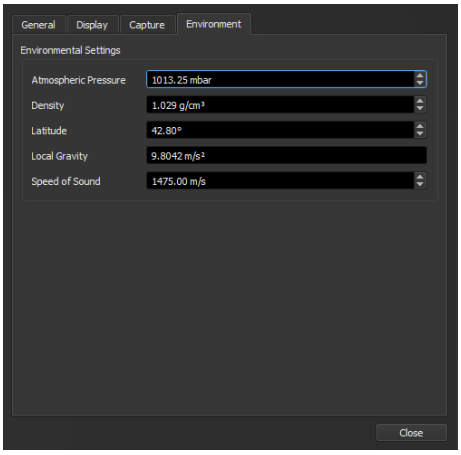
Data Logging



Data Folder
The default location for storing log data. To change this, click on the '...' button and choose a new location from the location dialog window.

Environment Tab

Speed of Sound



Atmospheric Pressure
The current atmospheric pressure.

Density
The density of the fluid medium currently surrounding the subsea devices.

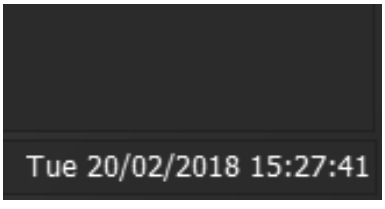
Latitude
The geographic location of the user, or ROV.

Local Gravity
The specific gravity at the geographic location of the user or ROV.

Speed of Sound
A default setting that is used when a device does not supply its own value.

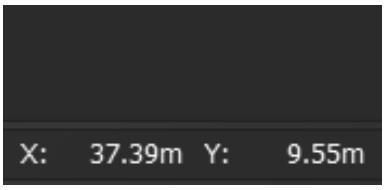
4.9. System Date Time

The current date and time (according to the local settings of the PC) are located at the lower right part of the Genesis screen.



4.10. Co-ordinates

The onscreen co-ordinates are shown to the left of the date and time.



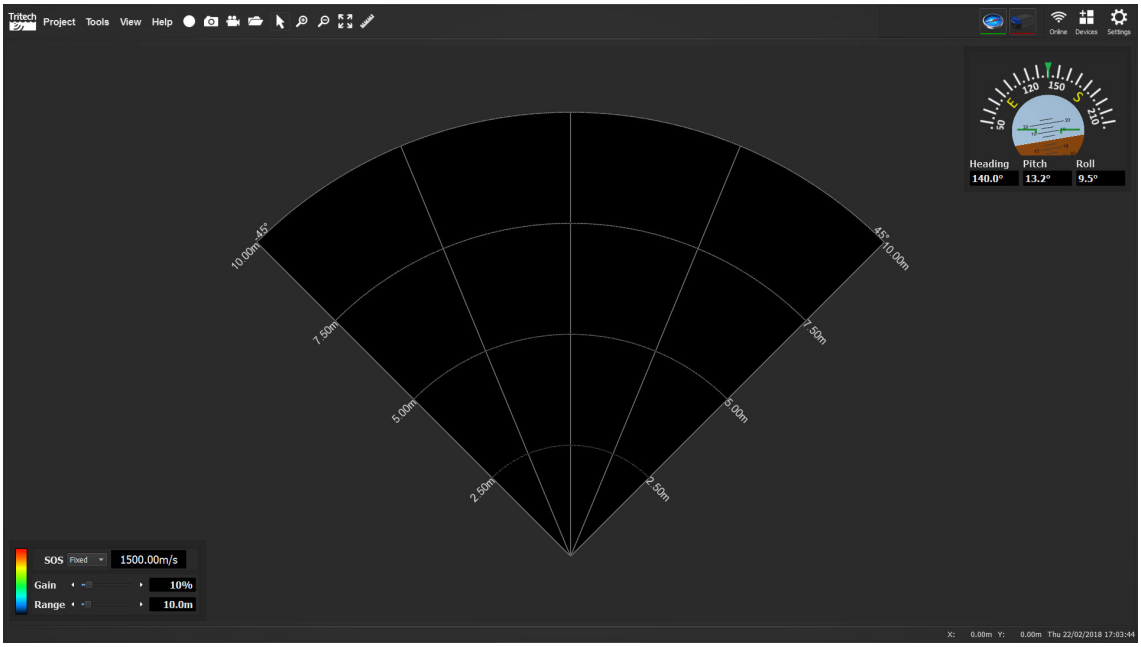
The origin for the co-ordinates is at the bottom left of the `View`, inline with the bottom of the data display.

5. View Control

Genesis allows the user to add and change devices on the main `View` in a dynamic manner.

5.1. Adding Devices

Devices can be added to the main `View` by using the Devices button and selecting the appropriate unit. In the example below a Compass has been added to a `View` that had a Gemini 720im.



When adding a new Device, Genesis will automatically add it to the main `View`. Devices that can be automatically detected (Primary Devices such as Gemini Imaging sonars) will be placed alongside similar devices when first seen by Genesis; whereas secondary devices (such as Compasses, GPS etc) need to be added as an overlay to the main `View`.

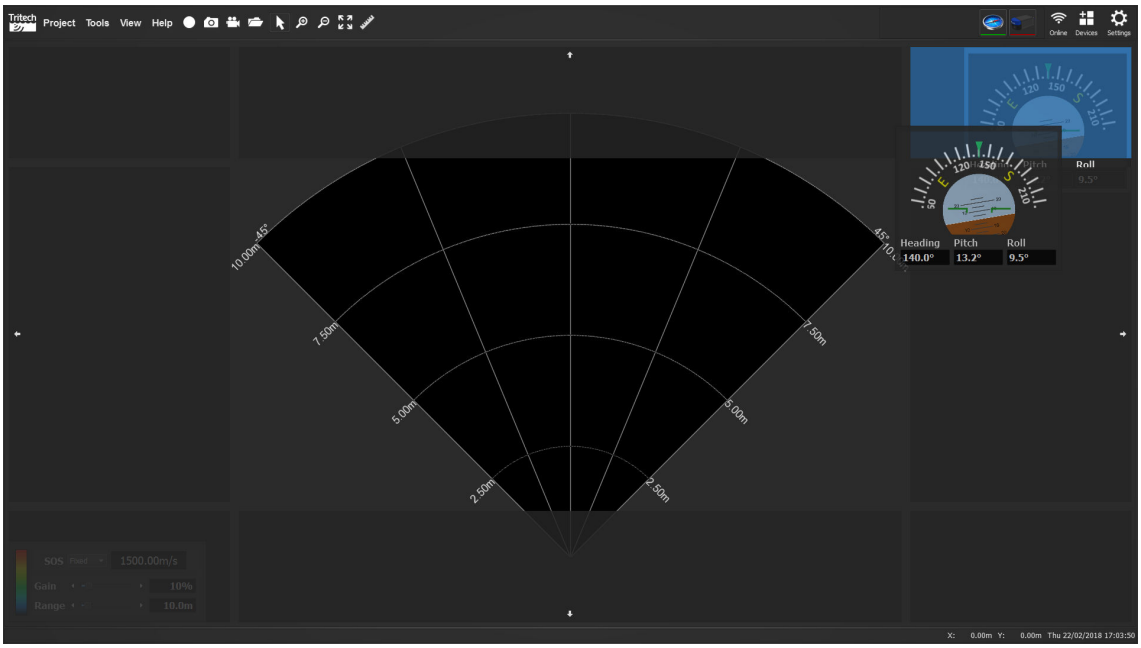
Devices are added as an overlay onto a `View` by holding  on the icon within the Device Bar, then drag and dropping onto the desired location on screen.

5.2. Changing Views

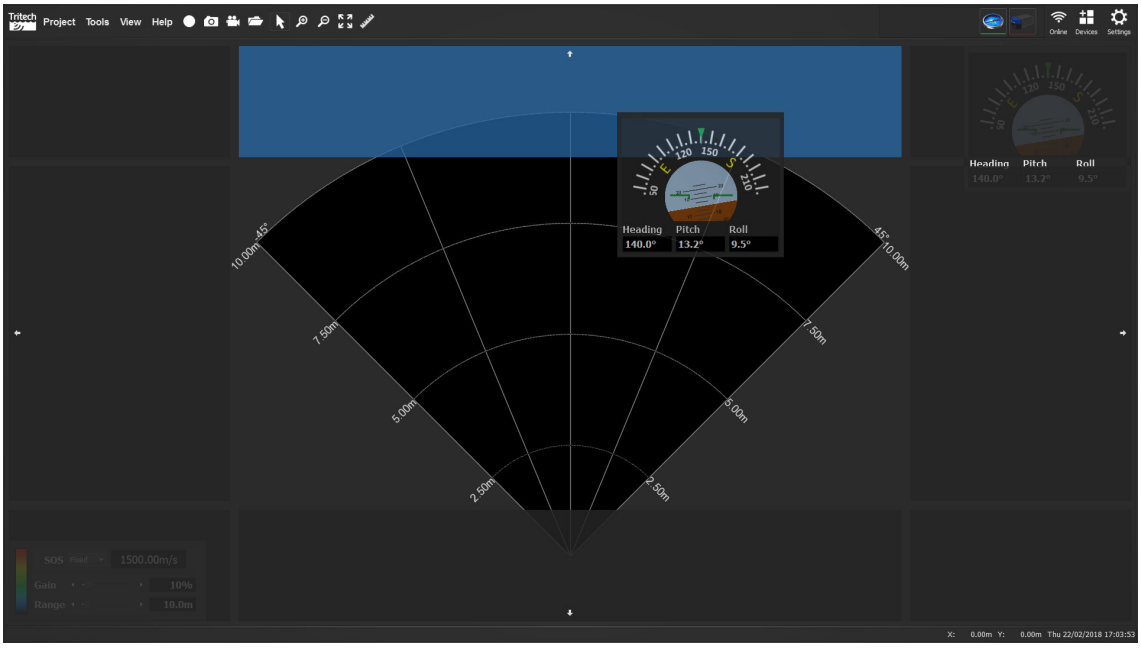
The `View` within Genesis is split into two main areas when adding devices:

- The corners, i.e. top right
- The vertical and horizontal edges, i.e. top and bottom

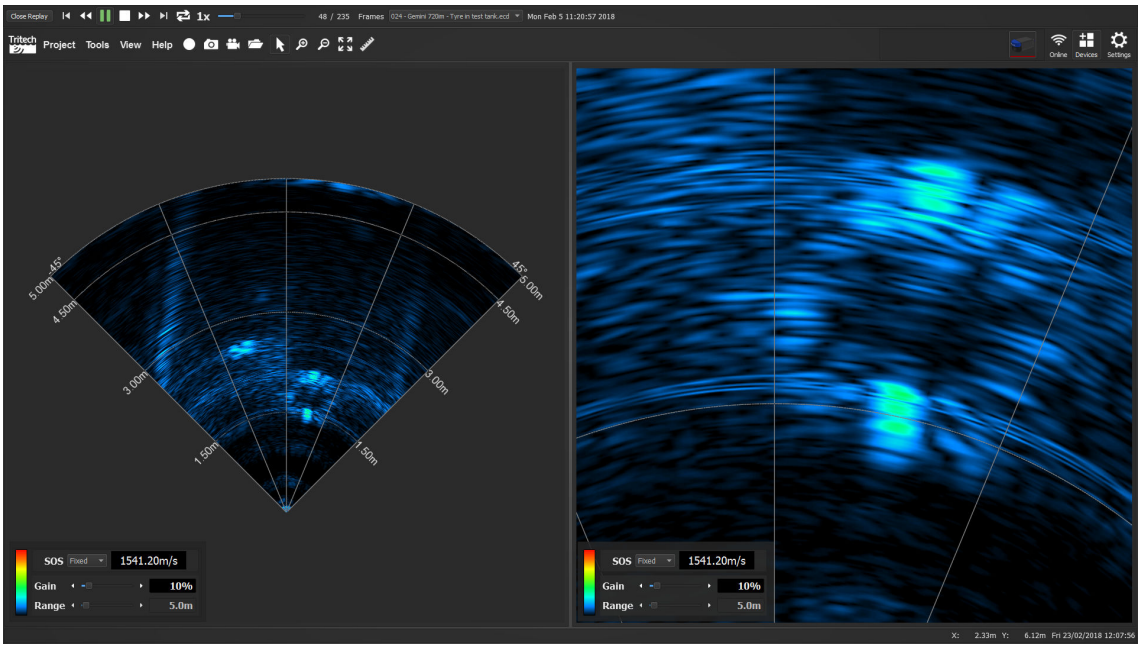
When a Device is dropped into the corner of a `View` it becomes an overlay of that `View`.



When a Device is dropped into a vertical or horizontal edge, the Device will create a new `View` for itself and Genesis will split the screen to display all the active `Views` accordingly.

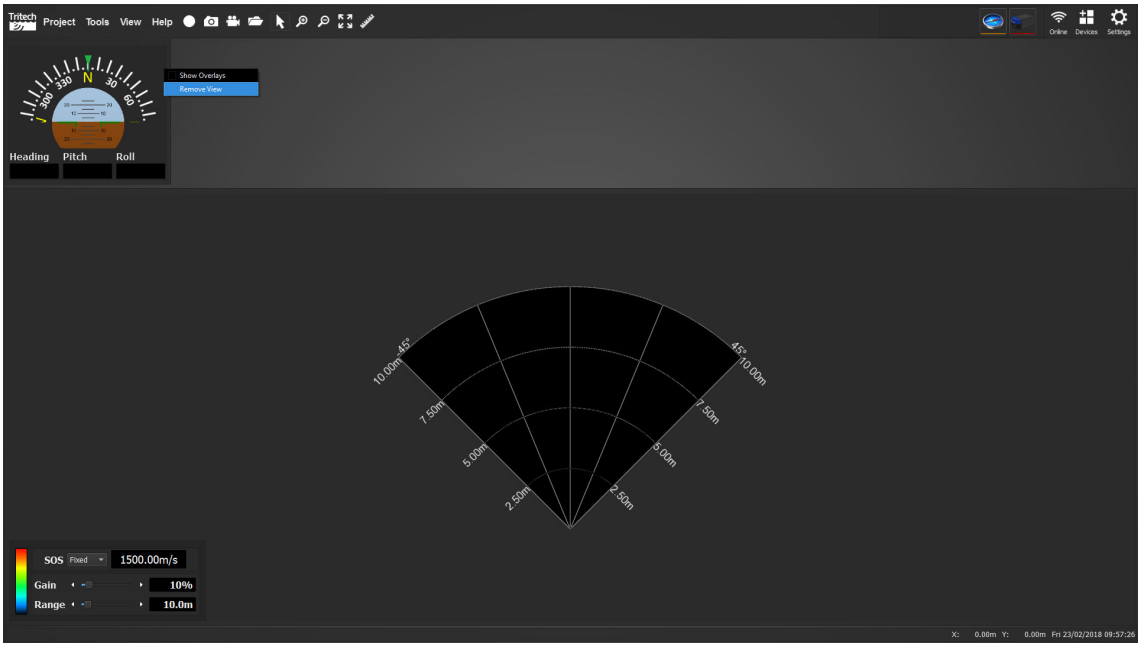


You can add multiple `Views` from the same Device, for example to zoom into details on the aspects of the displayed data.



5.3. Removing views

`Views` can be removed from Genesis by on the data display from the Device then selecting *Remove View* from the pop up menu.



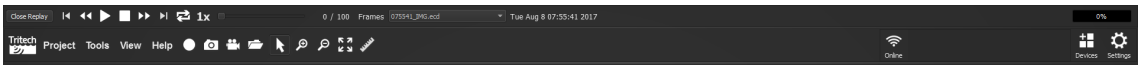
6. Replaying Data

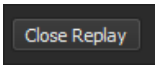
When the **Open Log File** button is , Genesis will ask you to select a log file to replay.

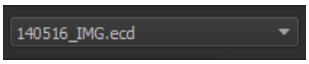
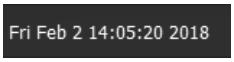
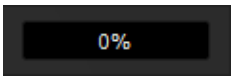
Genesis can reply data recorded in the following formats:

- .ECD - A file containing Multibeam imaging data, previously recorded in Genesis or the older Gemini Software

The log file will then be loaded and an additional menu will be displayed above the normal Genesis screen.



	The **Close Replay** button immediately closes the file being replayed and allows Genesis to show live data again.
	The **Player Controls** allow you to do the following: • Go back to the start of the log file • Rewind the log file • Play the log file at the set play back speed • Stop the log file • Fast Forward the log file • Go to the end of the log file
	The **Loop** button will cause Genesis to replay the file, or set of files, once it has reached the end of the data.
	The **Playback Speed** of the log file can be altered in order to speed up, or slow down the log file. To alter the speed, the button until it shows the desired speed. The available speeds are: • 1x - Normal speed • 2x - Twice normal speed • 4x - Four times normal speed • 8x - Eight times normal speed • 16 - Sixteen times normal speed • ¼x - Quarter normal speed • ½x- Half normal speed
	The **Playback Progress** slider allows you to go to a specific point within the log file. It also shows the total number of records held within the log file and your current position within it.

	When loading several log files at once, the **File Selector** allows you to quickly navigate between them. Simply  on the drop down arrow and select the desired file from the drop down selection menu.
	The time and date of the recorded data from the log file is also shown.
	While Genesis is loading the log file into memory, a progress bar will be displayed at the far right hand side of the screen. Once fully loaded, the progress bar will disappear.

7. Troubleshooting

Genesis crashes as soon as a Gemini is detected

Without a Gemini connected, run Genesis then select `Help – About` and note the OpenGL driver version detected - it should be at least version 2.0. If this is not the case, update the graphics drivers present on the computer.

For Windows® OS: Ensure that the file system is not corrupted by launching a `cmd.exe` window with Administrative privileges then use the `sfc /scannow` command. This will analyse and correct any issues.

My serial device isn't detected

For serial devices (such as GPS, Altimeters and Compasses) you need to use the `Add Device` button to allow Genesis to capture their data. Once the correct device has been added, click on the `General` tab within the `Device Properties` and select the correct COM Port and Baud rate that need to be used.

Part II

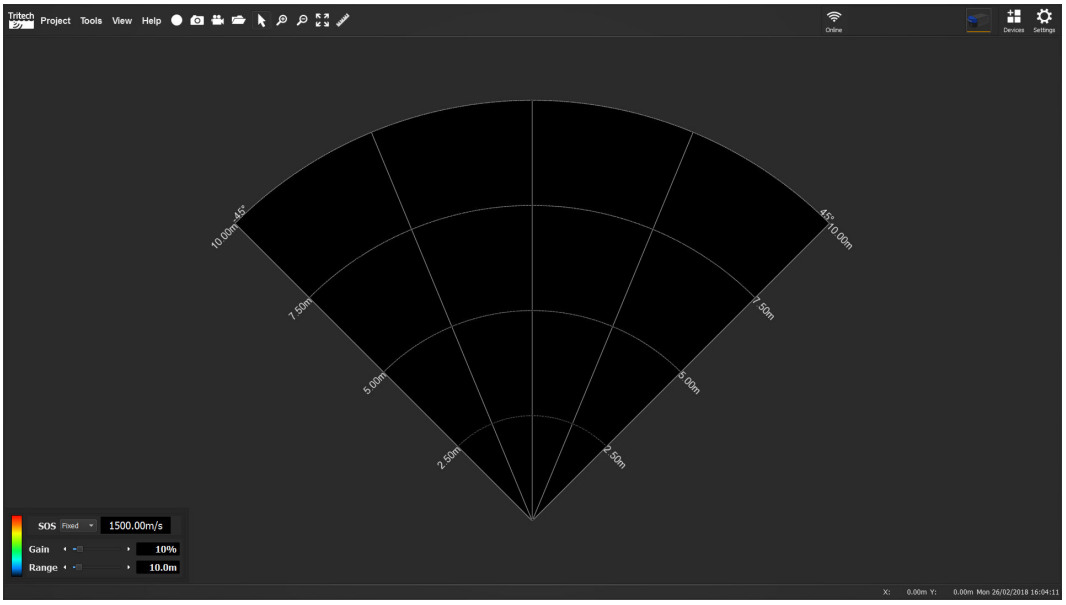
Imaging Sonars

8. Introduction

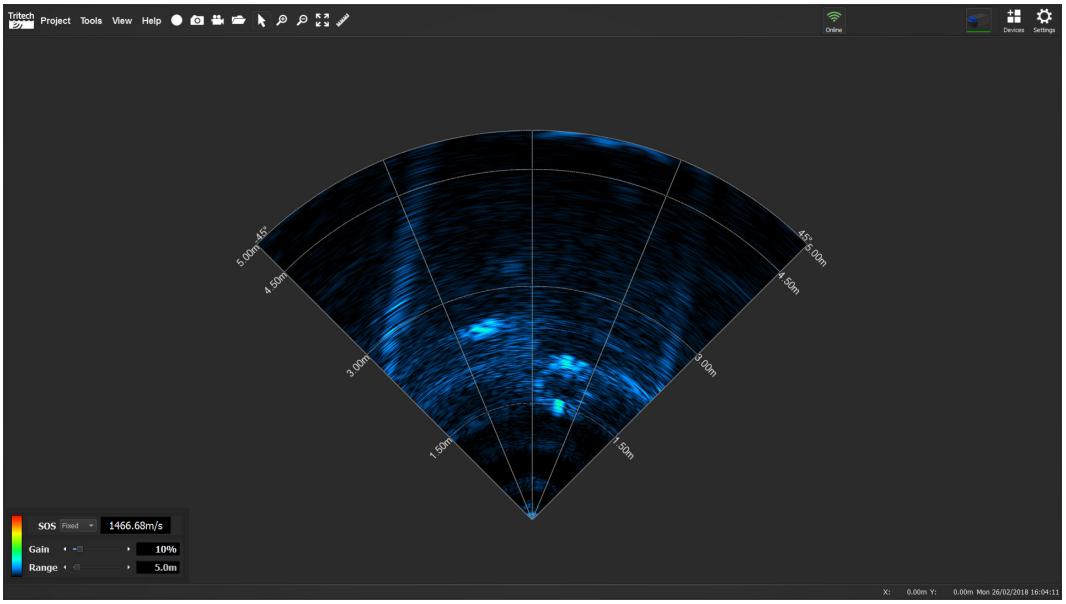
Genesis is capable of interfacing with all Gemini Multibeam sonars, but has been specifically designed to operate with the latest edition to this product family: the Gemini 720im.

9. Imaging Sonar Setup

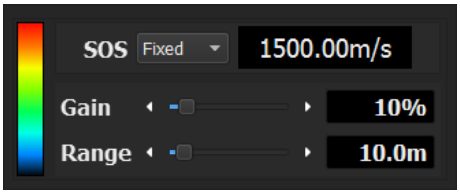
Genesis will automatically detect any Gemini units connected to your computer and will update the **Device Bar** with the available unit.



To start seeing data from the Gemini, click on the **Online** button.



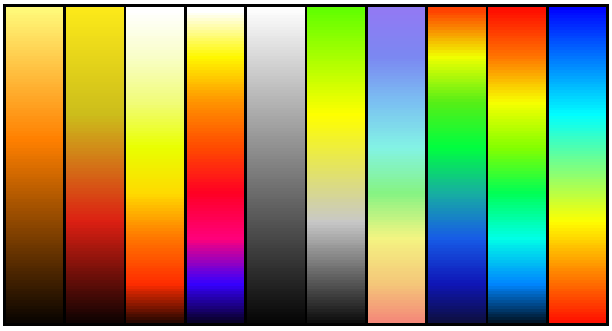
The data from the Sonar will be displayed in the main `View` of the Genesis screen, with the basic Sonar controls located, by default, on the lower left part of the screen.



The Sonar Controls allow you to alter the operation of the Sonar in order to maximise its potential for your application.

Control	Function
Gain	This control effectively increases the brightness of the image. By changing the gain the Sonar will amplify the incoming signal so that you can better see weak signals. This will also increase the effect of any noise in the system.
Range	This control changes how far the sonar can see. By increasing the range the sonar will visualise further and be able to see targets at greater distances. Increasing the range will affect the update rate of the sonar. Long ranges will mean slower update rates.
SOS	This control changes the speed of sound used by the sonar to generate the onscreen imagery. As the Gemini 720im does not include an inbuilt sensor for this, a fixed value needs to be used. By using the up and down arrows you can adjust the speed of sound in set increments. You can also simply type the desired value into this section. The value can be between 1400m·s^{-1} and 1589m·s^{-1}
Colours	The Colour palette control changes the colours used to display the imagery on screen. Depending on the strength of the acoustic return, the data will be displayed using one of the colours within the selected palette. Strong returns will tend to be at the upper end of the palette, while weak returns will be at the bottom end. If the data looks dark, with all the returns at the bottom end of the palette, try increasing the gain to brighten the image.

The currently available Colour palettes are:

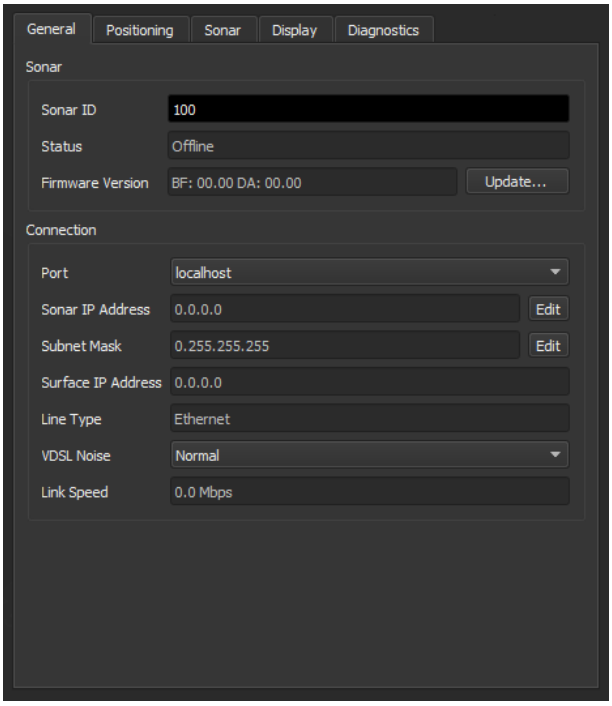


- Bronze
- Fire 1, 2 & 3
- Grey scale
- Grey to Yellow
- Pastel
- Sonar
- Spectrum
- Survey

10. Imaging Sonar Controls

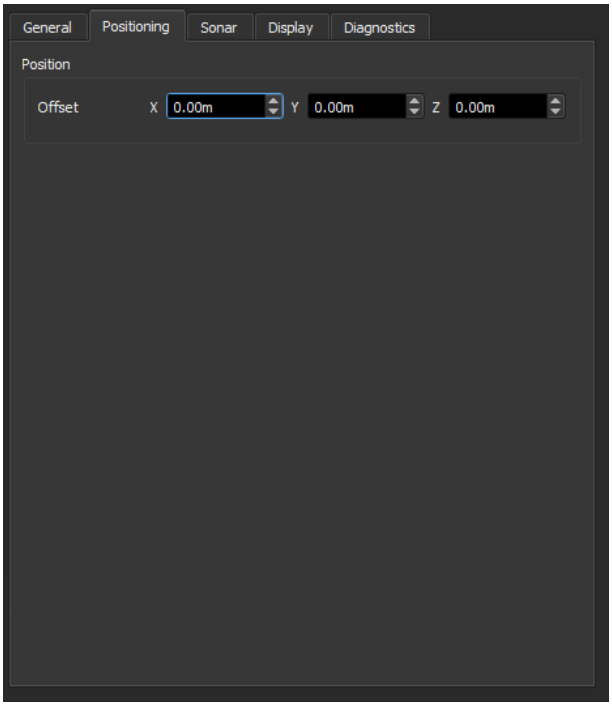
When an Imaging Sonar is added to Genesis, the properties and controls can be accessed through the Devices Panel.

10.1. General tab



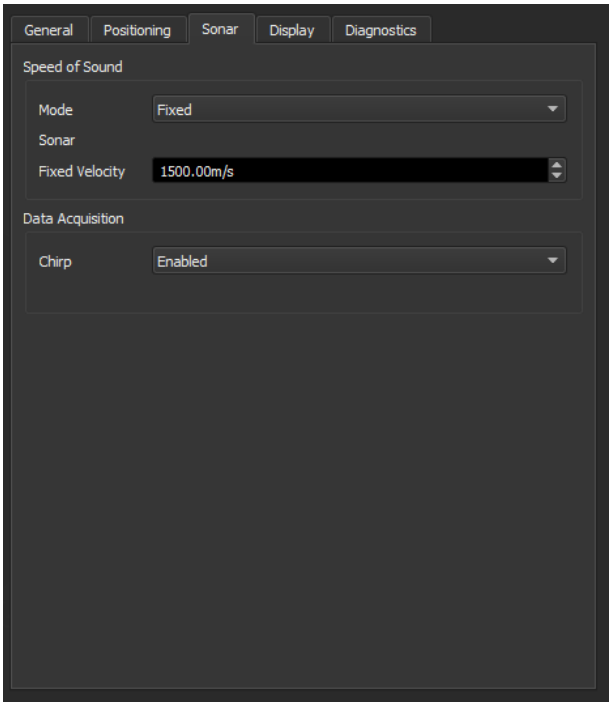
Control	Function
Sonar ID	The unique ID of the unit is displayed here.
Status	The overall status of the unit.
Firmware Version	Current firmware version installed onto the unit. If a newer version of the firmware is available, the **Update** button can be used to upgrade it. This requires the unit to be *offline*
Port	This defaults to *localhost*, indicating that the Sonar is linked and controlled by this computer.
Sonar IP Address	The current IP addressed stored on the Sonar. To change, click the **Edit** button and use the onscreen buttons to alter the IP address. 
Subnet Mask	The current Subnet Mask address stored on the Sonar. Click the **Edit** button and use the onscreen buttons to update.
Surface IP Address	The IP Address of the connecting computer.
Line Type	Details the link type established with the Gemini. Ethernet or VDSL are the typical entries.
VDSL Noise	Noise compensation for VDSL links, select from either **Normal**, **Medium Noise** or **High Noise**.
Link Speed	The established link speed to the unit. Higher values indicate a more stable link.

10.2. Positioning tab



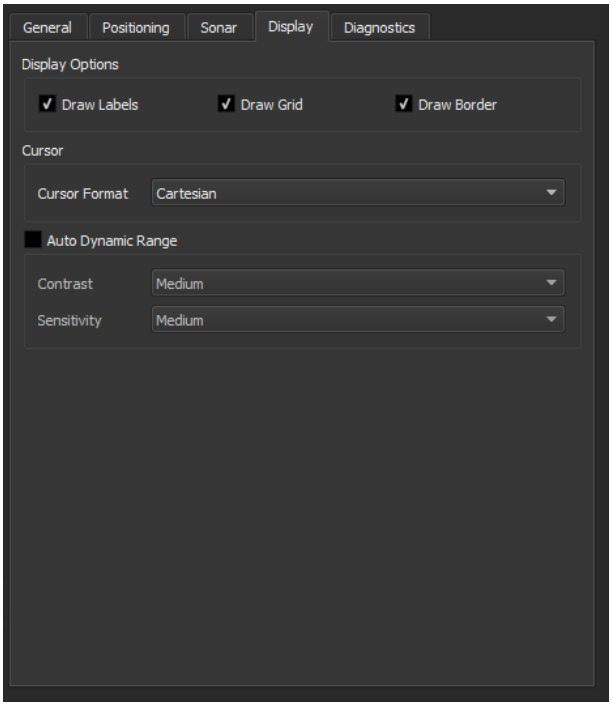
Control	Function
Offset	Position offsets for the Sonar for accurately positioning the onscreen data. X - On screen left and right positioning of the Sonar. Positive values go to screen right. Y - On screen up and down positioning of the Sonar. Positive values go to screen north. Z - Layered height of the Sonar. Positive values bring the display towards the front.

10.3. Sonar tab



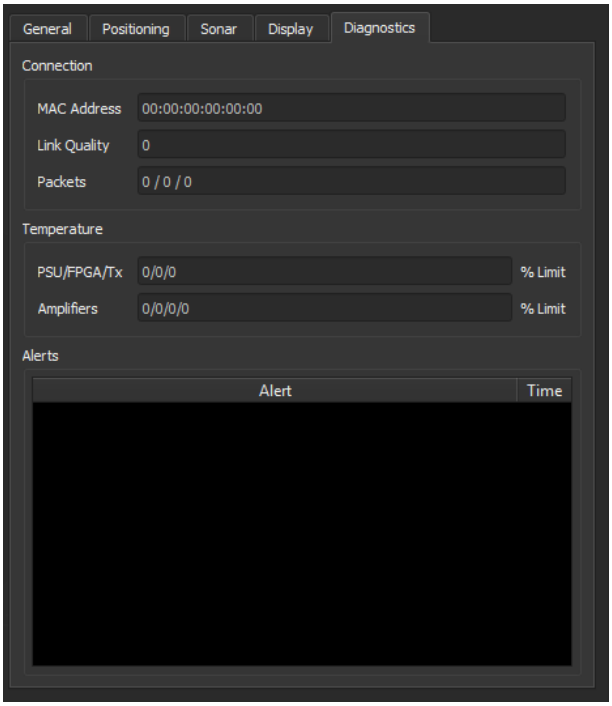
Control	Function
Mode	Gives you a drop down selection for choosing the source of the Speed of Sound value. For Gemini 720im units this is automatically preset to *Fixed*.
Sonar Fixed Velocity	The value of the Speed of Sound to be used when a *Fixed* value is chosen.
Chirp	Overrides the automatic control of CHIRP by allowing the user to disable it. Note that the CHIRP feature is only available to Sonars that support it.

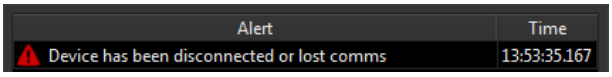
10.4. Display tab



Control	Function
Draw Labels	Enables or disables the range notation (i.e. 10.00m) on the sides of the Sonar data.
Draw Grid	Enables or disables the range and sector lines that are overlayed on the Sonar data.
Draw Border	Enables or disables the border around the Sonar data
Cursor Format	Choose the cursor reporting from *Cartesian* or *Polar*.
Auto Dynamic Range	Enables or disables additional image controls to help enhance the onscreen data.
Contrast	Adjusts the contrast between the high and low
Sensitivity	Controls how sensitive the *Auto Dynamic Range* algorithm is. Increased sensitivity means that it will enhance the onscreen imagery to a greater extend.

10.5. Diagnostics tab



Control	Function
MAC Address	The unique MAC address for the unit.
Link Quality	The link quality expressed as a %.
Packets	Displays the number of packets received / resent / lost. A high number of resent or lost packets can indicate issues with communicating with the unit.
PSU/FPGA/Tx	Operating temperatures of the internal elements, expressed as a % of their safe working limit.
Amplifiers	Operating temperatures of the internal amplifiers, expressed as a % of their safe working limit.
Alerts	Any alerts that are specific to the unit will appear in this section. For example, loss of communications would be noted: 

11. Reconfiguring a Sonar

Sonars that utilise Ethernet communications, such as the Gemini series of Sonars, can be added to an existing infrastructure. By default, Gemini Sonars use the `192.168.2.201` IP address to communicate, so this would need to be altered in order to work with an existing network.

In order to re-configure a Sonar for an existing network, the following steps need to be undertaken:

1. On a local computer, ensure that its IP address is within the `192.168.2.xxx` domain
2. Connect the Sonar and establish communications
3. With the sonar **Offline**, open the **Device Panel**
4. Click on the Sonar icon and select the **General** tab
5. Click on the **Edit** button and enter the new IP address
6. Click **Ok** when complete - the new IP address will be transmitted to the Sonar
7. The Sonar will now automatically reset and start to communicate using the new IP address. This may cause Genesis to lose its connection, as the computer IP domain may not match that of the Gemini.
8. Change the IP address of the computer to match the IP domain of the Gemini and ensure that you can re-establish communications
9. The Sonar is now ready for integration into your existing network

In addition to the IP address, the Subnet Mask can also be altered. This is the setting that ensures the Sonar is only visible to computers within the same domain, so it is recommended that it be left as `255.255.255.0`.

Part III

Video Inputs

12. Introduction

Genesis is capable of displaying and recording incoming video from externally attached devices.

External video is generally provided through the use of capture devices, such as USB devices, that interfaces with the computer. Genesis loads the provided drivers for these adaptors and allows the user to control the video input from within its own user interface.

13. Video Setup

A Video Input is added to Genesis via the Camera device from the Add Device button - 

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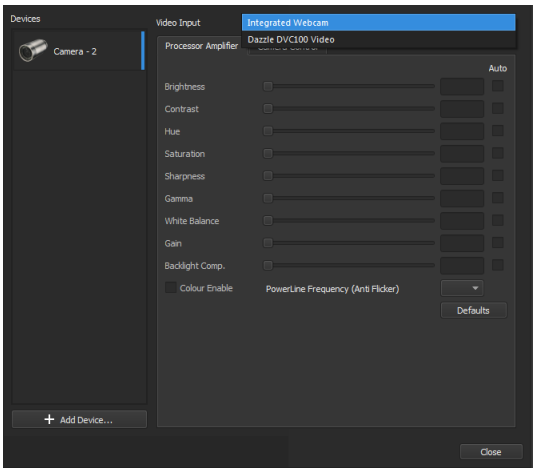
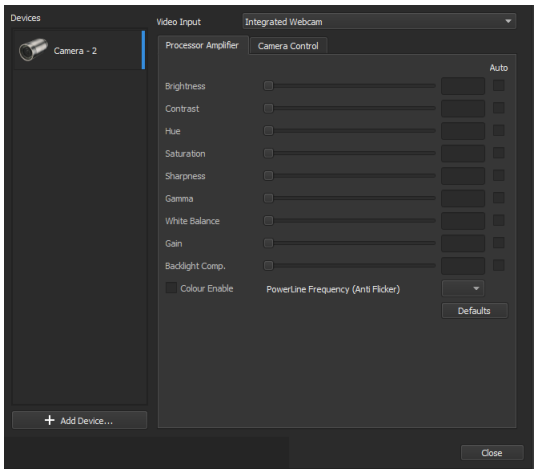
When successfully added, Genesis will automatically scan the computer to detect all capture devices that have been correctly installed.

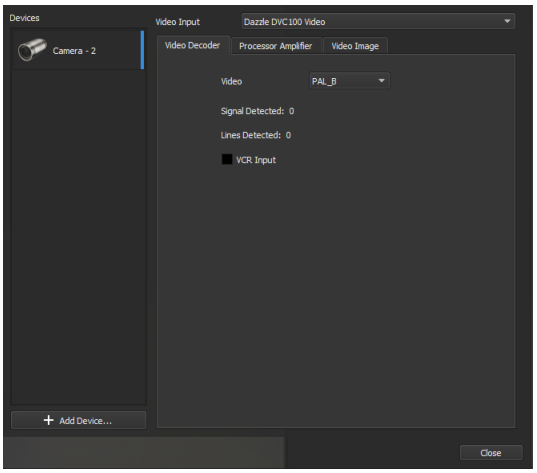
Should it find multiple devices, a drop down selection box will become visible next to the Video Input section of the Device Panel.



Once a valid selection has been made, Genesis will automatically start to display the incoming video from the capture device within the main `View`. Additional tabs may also be displayed for extra setup depending on the specific capture device attached to the computer. As these controls will vary from device to device, it is recommended that you seek information from the device manufacturer to see what options will be available as well as their specific function. The following images show an example of an Intergal WebCam and an external USB capture device.



Example camera properties for a Webcam



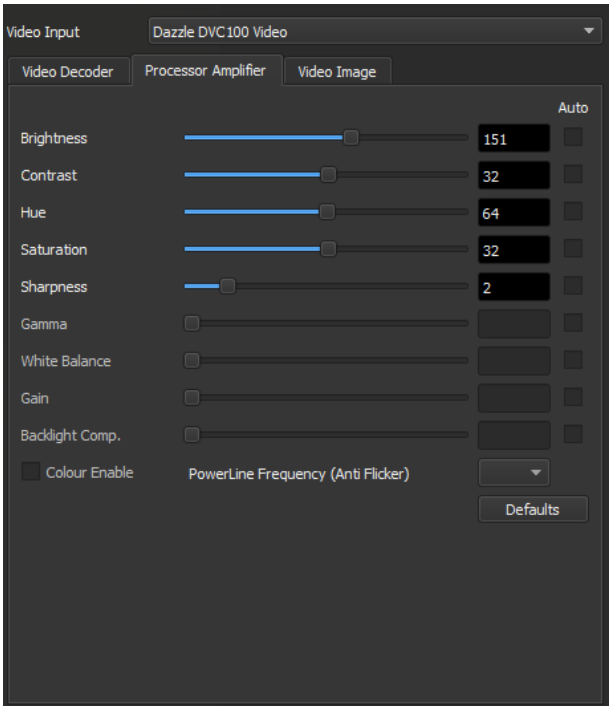
Example camera properties for a USB capture device

At this point Genesis will be able to display and record the incoming Video. Should adjustments be needed to the video, the Processor Amplifier tab and Video Image tab can be used.

14. Video Controls

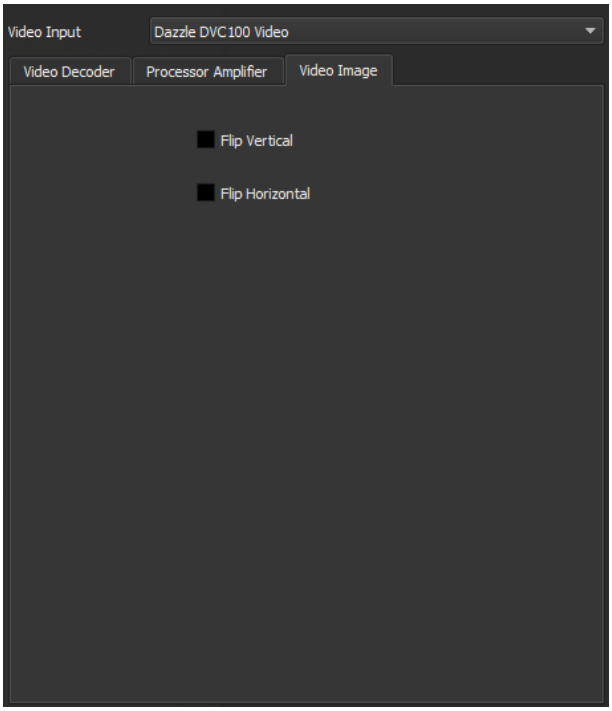
Depending on the capture device being used, Genesis is able to alter basic properties of the video being displayed and recorded in order to help you enhance features the imagery on screen.

14.1. Processor Amplifier tab



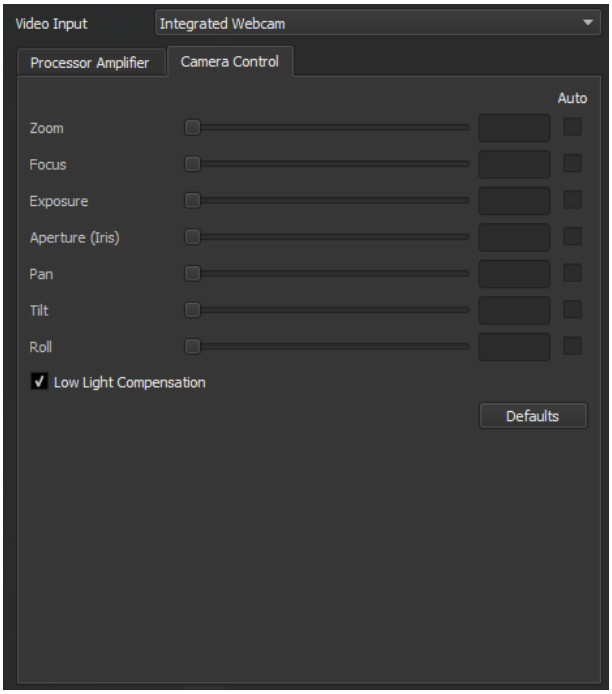
Control	Function
Brightness	Increases the overall brightness of the image. Too high a level will cause the image to saturate.
Contrast	Adjusts the contrast (difference between dark and light areas) of the image.
Hue	Alters the colour shading of the video image.
Saturation	Alters the intensity of the colours within the video image.
Sharpness	Alters the edge contrast of the video image.
Gamma	Correction of the luminance or tristimulus values within the video image.
White Balance	Alters the colour balance of the video image.
Gain	Directly adjusts the sensitivity of the capture device to compensate for low light environments.
Backlight Comp.	Typically for direct digital camera feeds; controls the amount of compensation so that high and low exposure areas of the video image are displayed equally.
Colour Enable	Switches the video image between colour and grayscale.
PowerLine Frequency	Compensation for any line flicker caused by power noise.

14.2. Video Image tab



Control	Function
Flip Vertical	Flips the video image along the vertical axis, i.e. upside down.
Flip Horizontal	Flips the video image along the horizontal axis, i.e. left to right.

14.3. Camera Control tab

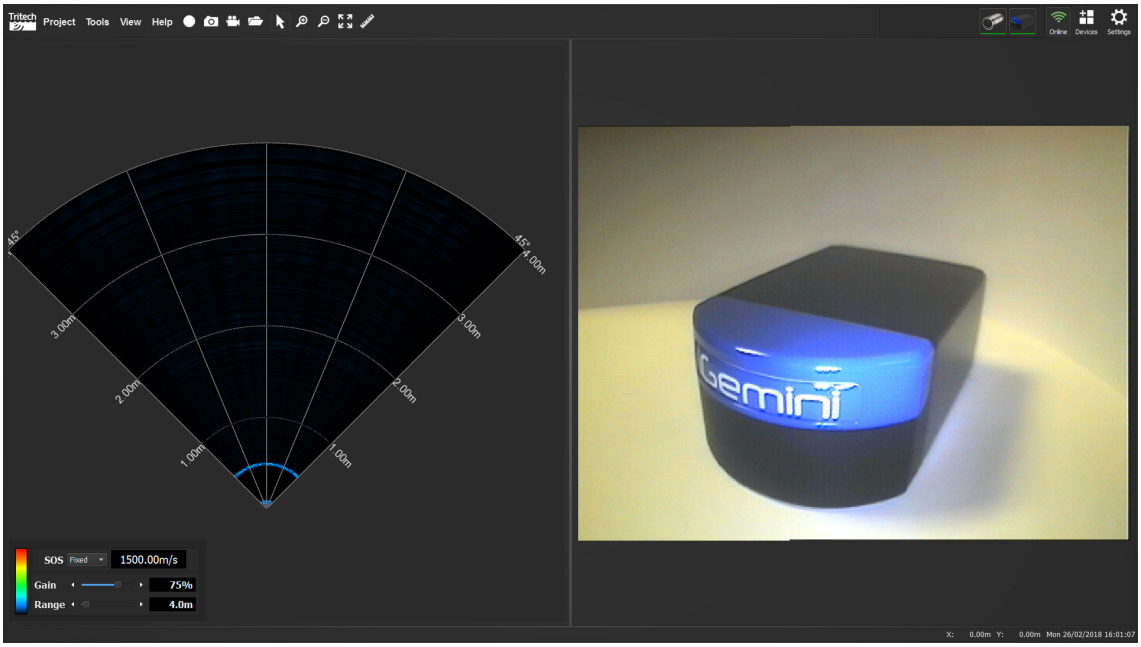


Control	Function
Zoom	Zooms the video image.
Focus	Alters the focus of the video image.
Exposure	Alters the exposure levels of the video image.
Aperture (Iris)	Effectively adjusts the amount of light and therefore brightness, of the image.
Pan	Adjusts the pan of the attached capture device.
Tilt	Adjusts the tilt of the attached capture device.
Roll	Adjusts the roll of the attached capture device.
Low Light Compensation	Toggles low light compensation for the video image.

15. Adding Video to Views

A video source can be added to an existing `View` via the **Device Panel**.

1. Open the **Device Panel** and add a new **Camera** device
2. Genesis will automatically add the Camera `View` to the bottom right of the screen
3. To adjust the position of the Camera `View`, hold on the corner of the view and drag to the desired position (see Section 5.2, “ Changing Views ” for more details)



Appendix A. 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 the Warranty Statement, 0080-STF-00139, available upon request.

Tritech International Ltd can be contacted as follows:

	Mail	*Tritech International Ltd* Peregrine Road Westhill Business Park Westhill, Aberdeenshire AB32 6JL, UK
	Telephone	++44(0)1224 744 111
	Fax	++44(0)1224 741 771
	Email	support@tritech.co.uk
	Website	www.tritech.co.uk

Prior to contacting *Tritech International Ltd* please ensure that the following is available:

1. The Serial Numbers of the product and any *Tritech International Ltd* equipment connected directly or indirectly to it
2. Software or firmware revision numbers
3. A clear fault description
4. Details of any remedial action implemented

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 www.tritech.co.uk

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.

Glossary

Ethernet	A family of computer networking technologies for local area networks (LANs).
GB	Gigabyte = 1000MB
Gemini	Unless specified this can refer to any of the multibeam sonars in the Gemini range by *Tritech International Ltd*, from the market leading 720is to the world's smallest multibeam - the 720im.
MB	Megabyte = 1000kB
$Mbit \cdot s^{-1}$	Megabit per second - data transfer rate equal to 1000 kilobits per second.
Multibeam	A sonar which forms multiple "beams" of sound so it can update in real time and does not have to perform a full scan like a traditional sonar.
RAM	Random Access Memory

