

Public

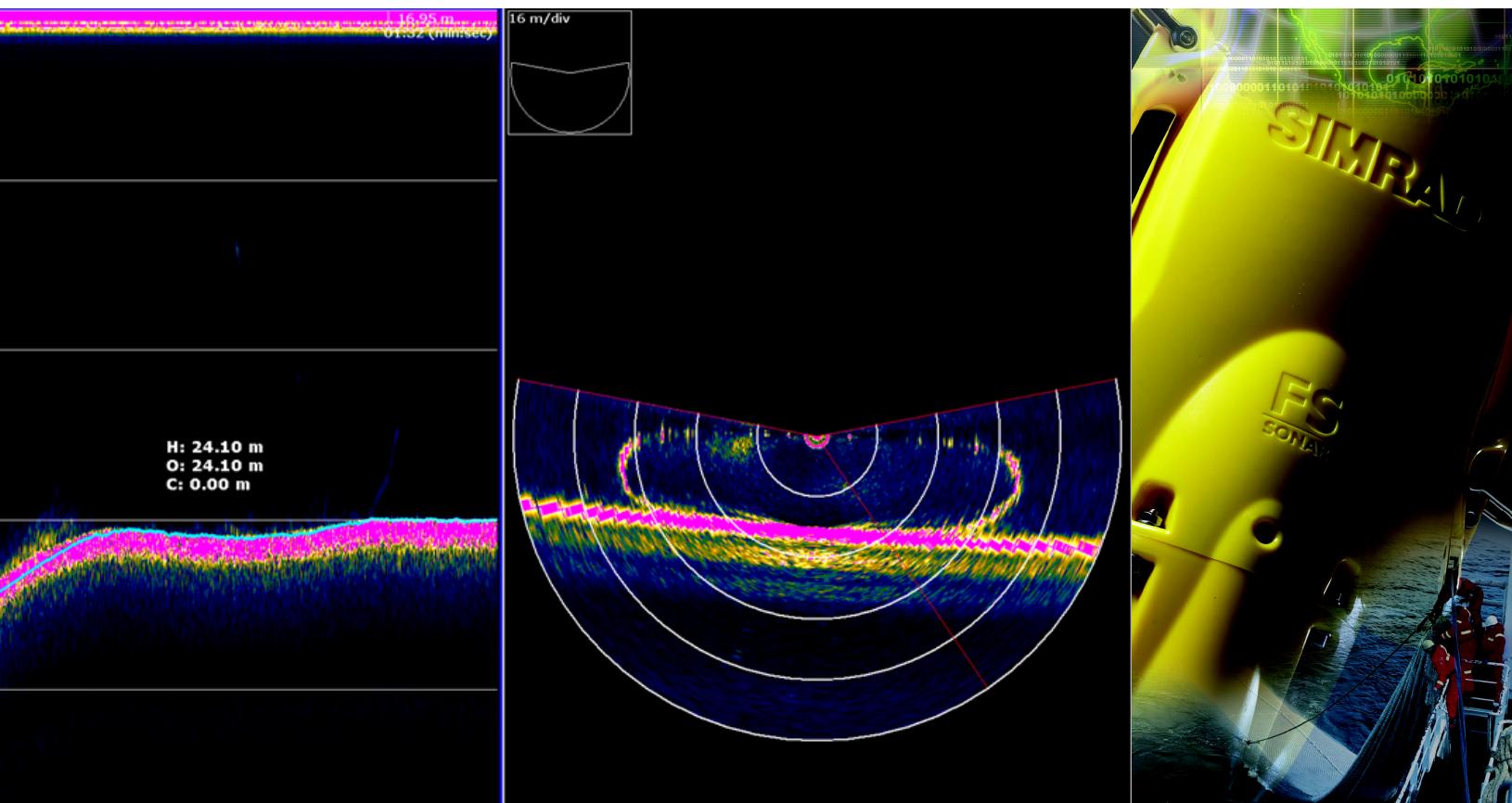


KONGSBERG

Reference Manual

DATSS

Digital Analog Trawl Sonar Software



kongsberg.com/simrad

SIMRAD
By KONGSBERG

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About this document

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1 INTRODUCTION

The Simrad FS Trawl Sonar Series is a third-wire trawl monitoring system for pelagic and bottom fishing trawlers. The system provides real time information from the trawl sonar head and the associated sensors to the bridge, thus maximizing fishing efficiency and reducing sea time.

The FS70 or DFS75L vertical trawl sonar allows the operator to see the complete net opening and operation by displaying individual fish targets in the vertical plane, the fish school location, bottom/net location and net geometry. In addition to the vertical monitoring, this sonar also allows the operator to measure the spread of the trawl door, view and skim banks to avoid reefs and locate boulders on the ocean floor that may damage the trawl net.

The 200 kHz Echo Sounder capability ensures maximum control of the foot rope during the tow. The active motion sensor for pitch and roll comes as a standard feature.

The trawl system's sensor module and addition of sensors from the Simrad PI family allows the operator to monitor trawl depth, water temperature and receive information from the catch sensors, the doors spread sensors, the cod end depth sensor and from the rip or bottom contact sensor.

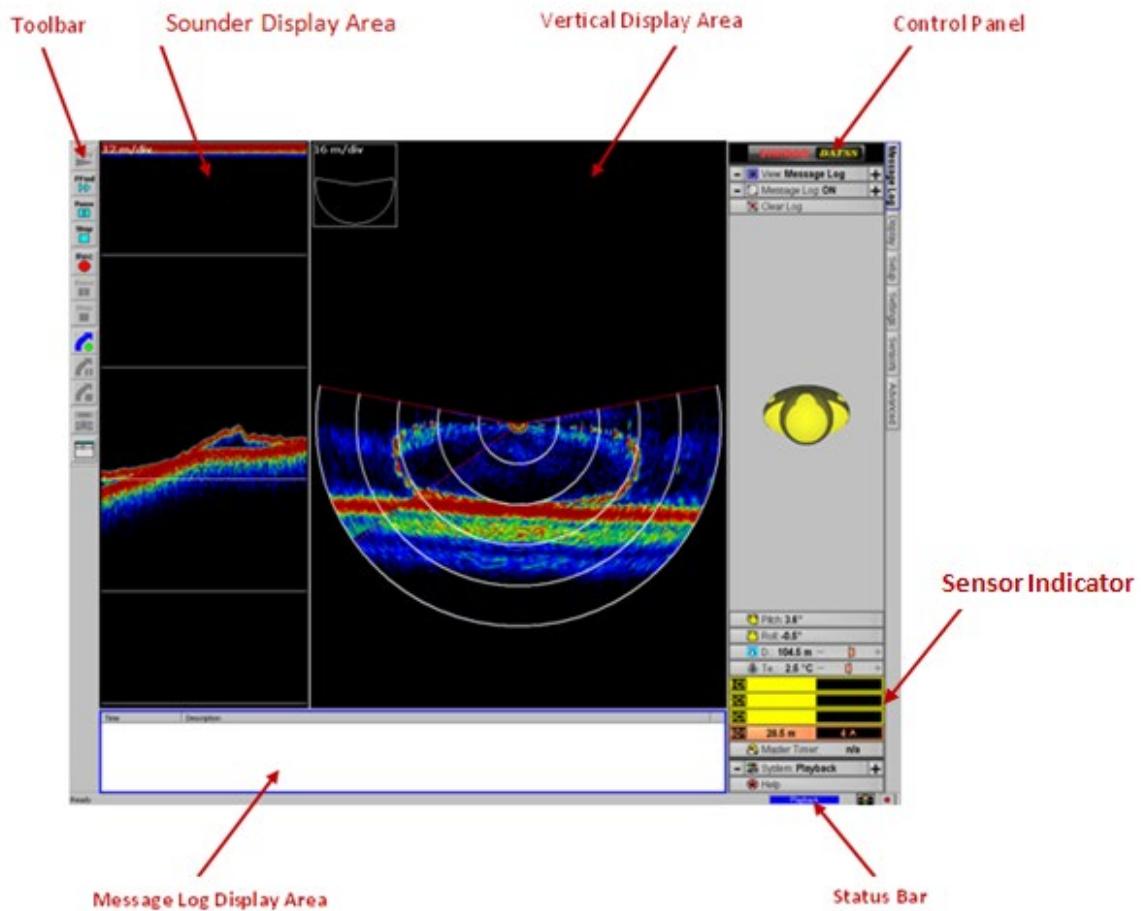
The FS Trawl Sonar Series is a modular system. It is operated with ease through direct access mouse and keyboard operated menus. The major benefit of the third-wire trawl sonar system is that it prevents the loss of communication with the trawl instrumentation as the vessel is changing course and or during heavy sea.

The DFS75L and FS70 system software is called DATSS (Digital Analog Trawl Sonar Software).

The DATSS Sonar Processor controls all functionality in the Simrad DFS75L and FS70 Trawl sonar. This includes transmission and reception, interfaces with external peripherals and sensors, and all user interface.

DATSS is included with the DFS75L (as part of the FX System) and is also available as a paid upgrade to FS70 users.

The typical screen display for the DATSS Sonar Processor consists of a tabbed Control Panel that allows changing the settings and operating parameters of the DATSS System, resizable display areas for the Sonar Head, Sounder and Message Log, a floating dockable Sensor Panel to monitor the sensors status, toolbars for quick access to various functionalities and a status bar to monitor the system status. The image below shows a typical screen layout for the DATSS processor and highlights the main components listed above:



1.1 System Requirements

Recommended:

- 2 GHz or higher x64 processor
- 2GB or more RAM
- Two USB ports
- 10/100/1000 Mbps Ethernet
- Windows 10 64 bit Edition

1.2 Installing DATSS

Double click the DATSS_V0xxx_Setup.exe from the installation media and follow the installation wizard in the setup program.

Note: it is recommended to uninstall the previous version of DATSS. However, multiple versions of DATSS can coexist on the same PC.

1.3 Trawl Sonar Telemetry

1.3.1 Analog system

Analog system requires a TTM Interface Unit. The TTM Interface Unit provides the supply voltage required by the trawl sonar and the telemetry translation between the DATSS processor's Serial, USB or Ethernet port and the sonar head.

1.3.2 Digital system

For the digital system, DATSS uses the Ethernet port to communicate with the DFS trawl sonar head.

2 QUICK REFERENCE

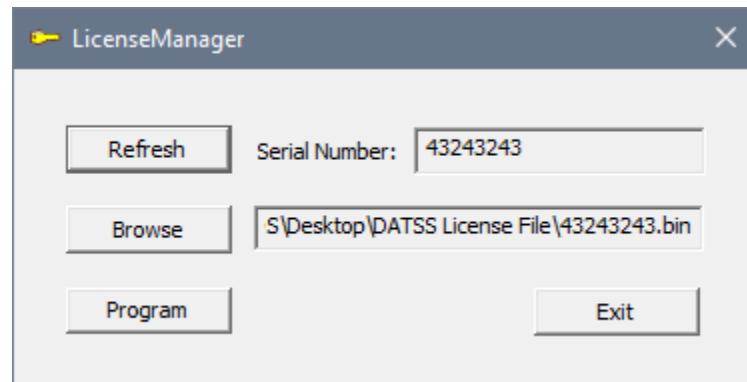
2.1 Upgrading your software license

If you have purchased an upgrade to your existing license, you will need to perform the following procedure.

1. Send your existing dongle serial number to Kongsberg Discovery Canada [sales](#) or [support](#).
2. Kongsberg Discovery Canada will send you a license file (a .bin file). Store it on a known location on your hard drive.
3. Insert your dongle into a USB port on your computer.
4. Go to C:\KML\DATSS_V0XXX and open the file LicenseManager.exe. 

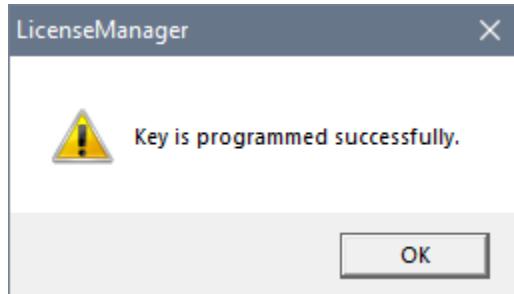
Your serial number should automatically appear in the **Serial Number** field. If you don't see it, make sure your dongle is inserted, then click **Refresh**.

5. Click **Browse**, then select the license file you saved earlier (a .bin file). Click **Open**.



6. Click Program.

You should see the following message:



TIP: IN THE DATSS SOFTWARE, CLICK ON THE SIMRAD BANNER TO OPEN THE ABOUT DATSS DIALOG BOX.



YOU SHOULD SEE THE FEATURES YOU PURCHASED (SUCH AS FOOTROPE DETECTION, FOR EXAMPLE) LISTED IN THE DIALOG BOX.

2.2 Restoring USB Driver functionality in Windows 10

If you are using Windows 10, a new security feature may cause your system installation to fail, especially if you are using a USB port in your system. For example, a USB port is used to interface with a security key inserted into the USB port, or an Interface Unit connected via the USB port.

In the original release of Windows 10, virtualization-based security (VBS) features were only available on Enterprise editions of Windows 10 (as part of “Device Guard”). However, starting with the April 2018 Update, Core Isolation brings some virtualization-based security features to all editions of Windows 10.

Enabling this feature causes conflicts for the installation of our USB drivers. To restore functionality, the **Memory Integrity** function needs to be set as disabled, as shown below.

This issue only affects KML USB driver and SafeNet dongle driver installation. It does not affect software function.

1. Select the Windows® search function, which you can usually find on the bottom Taskbar.
2. In the search box, type “Core Isolation”, and open the **Windows Security** dialog box.
3. If enabled, select the switch to disable **Memory integrity**.

Core isolation

Security features available on your device that use virtualization-based security.

Memory integrity

Prevents attacks from inserting malicious code into high-security processes.



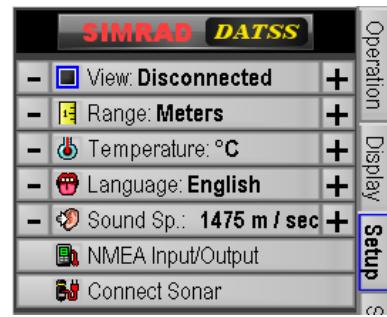
4. Select [X] in the upper-right corner to close the dialog box.

2.3 Starting DATSS

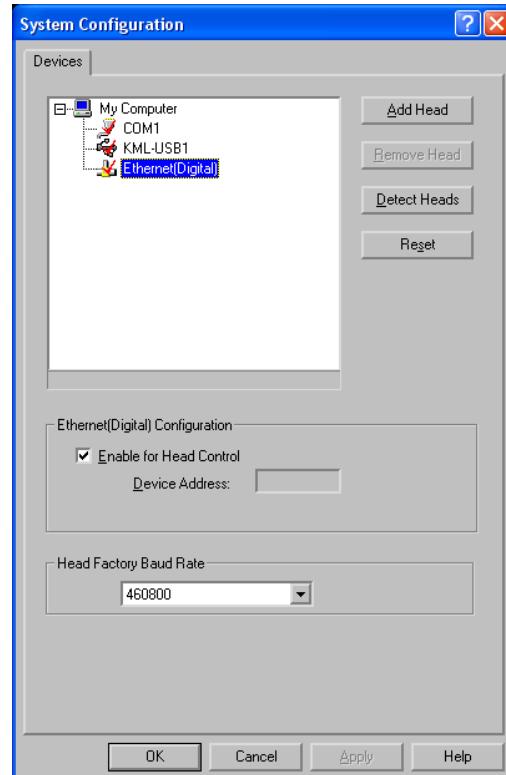
To start DATSS, double-click the DATSS icon on the computer desktop.



Select **Setup tab | Connect Sonar Menu**

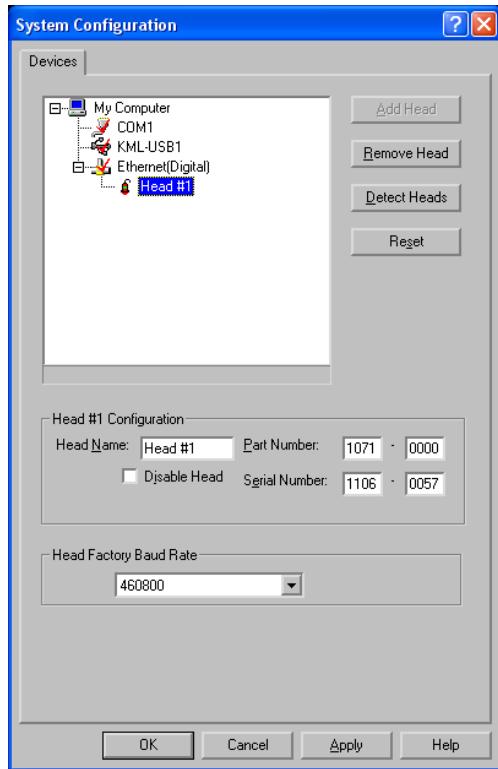


The System Configuration page will appear showing available COM ports, KML USB devices and Ethernet devices.

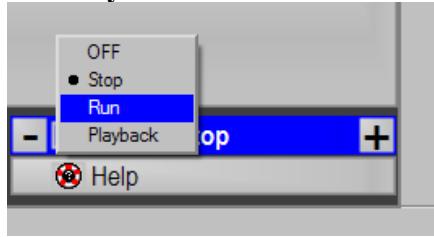


- To connect a head, click **Detect Heads** button. A progress bar will be shown as the system establishes communication with the sonar heads.

- The **Part Number** and **Serial Number** of the sonar head will be shown.



- Click OK to exit the dialog.
- Select **System > Run**

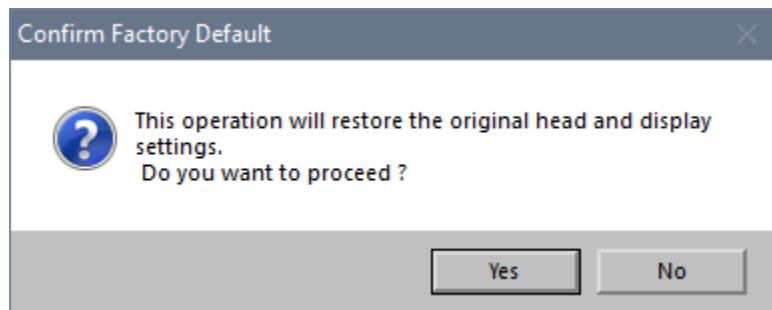


- The system will automatically setup the sonar head(s) attached to the trawl cable. This operation will take approx. 60 seconds for the Analog system and 40 seconds for the digital system.

2.4 Sonar Operation

Note

You can revert to the default settings for sonar operation at any time. Select **Factory Default** from the Settings menu. A confirmation dialog box will appear. Click "Yes".



2.4.1 Selecting the Scan Mode

DATSS supports the following scan modes:

- Polar: used to allow the sonar scan for up to 360 degree.
- Sector: used to allow the sonar scan in a sector less than 180 degree.
- Net opening: used to allow the sonar scan in a sector less than 216 degree to observe the trawl net.
- Sounder: used to lock the sonar transducer to 180 degree angle. The angle is not adjustable.
- Smooth sounder: the same function as Sounder, except the horizontal pixel and the vertical pixel has one to one aspect ratio.
- Lock: used to lock the sonar transducer to a certain angle. The angle is adjustable.

To change the scan mode:

- Click **Mode** button from the **Operation** tab.



2.4.2 Selecting the Bandwidth

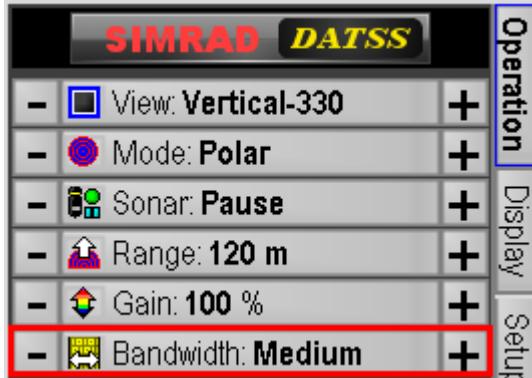
Receiver bandwidth is the difference between the upper and lower frequencies in the continuous band of frequencies the transceiver uses.

DATSS supports the following receiver bandwidth control:

- Wide: to get higher intensity image
- Medium: to use the optimal bandwidth
- Narrow: to get less noisy image

To change the bandwidth:

- Click **Bandwidth** button from the **Operation** tab.



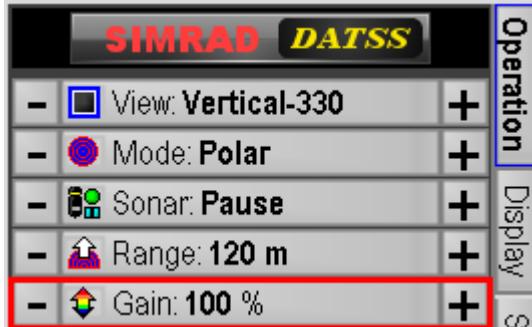
2.4.3 Changing the Gain

Increase the Gain to get higher intensity image.

Decrease the Gain to get lower intensity image.

To change the Gain:

- Click **Gain** button from the **Operation** tab.



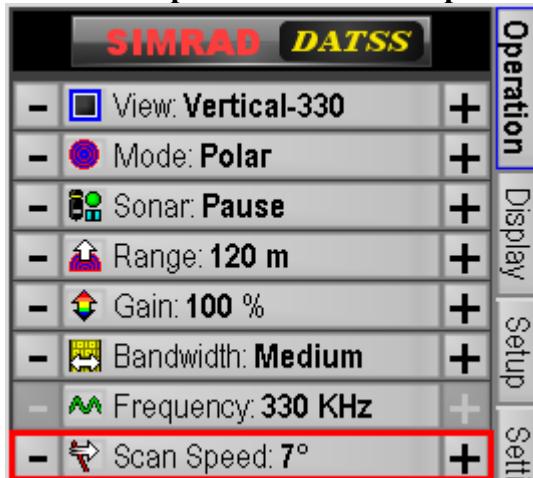
2.4.4 Changing the Scan Speed

DATSS supports the following scan speed for the step motor in Polar and Sector scan mode:

- 0.5 degree per step
- 1 degree per step
- 2 degree per step
- 4 degree per step
- 7 degree per step

To change the scan speed:

- Click **Scan Speed** button on the **Operation** tab.



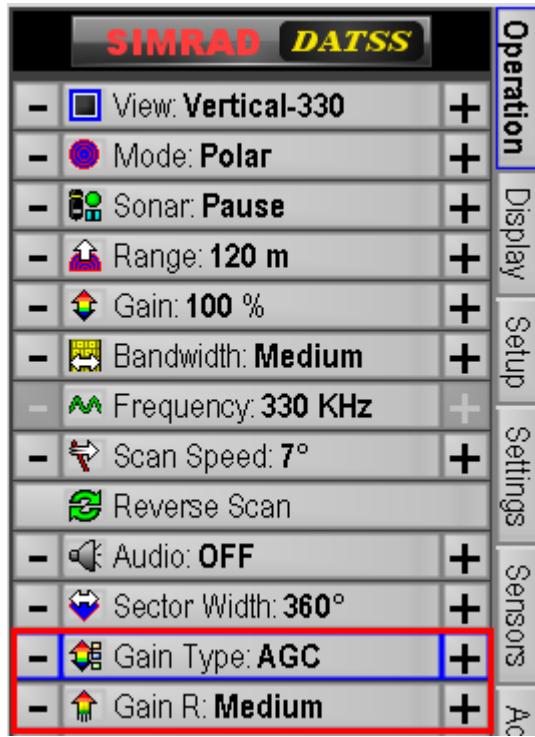
2.4.5 Changing the Gain Type

Gain Type is used to enable elementary image processing for reverberation control (RCG), automatic gain control (AGC) or a combination of the two. Note that

- **AGC (Automatic Gain Control):** provide automatic scaling to each sample in order to maintain proper dynamic range based on all sample values.
- **RCG (Reverberation Controlled Gain):** the RCG function adjusts the picture to minimize the influence from the bottom and the surface reverberation.
- **AGC+RCG:** Combination of AGC and RCG

To change the **Gain Type**:

- Click **Gain Type** button on the **Operation** tab.



Gain Response is the severity of the **Gain Type** affects the sonar image. To change the **Gain response**:

- Click **Gain R** button on the **Operation** tab.

Note

You can change Gain Type and Gain Response during recording playback as well.

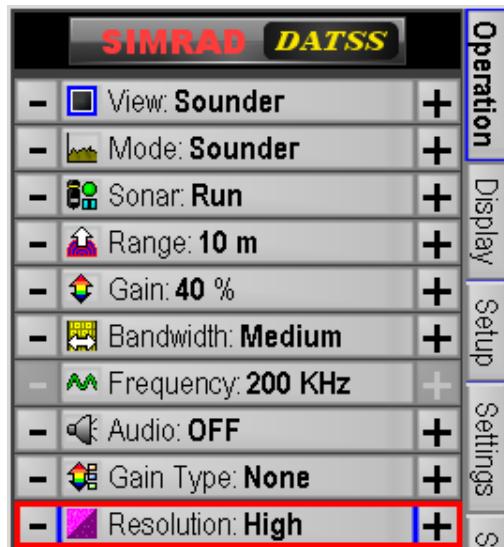
2.4.6 Changing the Resolution

Select low resolution for faster scan rate.

Select high resolution for better image quality.

To change the resolution:

- Click **Resolution** button on the **Operation** tab.

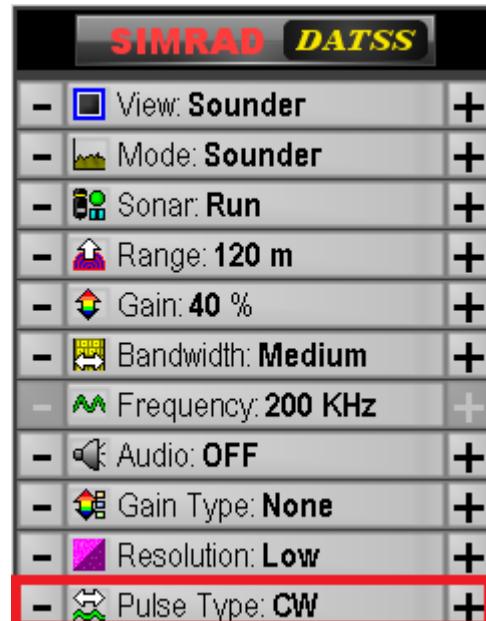


2.4.7 Changing the Transmit Pulse Type (DFS75L only)

Change to LFM transmit pulse from CW transmit pulse to gain higher signal to noise ratio.

To change the transmit pulse type:

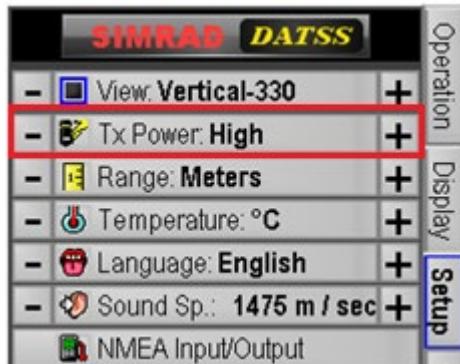
- Click **Pulse Type** button on the **Operation** tab.



2.4.8 Changing the Transmit Power

To change the transmit power:

- Click TX Power button on the Setup tab.

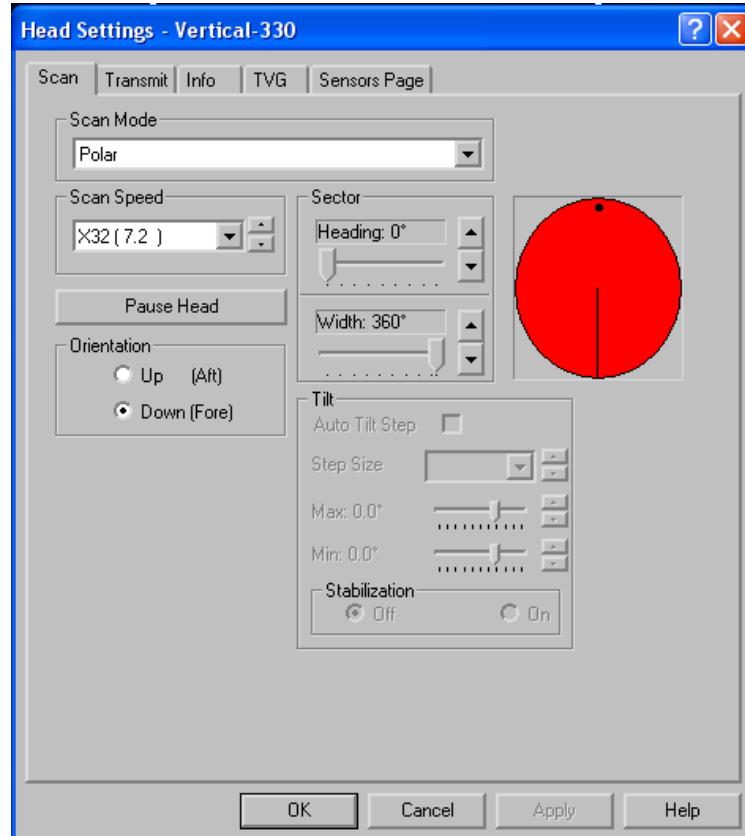


2.4.9 Sonar Operation Pages

To access sonar operation pages, right click on the sonar image display; select **Sonar Head Control** from the Context menu.

2.4.9.1 The scan page

The scan page is used to control scan mode, speed and area.



The **Scan Mode** box allows you to select **Polar**, Sector, Net Opening, Sounder, Smooth Sounder, or Lock mode.

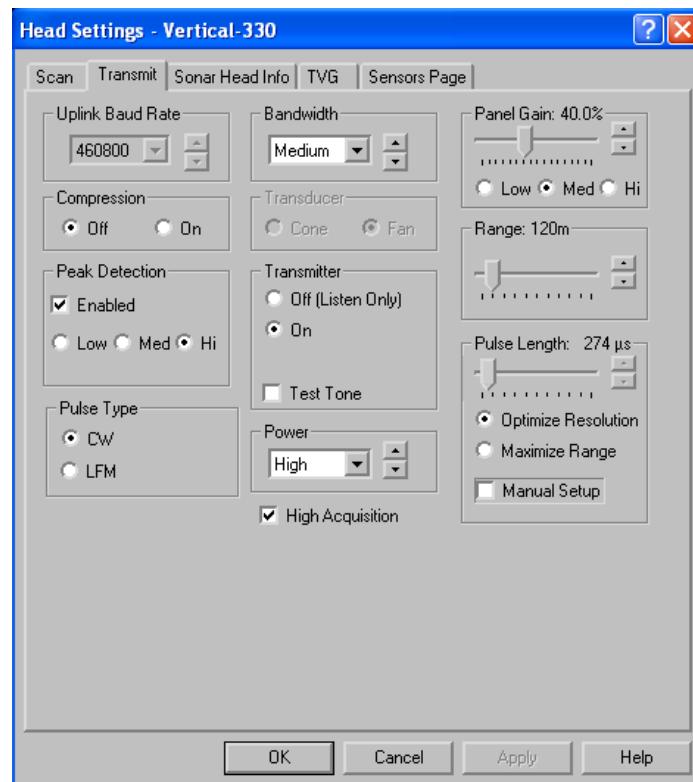
Use the **Scan Speed** box to select the scanning speed for the head.

The **Pause Head** button will make the head stop scanning and/or pinging.

Use the **Sector** controls to adjust the **Heading** of the area to be scanned as well as the **Width** of the sector. Use the slider controls or the increase-decrease buttons for either adjustment. The area to be scanned is shown graphically beside these controls.

2.4.9.2 The transmit page

The Transmit Page is used to control transmission from the head.



The **Uplink** control is used to set the baud rate at which data is sent from the head to the surface. You will normally want to set this control to as high a rate as your system will support without generating too many errors. When using the Ethernet telemetry, this control is disabled.

When **Compression** is set to on, the colour depth of the sonar image will be one-eighth of its maximum through a reduction in the signal amplitude resolution. This, however, increases the uplink speed of the sonar data, thereby increasing the system performance.

Peak Detection: when enabled, the sonar head will use highest sampling frequency to sample the data to get the highest resolution.

Pulse Type: select CW or LFM transmit pulse. Using LFM transmit pulse to get higher signal to noise ratio.

Bandwidth: select bandwidth from Wide, Medium and Narrow.

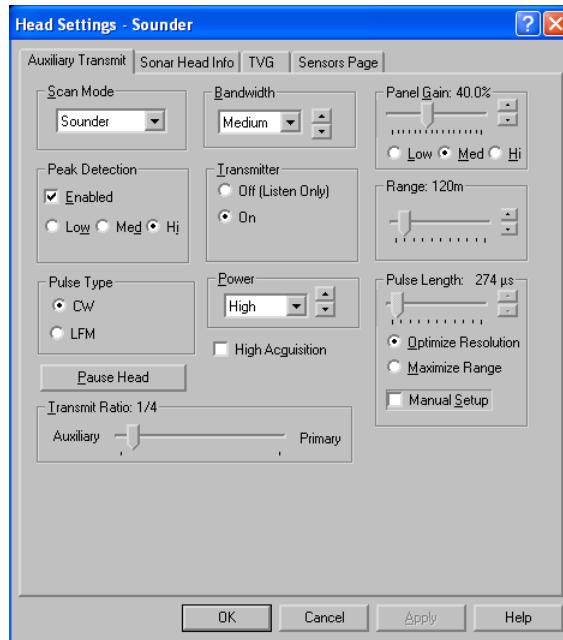
Transmitter: The transmitter controls are usually used for receiver test.

The **Power Control** is used to control the current transmit power output.

The **Hi Acquisition** control is used to change the number of samples collected from the sonar head to twice its normal value. This is equivalent to a ZOOM x2 operation.

The **Panel Gain** control is used to adjust the overall gain for the image from this head.

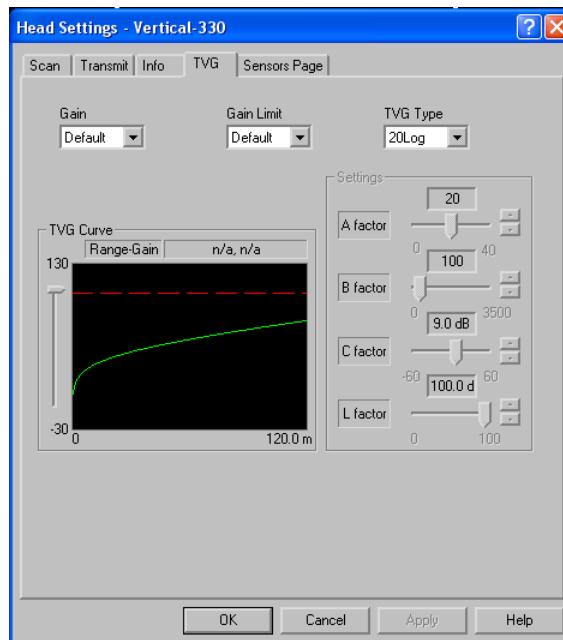
The **Pulse Length** control can be used to set the desired transmit pulse length. Generally, a shorter pulse length will give a sharper image but with reduced range. By default, the system adjusts the pulse length at different range and display mode settings according to the selection of the **Optimize resolution** or **Maximize Range**. The automatic selection of the pulse length can be disabled by clicking the **Manual Setup** box. Note that you will not be able to manually control the pulse length if you are using an LFM transmit pulse.



If the sonar head has an auxiliary sounder, the sounder transmit page has a special control, **Transmit Ratio**. This is used to control the transmit ratio between the primary transducer and the auxiliary transducer. For example, at transmit ration 1:4, the auxiliary transducer will transmit once every 4 primary transducer transmit.

2.4.9.3 The TVG page

The TVG Page is used to control the Time Varying Gain characteristics for the sonar.



Caution

We recommend using the defaults. Don't change these settings unless advised by the factory.

Gain

Select **Default** to use the standard default TVG settings.

Select **High** to use TVG settings slightly higher than default

Select **Low** to use TVG settings slightly lower than default.

Gain Limit

Select **Default** to use the default upper limit on TVG gain.

Select **High** to set the upper limit on TVG gain higher than default.

Select **Low** to set the upper limit on TVG gain lower than default.

TVG Type

Select **20log** to use TVG A factor = 20

Select **30log** to use TVG A factor = 30

Select **40log** to use TVG A factor = 40

Select **Test** to select a simple ramped TVG curve.

Select **User** to allow a custom TVG curve to be defined.

TVG Curve

The TVG curve uses three different coloured lines to show the current settings graphically.

The solid green line shows the current TVG curve.

The dashed red line shows the upper limit for the TVG curve.

The position of the yellow line can be adjusted up or down with the slider control to the left of the graph. The range and gain at the intersection of the yellow and green lines is shown in the **Range-Gain** box.

The **Settings** controls allow a custom TVG curve to be defined. Four adjustable factors are used to set the gain curve:

A factor represents spreading loss,

B factor represents one way absorption loss,

C factor represents a base or starting gain level.

L factor limits the maximum gain to reasonable levels

The equation used is:

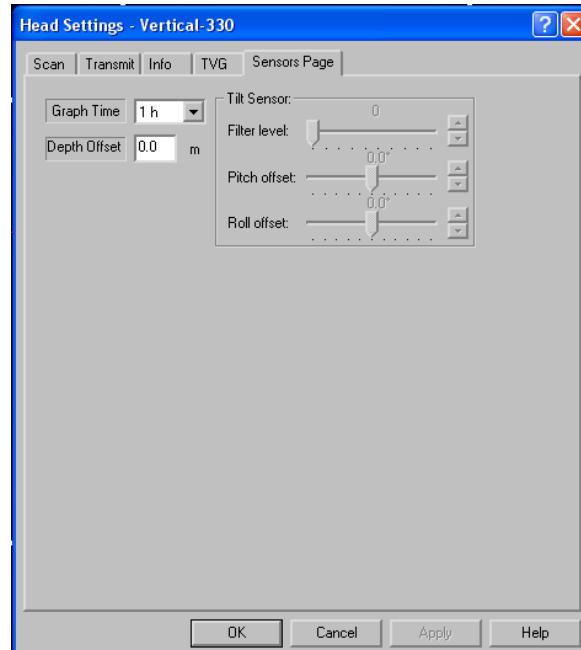
$$\text{Gain} = A \log(R) + 2BR + C$$

$$\text{Gain} = L, \text{ if Gain} > L$$

Where R is proportional to time since transmission start (range)

2.4.9.4 The Sensor page

The sensor page is used to adjust trawl sensors display information.



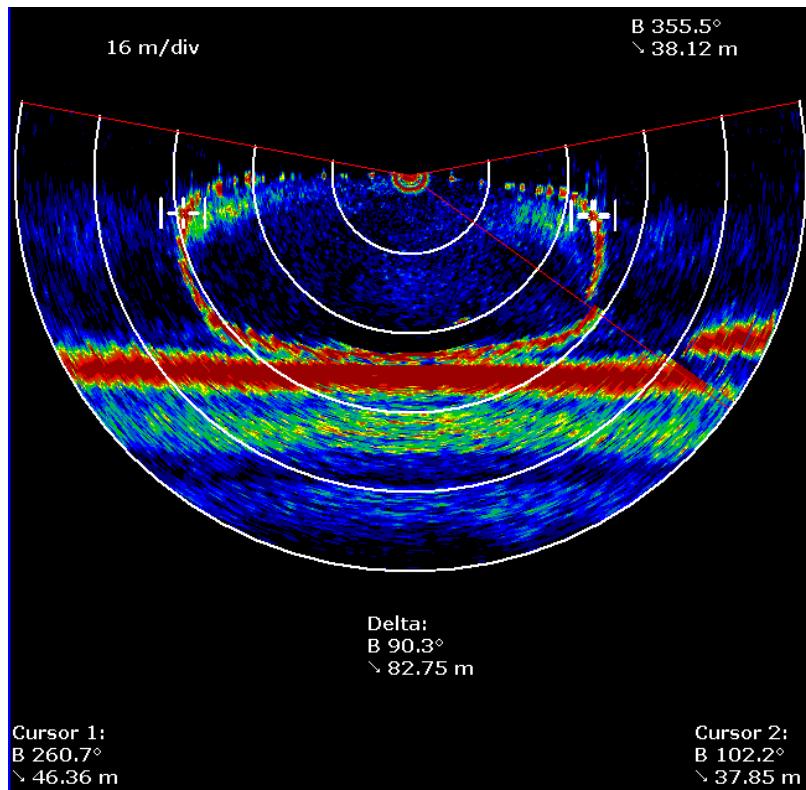
Graph Time: sets the sensor reading display time.

Depth Offset: when depth sensor reading is not accurate, use this offset to compensate the depth reading.

Tilt Sensor: enabled if tilt sensor is available. Filter level is used to stabilize the sensor reading. Pitch/Roll offset is used to compensate the pitch, roll value if the tilt sensor mounting is not level.

2.5 Sonar Display

The Sonar Display contains the sonar image and the measurement overlays. In the following example, the standard grid of circular range rings and the measurement cursors have been enabled to measure the sonar image.



2.5.1 Using the reference cursors

The Reference Cursors are two cross-hair type markers that can be placed on the sonar image to mark a point of interest. User can use the reference cursors to measure the range and bearing from the origin.

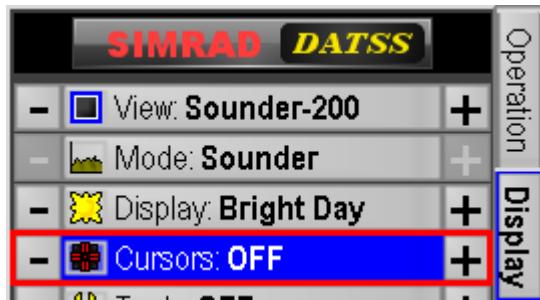


Reference cursor 1



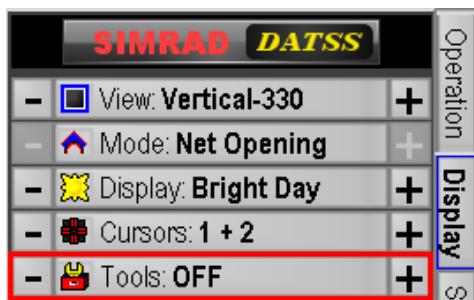
Reference cursor 2

To use the reference cursors, click the **Cursors** button from the **Display** tab



2.5.2 Using the Tools

Tools can be selected from the Display tab.



The Tools include the following:

- Pencil: Used for annotation. Drag from any point on the screen to label that point with a text box overlay. To enter new text or change the existing text, simply double click on the text box.
- Wiper: Used to delete existing measurement overlays.

2.5.3 Using the Gauge Window

A gauge window is a small window containing data and appearing inside the sonar head display window. DATSS has following gauge windows:

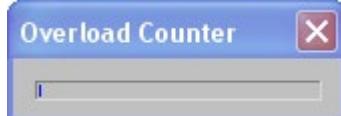
- The Head Settings Gauge Window: The Head Settings gauge Window shows the settings of some of the main parameters for the sonar head. Right-click on the sonar image view, select **Head Settings** to display The Head Settings gauge window.

Parameter	Value
Bandwidth	Medium
Bits Per Sample	8
Gain Shift Factor	Medium
Head Sensor Pitch	2.7°
Head Sensor Roll	-1.4°
Oversampling Frequency	23400
Panel Gain	64.7 %
Ping Rate	3.85
Pulse Length	300 µs
Range	60.00 m
Sample Interval	0.1261 m
Scan Speed	1.8°
Sensor Depth	103.1 m
Sensor Temp	2.6 °C
Synchronization	H/W-Select
Transmit Power	High

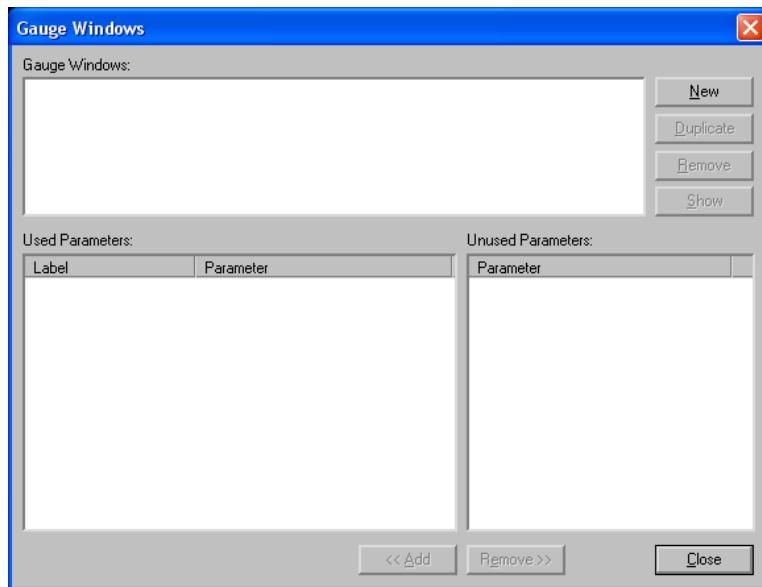
- The FS Sensors Gauge Window: The FS Sensors Gauge Window shows the depth and temperature sensor data from the trawl sensor pack. Right-click on the sonar image view and select **FS Sensors** to display The FS Sensors Gauge Window.

Parameter	Value
Depth	103.1 m
Temperature	2.6 °C

- The Overload Counter Gauge Window: The Overload Counter window displays the percentage of sonar samples that are in saturation. The display is logarithmic in nature, where 10% count is displayed as half scale and 100% as full scale. User is encouraged to adjust the TVG to minimize the number of saturated samples.

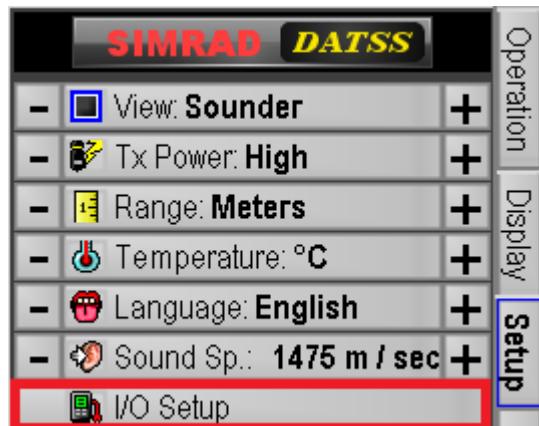


- To Create a customized gauge window to display customized parameters
 - Right-click on the sonar image view and select **Customize Gauge Window**



2. In the "Gauge Windows" dialog box, click "New" button.
3. Enter a name for the new gauge window then click "OK".
4. To add parameters into the gauge window, select from the "Unused Parameters" list then press the "Add" button.
5. To remove parameters from the gauge window, select from the "Used Parameters" list then press the "Remove" button.
6. Click "Close" button to finish.
7. Use the "Duplicate" button to quickly duplicate an existing gauge window and add more parameters.
8. Use the "Show" button to show/hide the selected gauge window.

2.6 Setup system parameters



- To change the unit of measure for Range, click **Range** button from the **Setup** tab. The units are **Meters, Feet, Yards, and Fathoms**.
- To change the unit of measure for Temperature, click **Temperature** button from the **Setup** tab. The units are **C, F**.
- To change language, select one of the languages in the **Language** button from the **Setup** tab.

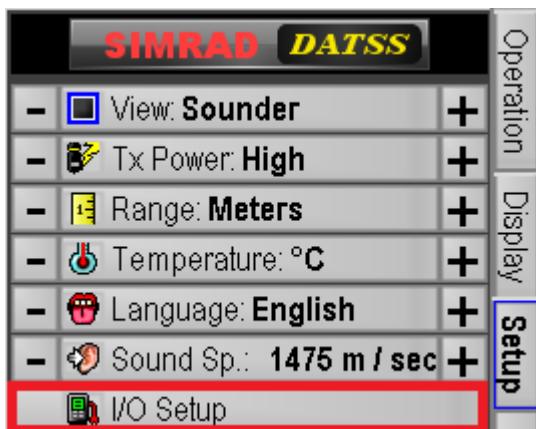
Note

Certain supported languages only work on the operating system of the same language. Such as Chinese, Japanese and Russian.

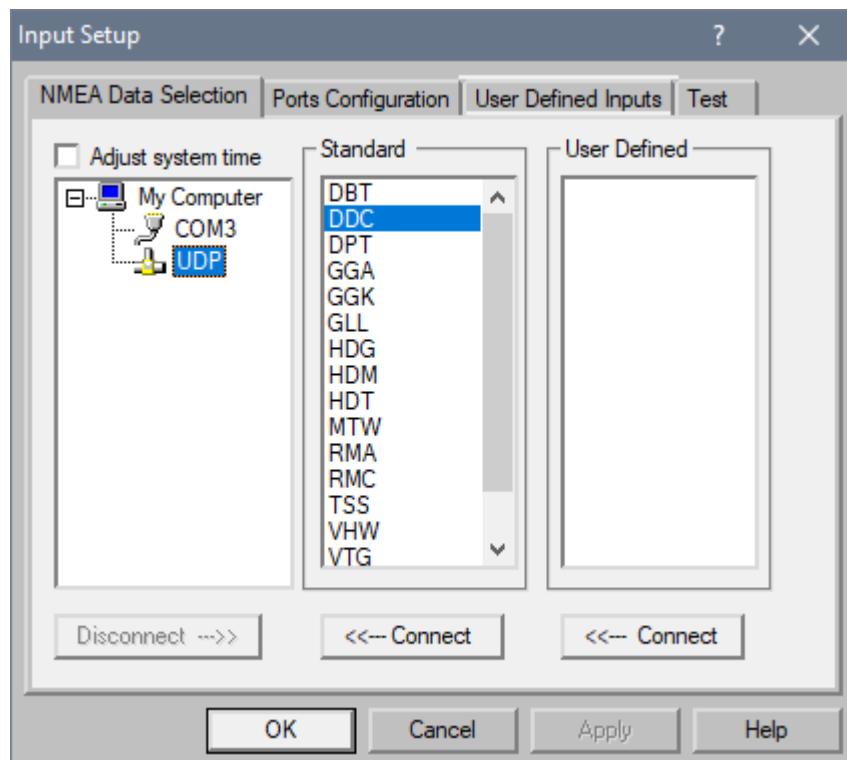
2.7 NMEA Input and Output

2.7.1 NMEA Input

Standard NMEA sensors such as GPS can be imported to the DATSS software through a COM Port, Virtual COM Port, or UDP Port. To enable NMEA input, click the **I/O Setup** button on the **Setup** tab and then select **Input**.



1. On the **NMEA Data Selection** page, select a COM or UDP port.



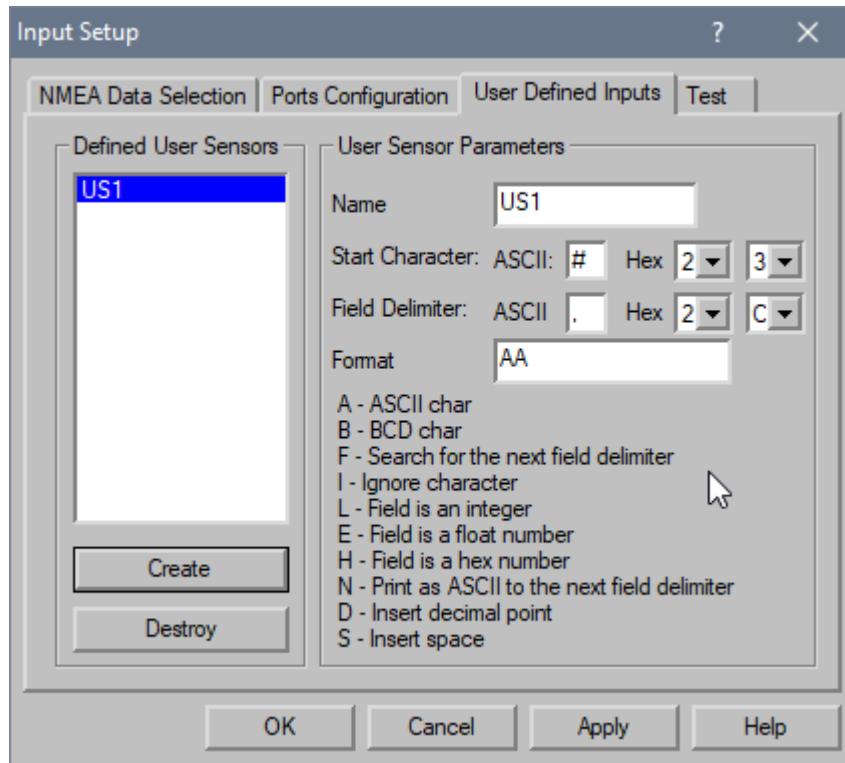
2. Select one or more of the NMEA standards in the "Standard" list, then click the **Connect** button.
3. Click the **Apply** button.
4. If you have "User Defined" sensors (see section 2.5.1.1), select one or more from the "User Defined" list, then click **Connect**.
5. Select the "Ports Configuration" tab to configure port parameters (see section 2.5.1.2).
6. Select the "Test" tab to make sure the sensor data is being received from the selected port (See section 2.5.1.3).

To remove a sensor from a COM or UDP port:

1. Select the sensor to be removed.
2. Click the **Disconnect** button.

Check the "Adjust System Time" box to allow the system clock to be synchronized to the time stamp from the NMEA sensor data.

2.7.1.1 Creating user-defined sensors



- On the **User Defined Inputs** page, click the **Create** button to make a new user-defined sensor.
- Change the assigned name by editing the contents of the **Name** box.
- Use the **Start Character** ASCII box to enter the start character of the user serial string. The Hex drop-downs will populate automatically.
- Use the **Field Delimiter** box to enter the delimiter character to delimit the string - typically a comma or a space. The Hex drop-downs will populate automatically.
- Use the **Format** box to enter which characters in the input string will be displayed and how they will be interpreted. You must enter some sequence of the letters A,B,F,I,N,D, or S to define the display format:
 - A --- Print as ASCII character
 - B --- Print as BCD character
 - F --- Search for the next Field Delimiter
 - I --- Ignore a character
 - N --- Print as ASCII to the next Field Delimiter
 - D --- Insert a Decimal point
 - S --- Insert a Space

Example

Suppose you had a device which provided distance travelled through the water using the NMEA defined VLW sentence:

\$--VLW,x.x,N,x.x,N*hh<CR><LF>

where:

\$--VLW identifies the start and type of sentence,
x.x is a variable-length data field showing the cumulative distance travelled through the water.

N specifies the distance units to be in nautical miles,
x.x is a variable-length data field showing the distance since reset,

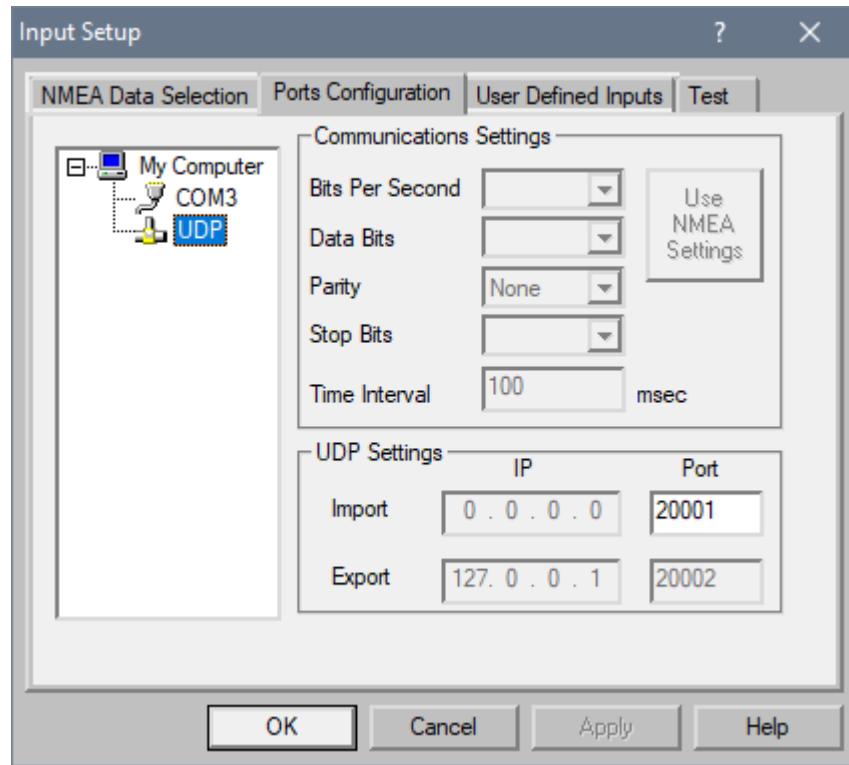
N specifies the distance units to be in nautical miles,
***hh** is a checksum,
<CR><LF> is a terminating carriage return and line feed pair.

This sentence always starts with the “\$” character, so we would set the Start Character for this data to “\$” (Hex 24 or Binary 00100100).

The data is separated into fields using commas, so we would set the Field Delimiter for this data to “,” (Hex 2C or Binary 00101100).

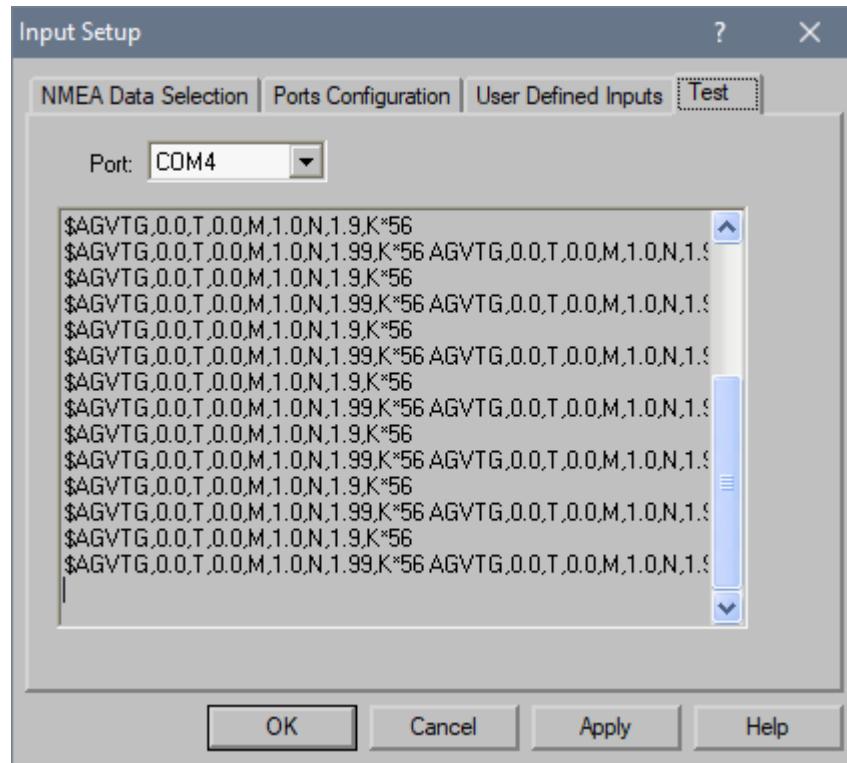
Suppose we wanted to display only the cumulative distance and the distance since reset from this data string. We could set the Display Format string to “FNFSSN”. The first “F” would ignore everything up to and including the first comma, the first “N” would display the cumulative distance field, the next “F” would skip the next field, the “SS” would print two spaces to separate the data, and the final “N” would display the ‘distance since reset’ field.

2.7.1.2 Setting the COM or UDP port for sensor input



- On the **Ports Configuration** page, select the COM or UDP port that you want to configure in the tree under **My Computer**.
- If you are using a COM port:
 - o Set **Bits Per Second**, **Data Bits**, **Parity**, and **Stop Bits** to match with the sensor settings.
 - o Set the **Time Interval** for the sensor data input rate.
 - o Click the **Use NMEA Settings** button to quickly set all of the settings to NMEA default.
- If you are using a UDP port:
 - o If required, enter in the port used to import NMEA data.

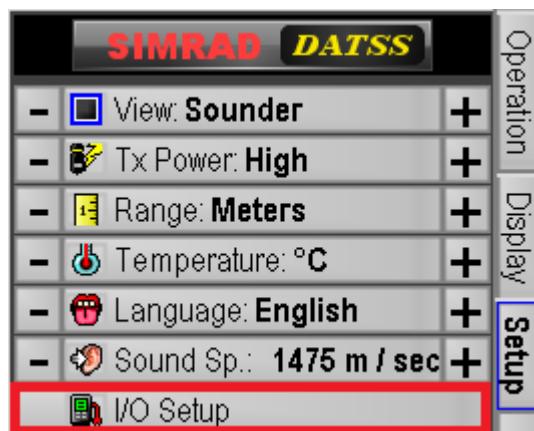
2.7.1.3 Checking the sensor data



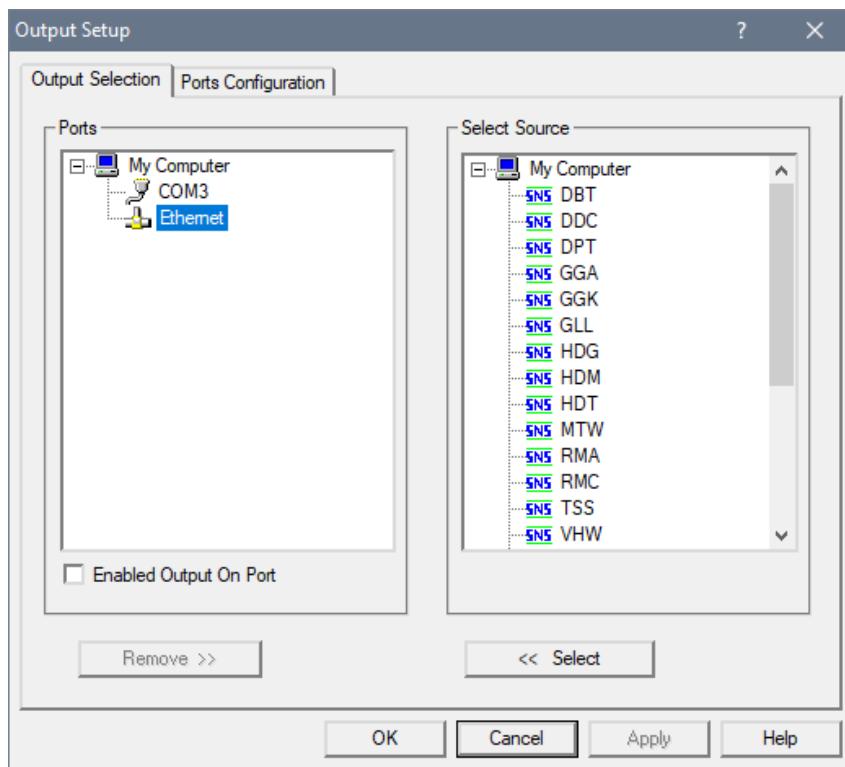
On the **Test** page, check the sensor data received from the COM or UDP port.

2.7.2 NMEA Output

NMEA sensor data can be exported from the DATSS software through a COM or UDP Port. To enable NMEA output, click the **I/O Setup** button on the **Setup** tab and then select **Output**.



1. On the **Output Selection** page, select a COM or Ethernet port.

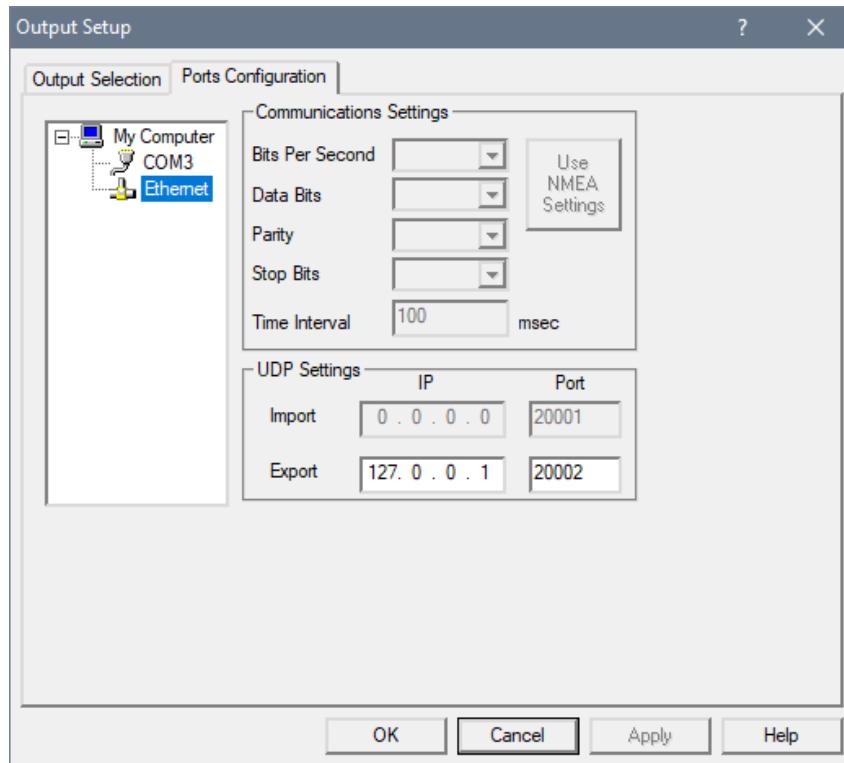


2. Select one or more of the NMEA standards in the "Select Source" list, then click the **Select** button.
Observe that the selected source appears in the **Ports** list.
3. Check the "Enabled Output On Port" box to enable the selected port for exporting.
4. Click the **Apply** button.

To stop exporting a sensor:

1. Select the sensor output to be disabled in the **Ports** list.
2. Click the **Remove** button.

2.7.2.1 Setting the COM or UDP port for sensor output



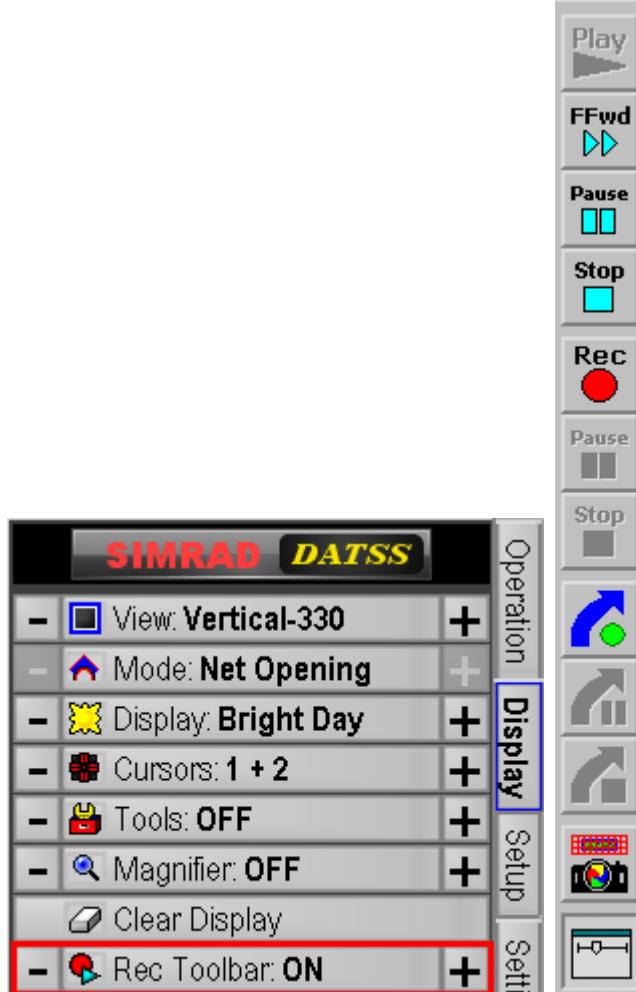
- On the **Ports Configuration** page, select the COM or Ethernet port that you want to configure in the tree under **My Computer**.
- If you are using a COM port:
 - o Set **Bits Per Second**, **Data Bits**, **Parity**, and **Stop Bits** to match with the sensor settings.
 - o Set the **Time Interval** for the sensor data output rate.
 - o Click the **Use NMEA Settings** button to quickly set all of the settings to NMEA default.
- If you are using a UDP port:
 - o If required, enter in the port used to transmit the NMEA data.

2.8 Recording Playback and Exporting

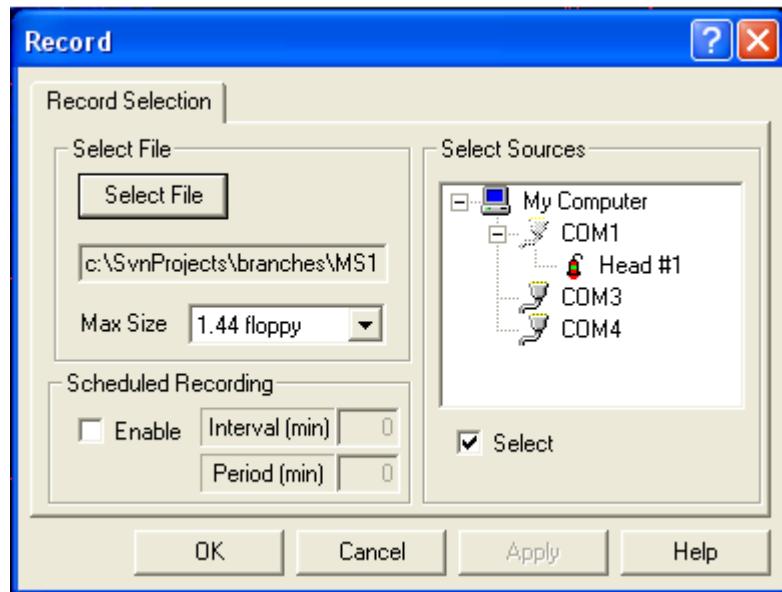
2.8.1 Recording

With DATSS, you can record the sonar data and settings to the ".smb" data file. The recorded data are time-stamped with UTC time and displayed in GMT format during playback. To start recording:

- Click **Rec Toolbar** in the **Display** tab to enable or disable the recording tool bar.



- Click  button on the recording tool bar



Select File: The DATSS creates a unique name for each file based on the date and time. If you do not want to use this name, click the **Select File** button to select a name for the file to be recorded.

Use the **Max Size** control to set the maximum file size to be used. When this size is reached, a new file will be started using the same name and a different extension as follows:

- The first file will have the extension SMB.
- The next file will have the extension 001.
- The next file will have the extension 002.
- etc.

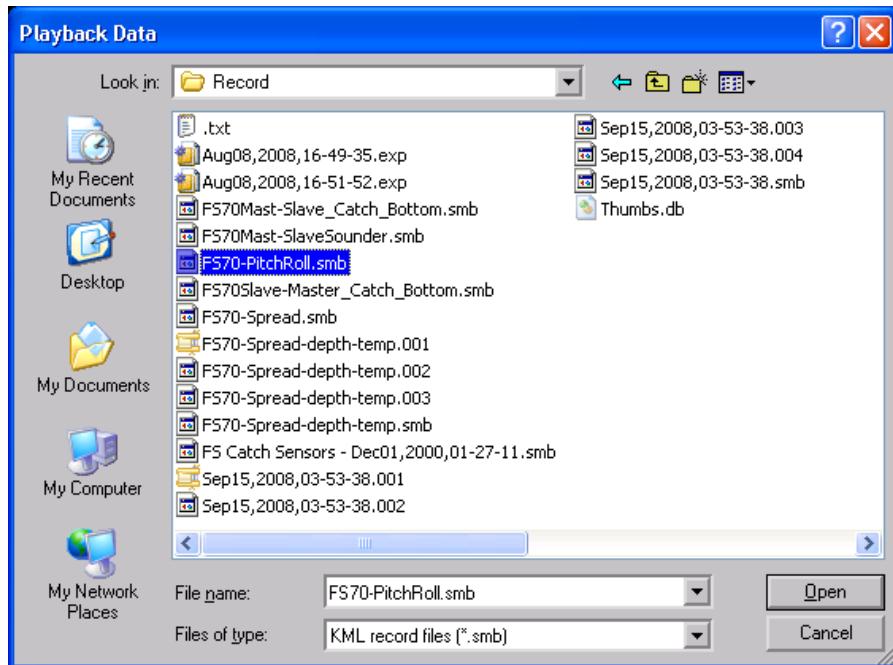
Select Sources: Click on the sonar head that you want to record and then check "Select"

Scheduled Recording: The scheduled recording feature allows you to automatically record data for a selected interval then pause for another interval. This cycle will repeat continuously. Select **Enable** to enable scheduled recording. Set the number of minutes to be recorded with the **Interval (min)** control. Set the number of minutes between recording sessions with the **Period (min)** control. For example, to set the sonar head to run for 5 minutes and sleep for 25 minutes enter 5 min for interval, 30 min for period.

2.8.2 Playback

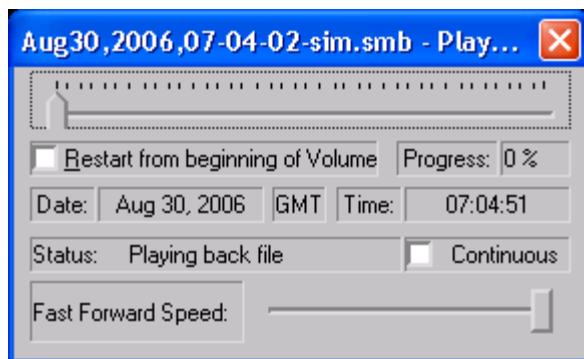


To playback smb file, click **Play** button on the recording toolbar. The playback data dialog box allows you to select a file for playback.



Select the file that you want to playback, then click **Open** to start playback.

The **Playback Progress** dialog box is used to control data playback and show the current position within the data.



The slider bar shows the relative progress of the playback. The markers on top of the slider bar correspond to the beginning of each volume or file in the selected file group. The slider can be dragged ahead or back to see any part of the data.

Select **Restart from beginning of Volume** if you want to always restart at the beginning of each volume after repositioning the slider bar. This is the default and provides the fastest repositioning. If this option is disabled, the system will fast forward through the selected volume to the user selected position.

The **Progress** box shows the playback progress as a percentage of the total file group size.

Select **Continuous** to allow the system to continuously replay the same file group over and over again.

The date and time of the recorded data are displayed as GMT time.

Use the **Fast Forward Speed** control to adjust the playback speed when the Fast Forward feature has been selected.

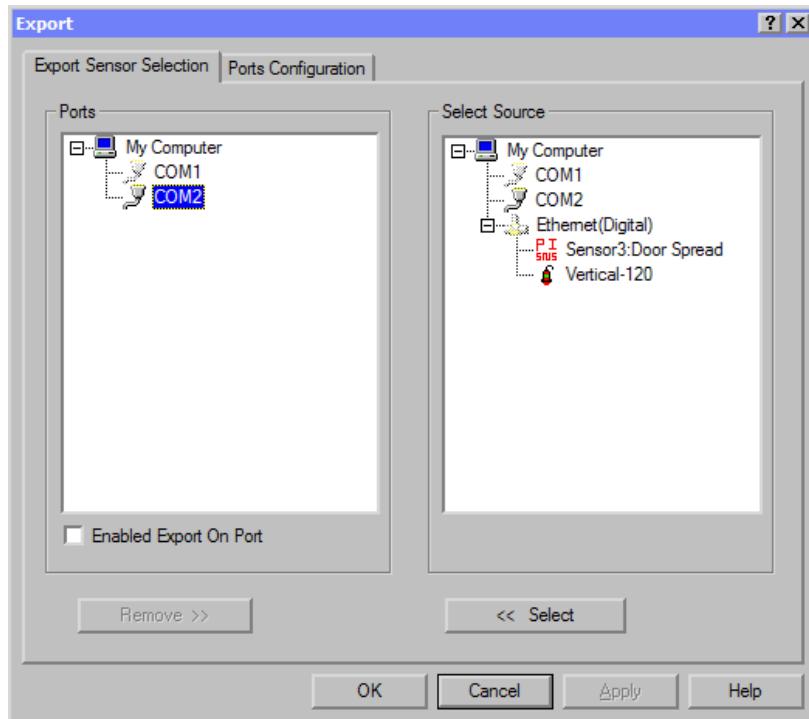
2.8.3 Exporting



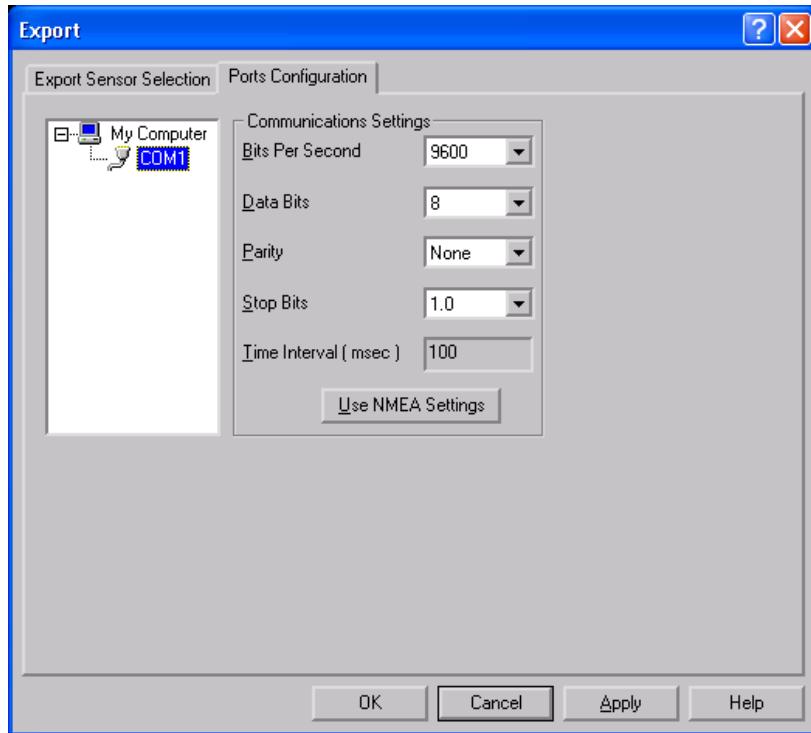
To start exporting, click on the recording toolbar.

The **Export Sensor Selection** dialog box allows you to configure the system to export data to a COM port.

Select a COM port under **Ports** and check **Enabled Export On Port**. Select one or more data source under **Select Source**.



The Ports Configuration page allows you to set the communications settings for the selected COM port.



Select the COM port that you want to configure in the tree under **My Computer**.

Set the **Communications Settings** (Baud Rate, Data Bits, Parity, and Stop Bits). Use the highest baud rate to get the maximum exporting speed.

Click the **Use NMEA Settings** button to quickly set all of the communication settings to those normally used by NMEA devices.

2.8.4 Saving the sonar or sounder image

To save the sonar or sounder image to BMP file:

- Select the sounder view or the sonar view. Note that you can only save an image of the selected view.

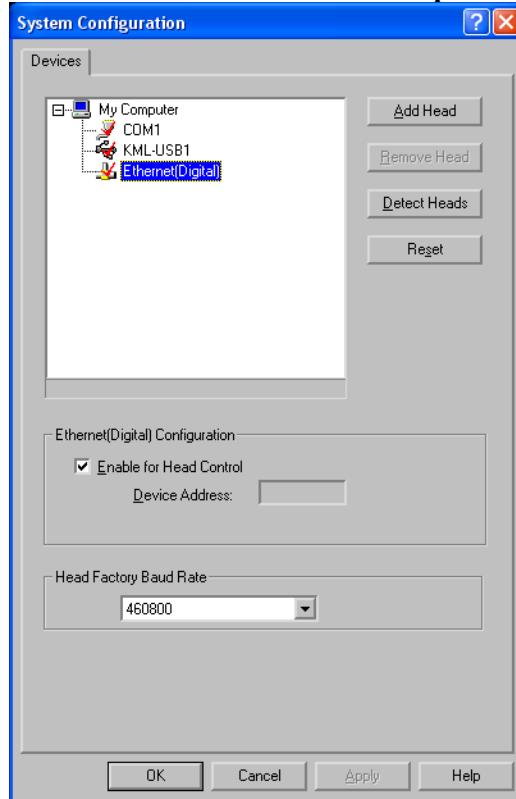
- Click  on the recording toolbar to save an image of the selected view with overlays.
- A ".TXT" file is created along with the ".BMP" file. The ".TXT" file is useful for troubleshooting. Send it along with the image to the factory if you have any questions.

2.9 Updating the sonar head firmware

This feature is only available to DFS75L digital sonar heads. The sonar head must be stopped in order to update the sonar head firmware.

To update the sonar head firmware:

- Click **Connect Sonar** from the **Setup** tab.



- Click **Detect Heads** button to detect the DFS75L sonar head.
- Click **OK** if the sonar head is detected.
- Click **Advanced** tab, select **Configuration** from the **Advanced Menu**, and then click **Update Sonar Firmware**.
- Browse and select the firmware binary file (.hsw).
- In the **Update Sonar Firmware** dialog box, click **Update** button.
- Wait until the updating progress is complete and click **Exit** to finish.
- Power down and power up the sonar head to make the new version take effect.

To reverse the sonar head firmware back to factory version:

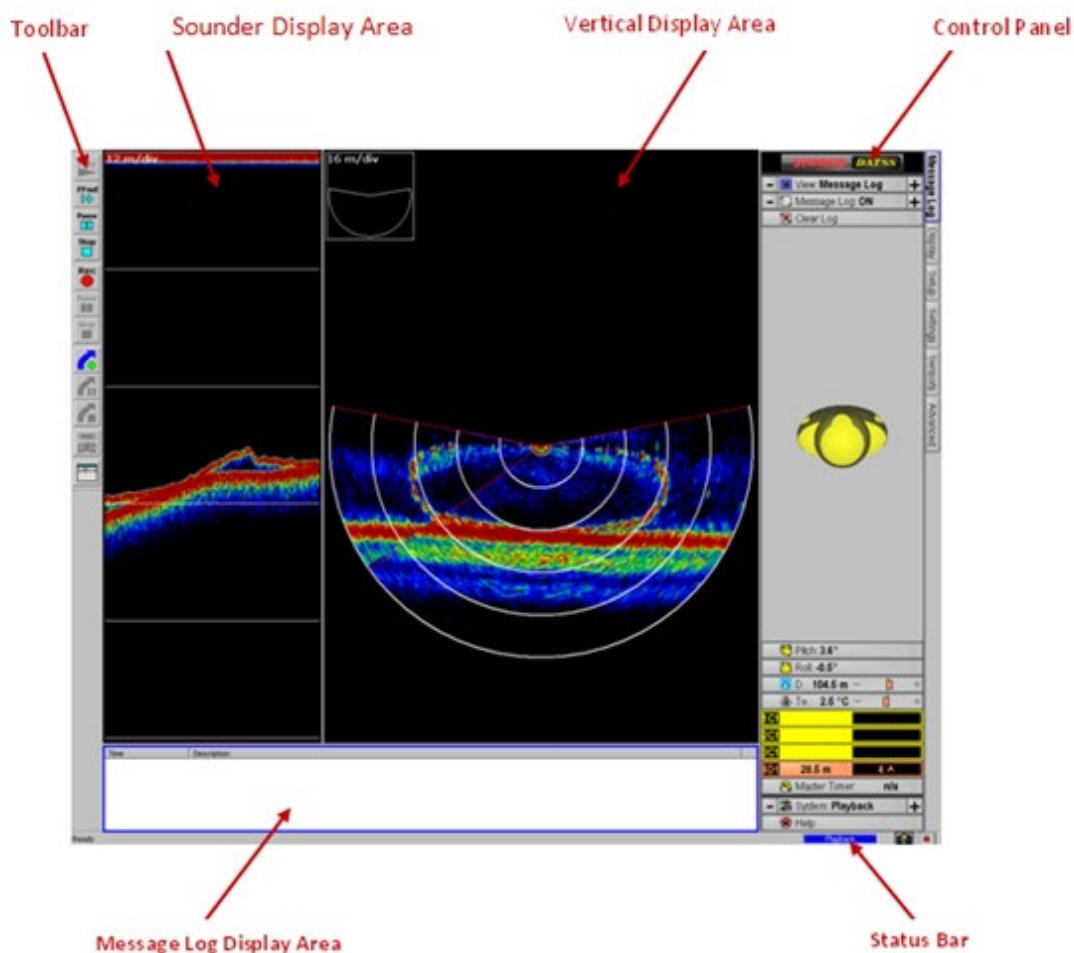
- Click **Connect Sonar** from the **Setup** tab.
- Click **Detect Heads** button to detect the DFS75L sonar head.

- Click **OK** if the sonar head is detected.
- Click **Advanced** tab, select **Configuration** from the **Advanced Menu**, and then click **Revert Sonar Head Firmware**.
- In the **Update Sonar Firmware** dialog box, click the **Revert to Factory** button.
- Wait until the reversing progress is complete and click **Exit** to finish.
- Power down and power up the sonar head to make the factory version take effect.

3 USER INTERFACE

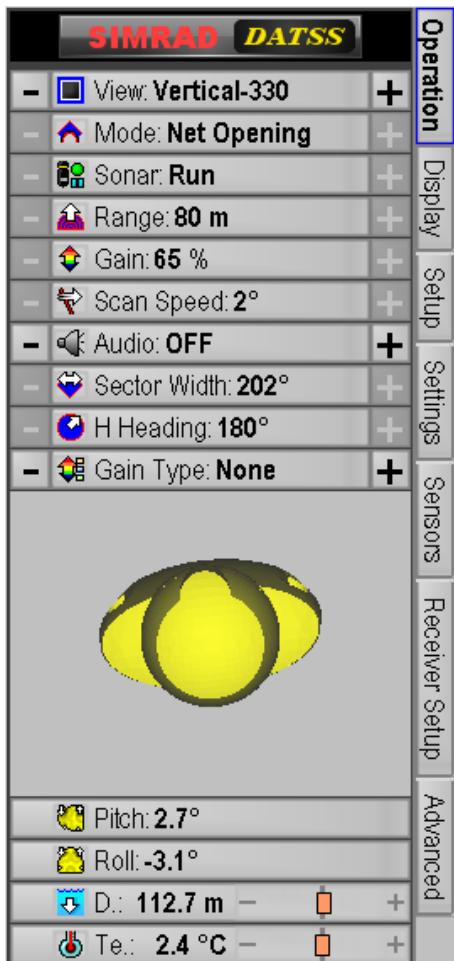
The DATSS user interface contains the following modules:

- Control Panel
- Toolbar
- Vertical Image Display
- Sounder Image Display
- Message Log Window
- Status Bar



3.1 Control Panel

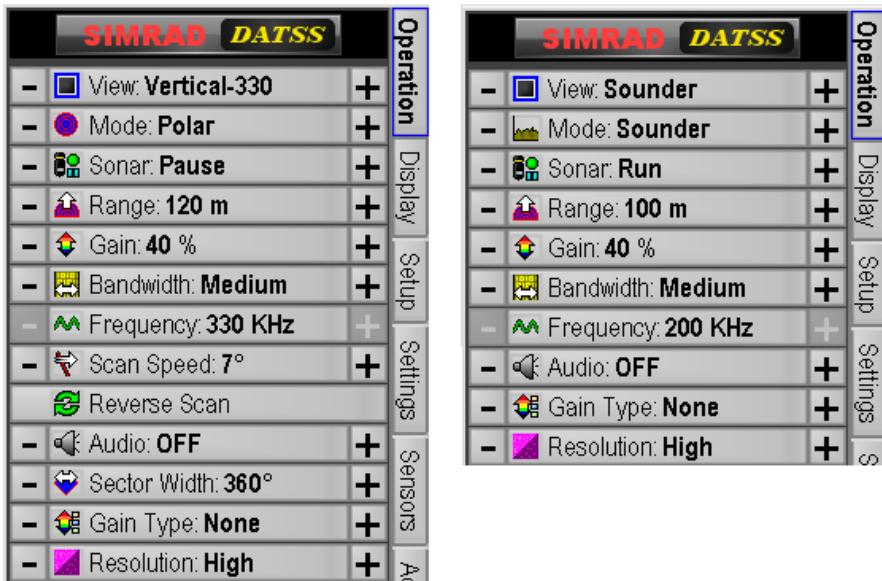
The Control Panel allows adjustments to several system parameters without having to access a menu system. To minimize clutter the control items available in Control Panel are grouped into tabbed pages according to functionality. Items that lead to dialog boxes are shown in the “Advanced Menu”. All other items are system parameters that may be modified. As you move the pointer over the Control Panel, a simple help message will pop up beside the pointer describing its function. To perform certain operations, just left or right click the mouse over the desired item. Selected items are highlighted.



The Sonar Control Panel located above is divided into 7 tabbed Pages: Page 1 “Operation”, Page 2 “Display”, Page 3 “Setup”, Page 4 “Settings”, Page 5 “Sensors Control”, Page 6 “Receiver Setup” and Page 7 “Advanced”. Each page allows you to change the system parameters. To change the value of a system parameter, move the mouse up or down until the desired button is highlighted and click the left mouse button or right mouse button to activate the new setting.

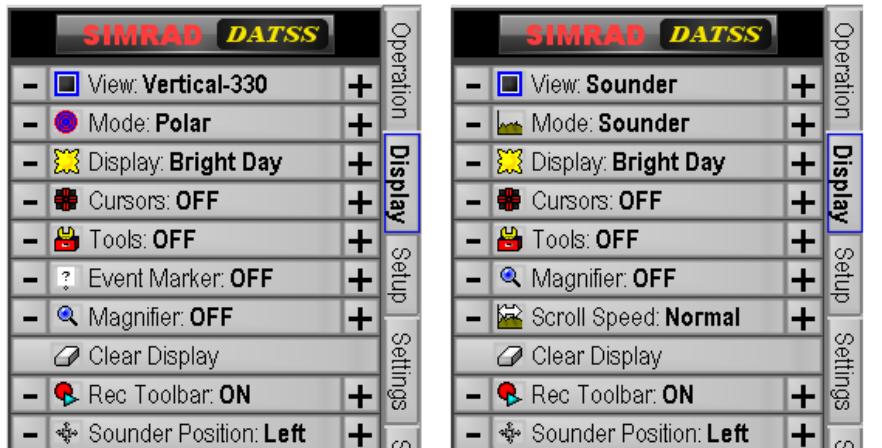
NOTE: The main control panel can be docked or auto-hidden.

3.1.1 Operating Control Panel Tab



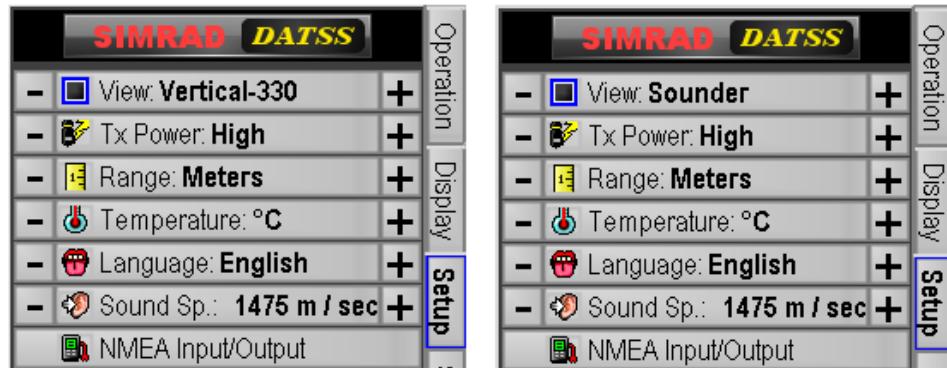
The main “Operating” control panel allows you to select operational settings for the active sonar. Click on the appropriate display window to activate the sonar you want to control, next position the mouse cursor on the button you want to change, then, click the left mouse button or right mouse button to change the settings.

3.1.2 Display Control Panel Tab



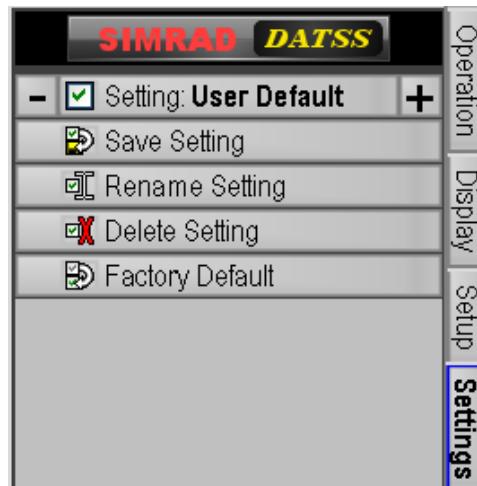
The main “Display” control panel allows you to select the display settings for the active sonar. To change the value of the system parameter just left or right click the mouse over the button you have selected, move the mouse up or down until the desired button is highlighted and click the left mouse button or right mouse button to activate the new setting.

3.1.3 Setup Control Panel Tab



The main “Setup” control panel allows you to set up system parameters for the active sonar. To change the value of the system parameter just left or right click the mouse over the button you have selected, move the mouse up or down until the desired button is highlighted and click the left mouse button or right mouse button to activate the new setting.

3.1.4 Users Settings Control Panel Tab

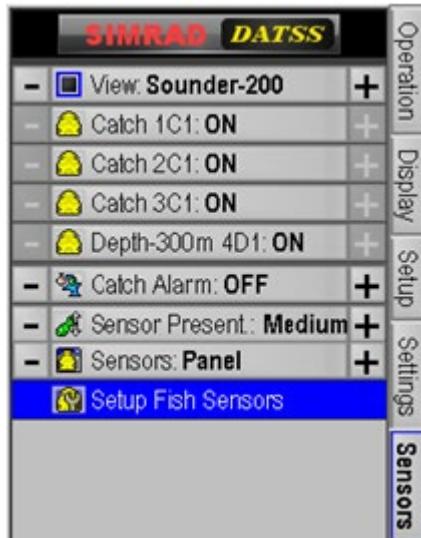


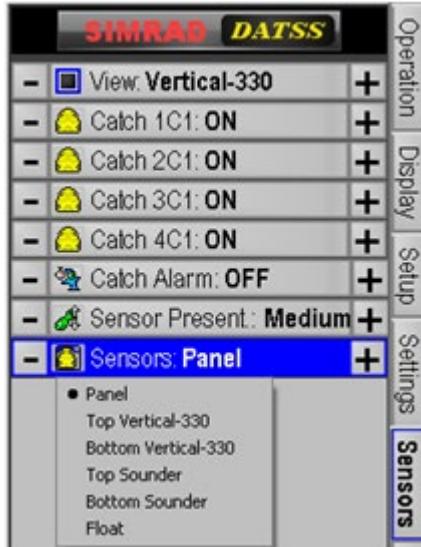
The main “Users” control panel allows you to set the settings for the active sonar based on previously saved settings. To change the setting, just left or right click the mouse over the button you have selected, move the mouse up or down until the desired button is highlighted and click the left mouse button or right mouse button to activate the new setting.

NOTE: When you “Save Setting” you automatically save the setting for both the vertical and the sounder at the same time.

3.1.5 Sensors Control Panel Tab

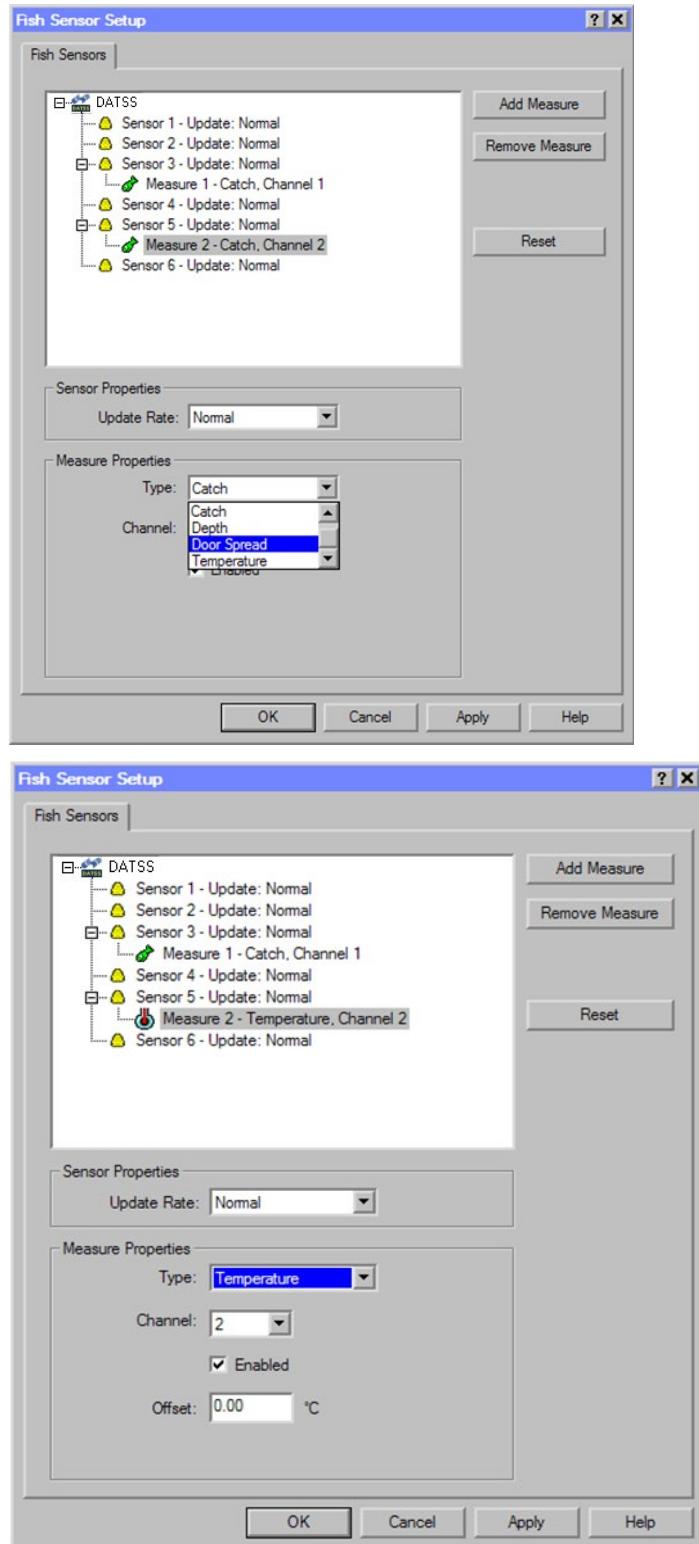
The main “SENSORS” control panel allows you to select the sensors you want to setup. To change the value of the system parameter just left or right click the mouse over the button you have selected, move the mouse up or down until the desired button is highlighted and click the left mouse button or right mouse button to activate the new setting.





By placing the mouse cursor on the “Setup Fish Sensors” button and then left clicking the mouse, the Fish Sensor Window will pop up as indicated on the following page. Move the mouse cursor up or down to select the sensor you want to select and then left click the mouse on the appropriate selection to activate the mode of operation. By placing the mouse cursor on the “Sensors Panel” button and then right clicking the mouse, a drop down menu will appear. Move the mouse cursor up or down to select the location of the sensor panel you want to put, then left click the mouse on the appropriate button selection to activate the operation.

3.1.5.1 PI 40 kHz Channel Sensors Setup



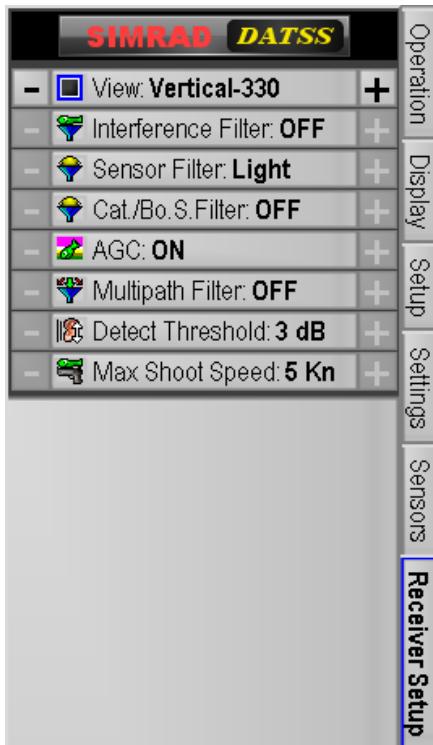
The next step after the above operation, for example, will be to add a catch sensor.

Click on “sensor 5”; next select Door Spread or catch #2; next you would select the channel of operation, in this case you would have selected #2.

If you are adding for example a temperature sensor you can setup an offset. See the windows above for the example.

Note: For additional information on the Simrad PI Setup, please refer to your PI Instruction Manual.

3.1.5.2 PI 40 kHz Sensors Receiver Setup



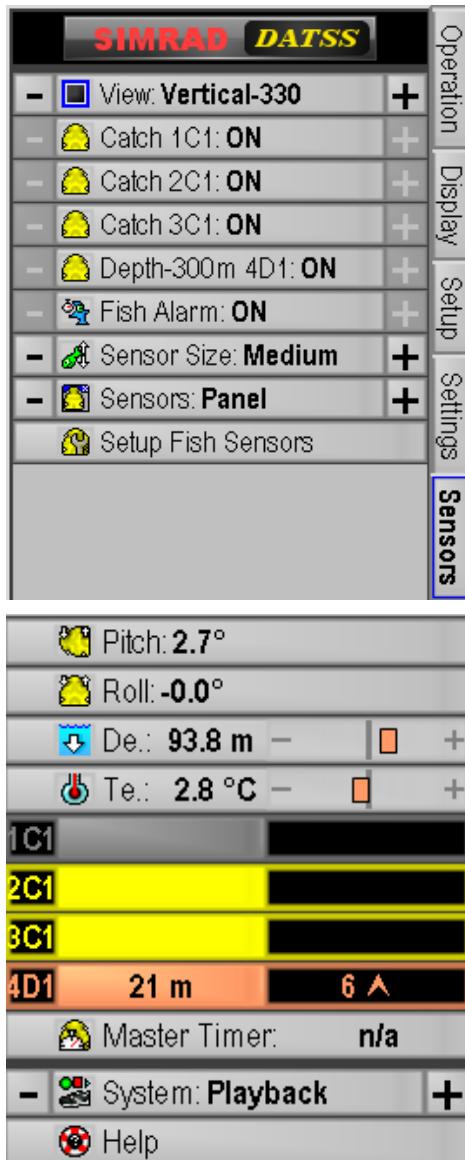
The main “SENSORS RECEIVER SETUP” control panel allows you to select the sensors you want to setup. To change the value of the system parameter just left or right click the mouse over the button you have selected, move the mouse up or down until the desired button is highlighted and click the left mouse button or right mouse button to activate the new setting.

NOTE: For additional information on the Simrad PI Sensors Setup, please refer to your PI Instruction Manual.

NOTE: The PI sensor setup menus are not available if you are using a 70 kHz Catch Sensors system.

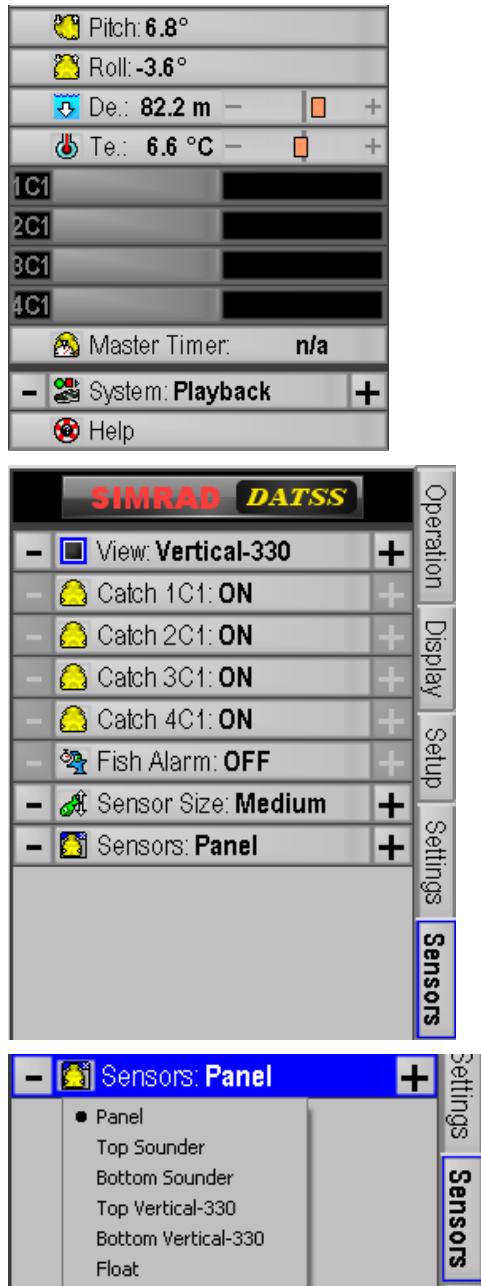
3.1.5.3 PI 40 kHz Sensors Activation Menu

The main “SENSORS ACTIVATION MENU” control panel allows you to select the sensors you want to turn ON or OFF. To change the value of the system parameter just left or right click the mouse over the button you have selected, move the mouse up or down until the desired button is highlighted and click the left mouse button or right mouse button to activate the new setting.



NOTE: The PI sensor setup menus are not available if you are using a 70 kHz Catch Sensors system. Refer to the following section for the 70 kHz Catch Sensors activation setup.

3.1.5.4 FA701 compatible 70 kHz Sensors Activation Menu

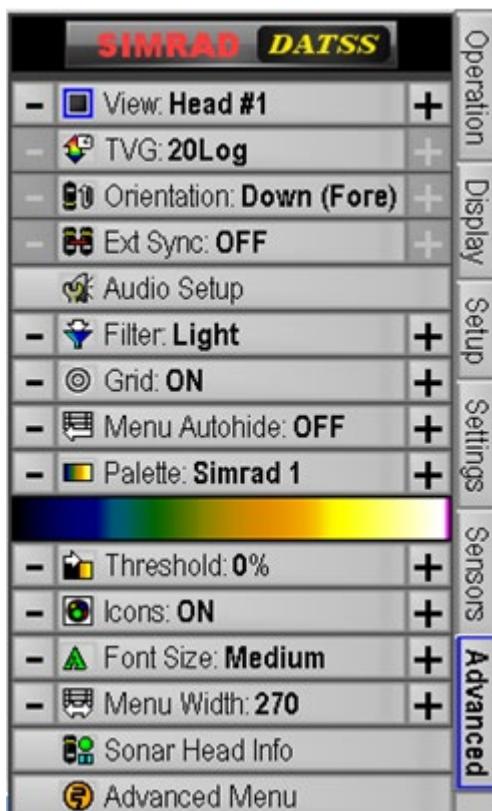


The Catch Sensor windows will be displayed automatically when you left click on the Catch Window button located on the Sensors Page. To activate or de-activate individual Catch Sensors click on the appropriate button.

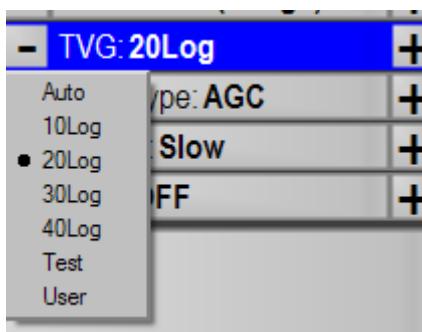
When you activate a Catch Sensor the sensor information is automatically displayed in the Control Panel.

3.1.6 Advanced Panel Tab

The Advanced Panel Tab contains the parameters for advanced users. These parameters usually do not need to be changed.



3.1.6.1 TVG selection



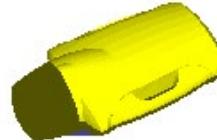
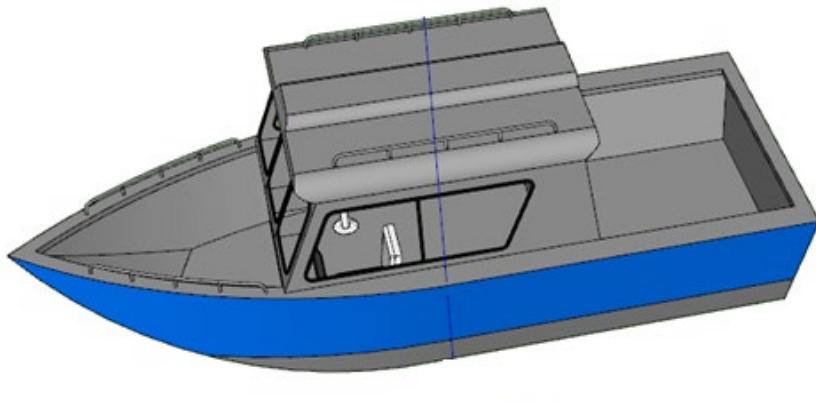
Click the middle of the TVG button, a drop down menu will appear. Select the appropriate TVG for the current selected sonar head.

3.1.6.2 Sonar orientation

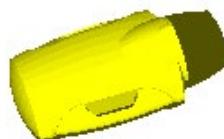
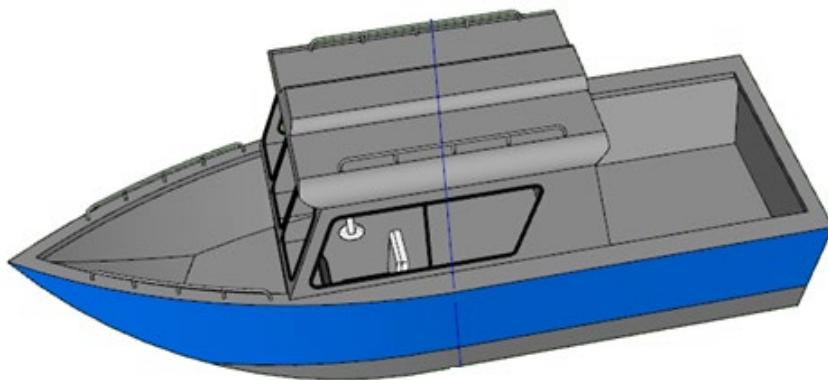
Click  Transducer: **Down (Fore)**  to change the sonar transducer orientation.

There are 2 types of transducer orientation which depends on the sonar mounting.

Fore: Transducer is pointing to the bow.



Aft: Transducer is pointing to the stern



3.1.6.3 External Synchronization

Caution

Do not use unless advised by factory.

Click  to select the hardware synchronization mode.

The Hardware Synchronization is used in conjunction with devices with two hardware lines (signal and ground) that may be used to synchronize transmit bursts of two or more sonar heads or TTMs. Note that the Hardware Synchronization is only useful and applicable when the heads are attached to separate telemetry lines. The selection options are:

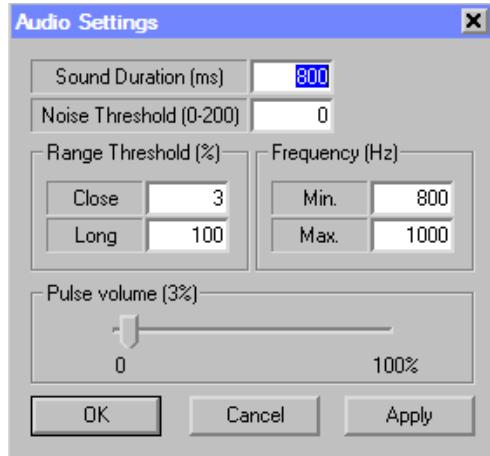
Slave (Input): This head is synchronized with other heads. It pings only when the other heads are ready to ping.

Master (Output): Allows other heads to synchronize to this head. This head runs free and pings at its own time.

Select (Input/Output): It pings only when other heads are ready to ping. It also provides the signals for other heads to synchronize to it.

Note that the heads in Input or Input/Output would only wait a total of 2 seconds for synchronization signal, after which they proceed with a ping anyway.

3.1.6.4 Audio Setup



Click  to open the **Audio Settings** dialog window.

3.1.6.5 Acoustic interference Filter

Click  Filter: OFF  to enable the filter to filter out the acoustic interference.

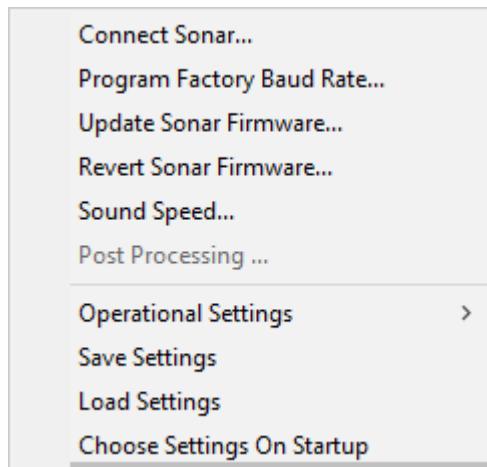
3.1.6.6 Palette selection

Click  Palette: Simrad 1  to select the palette to plot the sonar image.

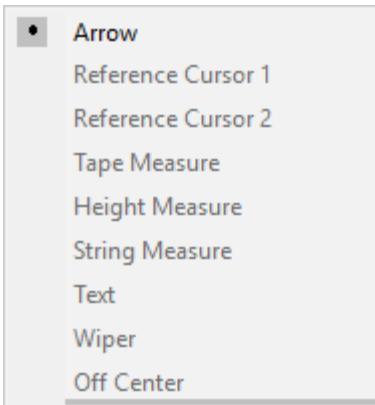
3.1.6.7 Advanced Menu

Click  Advanced Menu to select the advanced menu. The advanced menu contains the following items:

- Configuration: opens the configuration menu



- Tools: opens the tools menu



3.2 The Status Bar

The status bar uses different colours to indicate different status of the system.

For NMEA sensors status:

- Green means receiving sensor data with good quality.
- Yellow means receiving sensor data with compromised quality.
- Purple means sensor data conflict from multiple sensors.
- Red means not receiving sensor data.



For System status:

- Not Recording sonar head is running, recording is not started
- Recording sonar head is running, recording is started
- Recording PAUSED sonar head is running, recording is paused
- Playback sonar head is not running, playback is in progress.
- Playback PAUSED sonar head is not running, playback is paused
- Inactive system is inactive, not running sonar head, not playing back data.

One-click buttons:

- Click to save a screen-shot without entering file name. The file is automatically named with the current time and saved to \Diagnostic folder under the DATSS installation directory.
- Click to start recording without entering file name. The file is automatically named with the current time and saved to \Diagnostic folder under the DATSS installation directory.

3.3 The Message Log Window

The Message Log Window displays the system message logs, including information messages, warning messages, error messages. Each message is displayed with an icon to indicate the message type:

Information

Warning

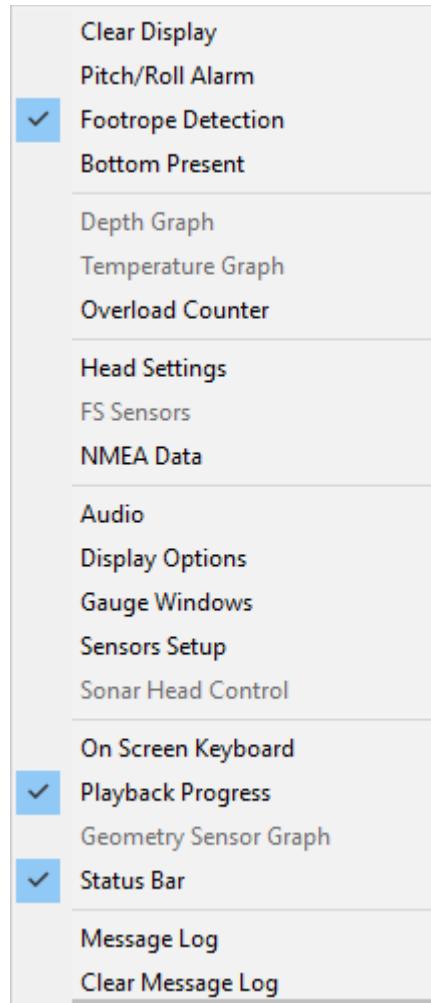
Error

To show/hide the Message Log window by right click the sonar

image display, click **Message Log**.

3.4 The Context Menu

The Context menu can be accessed by right-clicking the sonar image window. It provides quick access of the commonly used functions.



Menu items:

Clear Display	Clears the currently selected sonar image display.
Pitch/Roll Alarm	Enables or disables the pitch/roll alarm. The background of the 3D Deployment Pack will change to orange if the pitch/roll is tilted more than 6 degrees.
Footrope Detection	Enables or disables footrope detection in the sounder display. See section 3.4.1 for details.
Bottom Present	Enables or disables confirmation of the sea bottom. This function can only be used when footrope detection is enabled. See section 3.4.1 for details.

Depth Graph	Opens the depth graph window. The depth graph window displays one-hour depth readings of the Deployment Pack.
Temperature Graph	Opens the temperature graph window. The temperature graph window displays one-hour temperature readings of the Deployment Pack.
Overload Counter	Opens the overload counter window. This window displays the percentage of sonar samples that are in saturation. You should lower the TVG if the percentage is high.
Head Settings	Opens the head settings gauge window. This window displays the current sonar head settings.
FS Sensors	Opens the depth and temperature sensor gauge window. This window displays the current depth and temperature of the Deployment Pack.
NMEA Data	Opens the NMEA sensor window. This window displays the NMEA sensor input.
Audio	Enables or disables audio. If audio is enabled, a sound will be played for each ping. Strong targets such as a fish school will sound as a high pitch.
Display Options	Opens the Display Options dialog box to change the display settings.
Gauge Windows	Opens the Gauge Windows dialog box. In this dialog box, you can define a customized gauge window to show user-selectable settings.
Sensors Setup	Opens the Sensor Setup window to configure PI sensors.
Sonar Head Control	Opens the Sonar Head Control dialog box to change the sonar head settings.
On Screen Keyboard	Enables or disables the on-screen keyboard for when the physical keyboard is not available.
Playback Progress	Shows or hides the Playback Progress dialog box. This dialog box shows the data replay progress.
Geometry Sensor Graph	Opens the geometry sensor graph window (if a geometry sensor is available). This window displays one-hour geometry sensor readings.
Status Bar	Shows or hides the status bar.
Message Log	Opens or closes the message log window.
Clear Message Log	Clears the messages in the message log window only. Log messages in the log files are not cleared.

3.4.1 Footrope detection

Note

This is a premium feature – a license upgrade may be required.

Automatic bottom/trawl footrope detection is available in sounder mode. This feature works best for pelagic trawling.

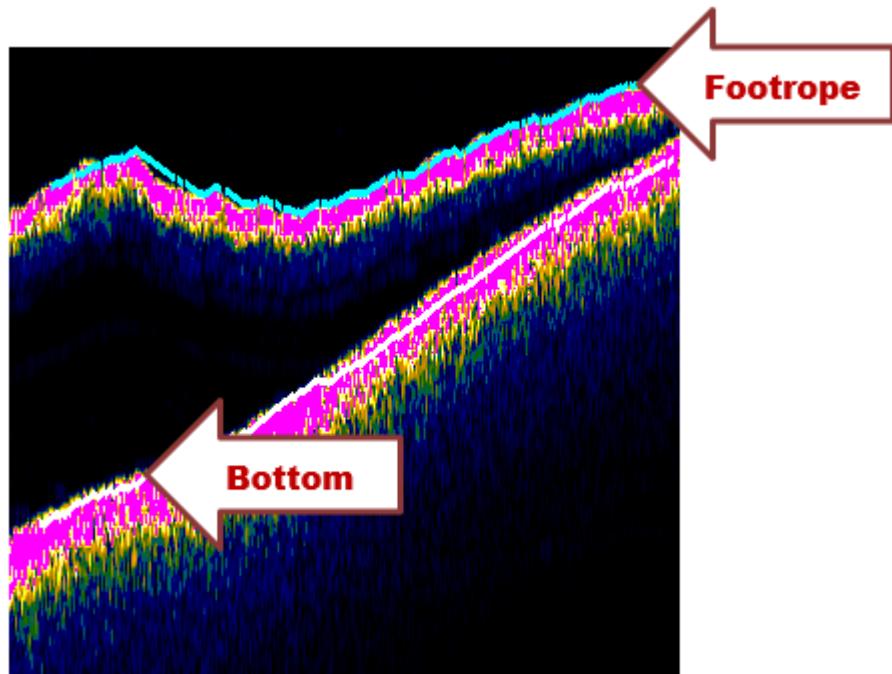
Right-click in the sonar image window to open the Context menu. Click **Footrope Detection** to enable this feature. You can only enable or disable this feature when the sonar head is running or in playback mode.

An overlay will appear showing the Height (H), Opening (O), and Clearance (C) values:

**H: 51.71 m
O: 43.81 m
C: 7.90 m**

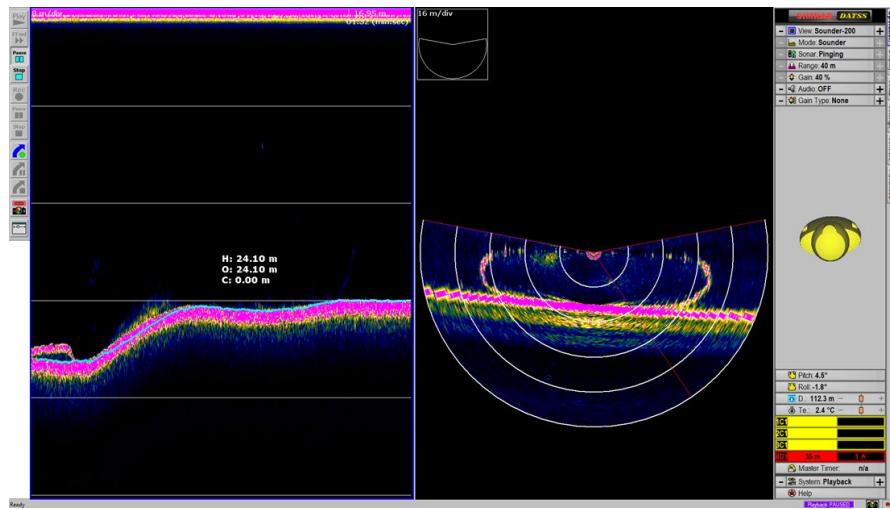
- (H) Height: The distance from the headrope to the bottom.
- (O) Opening: The distance from the headrope to the footrope.
- (C) Clearance: The distance between the footrope and the bottom.

In addition, two different lines will appear in the sounder view. The light blue line indicates the footrope and the white line indicates the sea bottom.



The lines will not appear immediately when footrope detection is enabled. The software will need some time to analyze the data before drawing the lines.

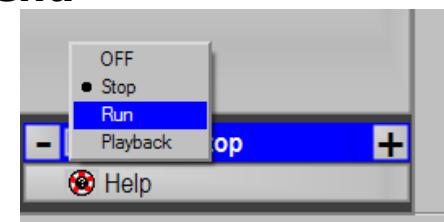
If the trawl is touching the bottom, the software may not be able to distinguish between the footrope and the bottom. In this case, right-click in the sonar image window to open the Context menu. Click **Bottom Present** to confirm that the trawl is touching the bottom. As a result, zero clearance will be shown in the overlay (C).



Note that the footrope detection algorithm may not always detect the footrope correctly. Large fish schools, double echoes, proximity to the seabed, or frequent depth and height changes may cause the algorithm to detect the footrope incorrectly or fail to detect at all.

TIP: IF THE FOOTROPE OR BOTTOM IS NOT BEING TRACKED CORRECTLY, YOU CAN RESET FOOTROPE DETECTION BY DISABLING IT, THEN ENABLING IT AGAIN (IN THE CONTEXT MENU). WHEN FOOTROPE DETECTION RESTARTS, THE SOFTWARE WILL RE-DRAW THE FOOTROPE AND BOTTOM LINES BASED ON THE LATEST DATA.

3.5 The System Menu



Click **Run** button to select one of the system modes.

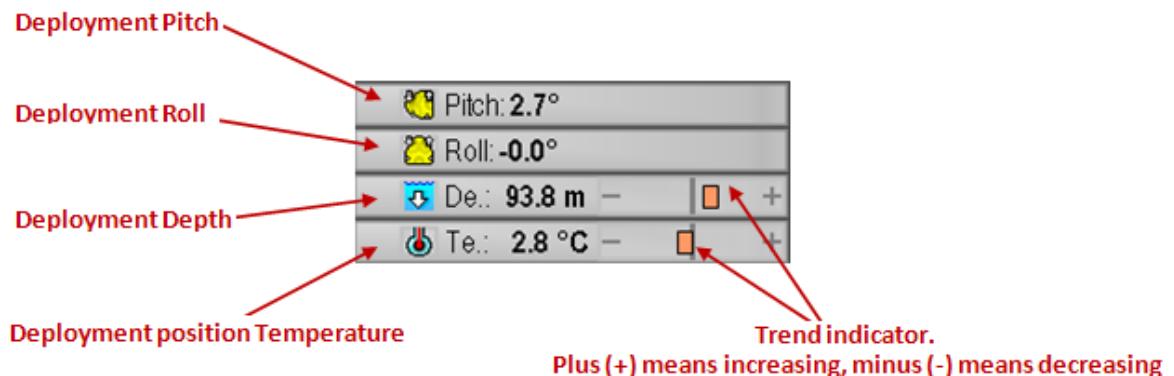
Click  Help button to open the help file.

3.6 The Sensor Indicator

The Sensor Indicator showing data from all the sensors with digits and symbols in data windows. Numeric display shows the present value of the sensor data in easy to read digits or symbols. Changes in values are indicated with digits showing rate of change combined with graphic symbols.

3.6.1 Deployment pack sensors

Deployment pack sensors are installed with the deployment pack and indicates deployment pack status.



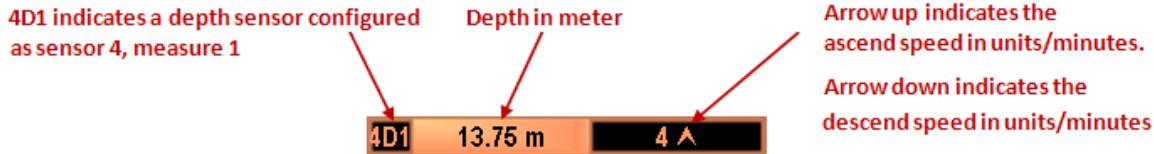
3.6.2 Sensor Indicator Status

-  Sensor is configured, not activated.
-  Sensor is activated, no data received.

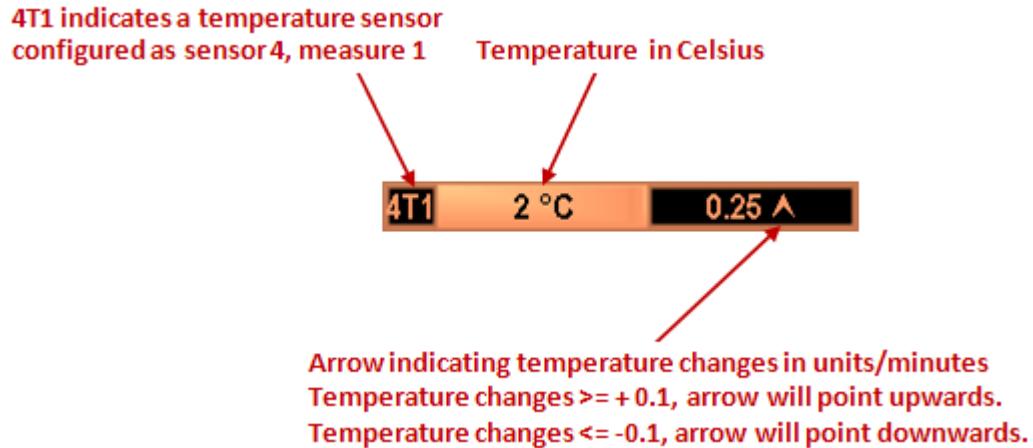
3.6.2.1 Catch Sensor Indicator

-  Catch sensor is activated, data valid.
-  Catch sensor is pulled, triggered the fish alarm for 4 minutes.

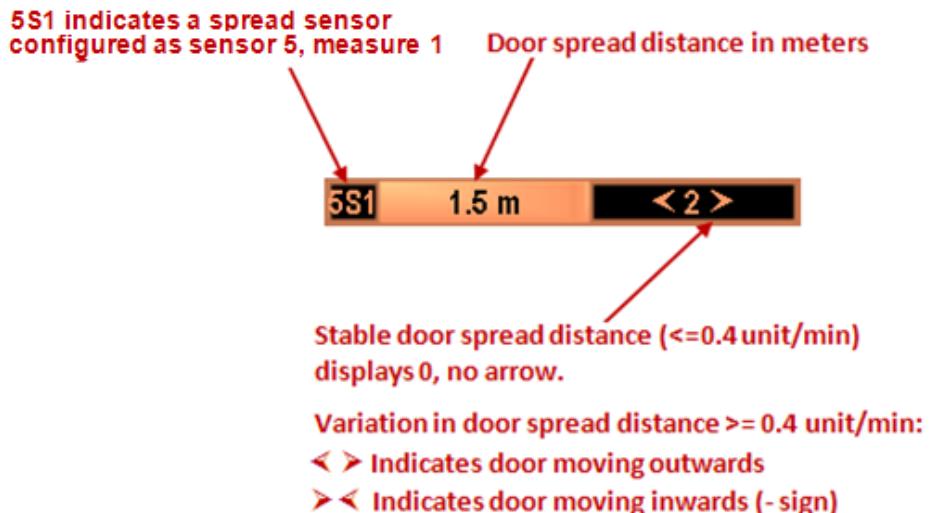
3.6.2.2 Depth Sensor Indicator



3.6.2.3 Temperature Sensor Indicator



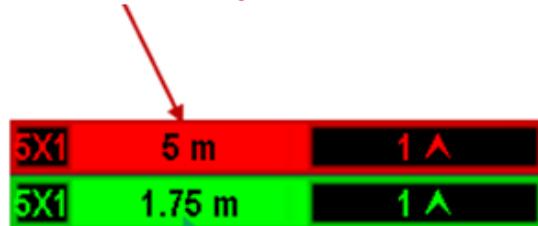
3.6.2.4 Spread Sensor Indicator



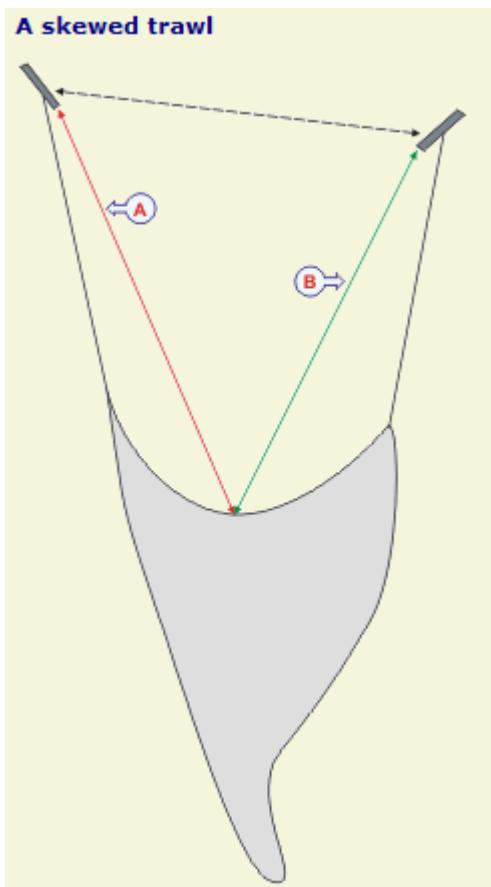
3.6.2.5 Geometry Sensor Indicator

The geometry sensor measures the distance from the centre of the head rope to either door or wing end.

Red indicates the port side distance



Green indicates the starboard side distance



Skew = A - B

4 REFRENCE

4.1 Shortcut Keys

- F1: Help
- F4: Reverse Scan

4.2 File Types

File extension Description:

EXP	ASCII files created during exporting . The extension of the first file in a series is .EXP and subsequent are .e001, .e002 and so on.
LOG	ASCII files contain the system message logs.
SMB	Binary files for recording and playback . The first file is indicated by the extension .smb and the subsequent files with extensions 001, 002, 003, 004, 005, 006, 007, 008, 009.

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