VER4000/VER4000-S

PLAYBACK INSTRUCTIONS

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Index

1 Preparation 5
1.1 Minimum System Requirements 5
1.2 Installing the Playback Software 5
1.3 Uninstalling or Upgrading the Playback Software 5
2 Operating Procedures – to replay from Compact Flash 6
2.1 Replay using a desktop computer 6
2.2 Replay using a laptop computer 7
3 Operating Procedures – to replay using Live Playback 9
3.1 Connecting the Replay Computer to the VER4000 MEE 9
4 Menus 11
4.1 Playback Suite 11
4.1.1 File 11
4.1.2 Layout 11
4.1.3 View 12
4.1.4 Special 12
4.1.5 Tools 12
4.2 Transport – Compact Flash Playback 13
4.3 Transport – Live Playback Starting 14
4.3.1 Saving recording when using Live Playback 16
4.4 Transport – Live Playback Stopping 17
4.5 Playback Windows 18
4.5.1 Audio 18
4.5.2 ARPA – Radar Video Replay 19
4.5.3 Serial IEC 61162 Data window 20
4.6 Configuring a window 22
4.7 Alarms & Hull Openings 27
4.8 AIS Data Window 29
4.9 To Save a Layout 30
4.9.1 Saving Layout as ‘Default’. 30
4.9.2 Saving Layout as an Option. 30
4.10 To Save a section of Recording to a file 31
5 Closing down 32
6 Broadgate Proprietary Sentence Format 33
6.1.1 Helm Command - $PBRO AA 34
6.1.2 Rudder sensor angle - $PBRO BA 35
6.1.3 Engine Command - $PBRO CA 36
6.1.4 Thruster Demand/Achieved - $PBRO DA 37
6.1.5 Main alarms, Hull openings, Watertight/Firedoors - $PBRO EA 38
6.1.6 Engine Response - $PBRO GA 39
6.1.7 Steering Mode - $PBRO HA 40

Document History and Minor Update Record

Minor changes to this manual will be instigated by the issue of update pages. These are to be inserted in the manual as indicated with the changes. These changes are to be recorded in the table below.

Issue No.	Date	Pages Affected	Comments	Date Entered in Manual	Entered By
01	02/06		Initial Issue – Type Approval	02/06	ACH
02	06/06		See CRF026	06/06	ACH

Preface

The Broadgate Voyage Data Recorder VER4000/VER4000-S playback software is designed to allow the replay, on a suitable personal computer or laptop, of the recordings made by a VER4000/VER4000-S system of various operational events in a ship. A 12 hour record is maintained by the Crash Protected Memory and at least one days recording in the MEE Compact Flash Memory. The information recorded includes voice, radar and IEC 61162 data.

It is essential that either the personal computer or laptop is of a high enough specification to allow the software to operate correctly. See Section 1.1.

All the photographs, screen shots and drawings contained within this document are for guidance only.

The Playback Software will also replay the VER3000 recordings. Refer to the VER3000 Playback Instruction manual for specific VER3000 instructions.

This manual includes playback instructions for the Broadgate VER4000 and VER4000-S Voyage Data Recorders. The playback software is the same for both, therefore where the VER4000 is specified this also includes the VER4000-S.

1 Preparation

1.1 Minimum System Requirements

Desktop

IBM Compatible Computer running Windows 2000 Professional or Windows XP
Graphics Card capable of 1280 x 1024 resolution and 256 colours
Monitor capable of 1280 x 1024 resolution, minimum 17 inch display
Stereo Sound Card
CD-ROM Drive
USB Compact Flash Card Reader

Laptop

IBM Compatible Computer running Windows 2000 Professional or Windows XP
CD-ROM Drive
USB Compact Flash Card Reader

1.2 Installing the Playback Software

Switch on computer.

Insert the VER4000 Playback software CD in to the computers CD-ROM drive.

The Playback Software will now auto-install, follow the instructions of the Setup Wizard.

1.3 Uninstalling or Upgrading the Playback Software

When removing or updating the Replay Software, the Windows ‘Add/Remove Programs’ facility must be used, from the Windows control panel. Any ship specific files should be saved in a separate location before removing the old software. Old software must be uninstalled before installing new software.

2 Operating Procedures – to replay from Compact Flash

2.1 Replay using a desktop computer.

Ensure the PC is switched on.

Insert USB Compact Flash card reader (see Photo 2.1.1.) into the USB socket of the PC.

Insert Compact Flash into the Card Reader (see Photo 2.1.2.)

Double click on the “VER4000 Playback” icon in the desktop VER4000 folder, to run the Playback Software. The screen will show a ‘Playback Suite’ window and ask for a User Name and Password (these will be supplied with the disk).

Enter the appropriate User Name and Password.

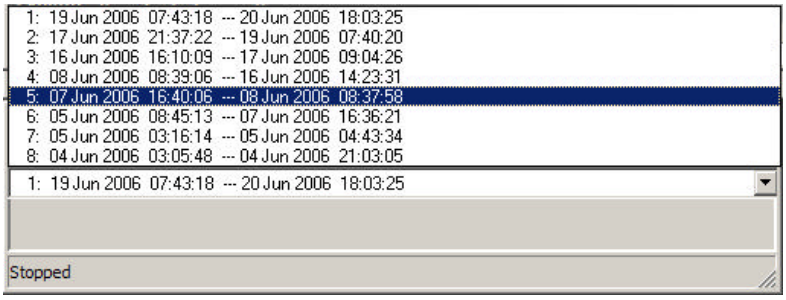
The screen will default to the ‘Basic Playback’ layout that will consist of a number of windows – 8 windows plus radar and audio if using a 1280 x 1024 pixel monitor. (Note this will change, if an updated layout has been saved, see Section 4.9)

There will always be two other windows on the screen, one named ‘Transport’ and the other named ‘Playback Suite’.

Select the ‘File’ menu from the Playback Suite window. This will allow the user to select either from a previous stored recording on the computer hard disk, or from a newly inserted Compact Flash Memory. See Section 4.1.1.

Select ‘Open’.

The software will now auto-locate the Compact Flash and load the recordings. There will normally be only one recording unless the VER4000 has been reset during the recording period. The Window always shows the last recording period first and will display a down arrow if more than one recording period. Select the recording period required. See Screen 2.1.1.



Screen 2.1.1.

The same date/time as the recording period selected will be shown in the ‘Transport’ window. See Section 4.2.

In ‘Transport’ window left click mouse on  to commence playback.

If available, data will now appear in the open windows, presuming that the Window ‘Data Source’ has been set up for the appropriate data sentence in the recording, see Section 4.6.

Photo 2.1.1.

Photo 2.1.2.

2.2 Replay using a laptop computer

Switch the computer on and insert the Compact Flash Card Reader (see Photo 2.1.1.) into the USB socket.

Insert Compact Flash (see Photo 2.1.2.) into the Card Reader.

Double click on VER4000 Playback icon, in the desktop VER4000 folder.

Enter User Name and Password as requested.

Select the ‘File’ menu from the Playback Suite window. This will allow the user to select either from a previous stored recording on the computer hard disk, or from a newly inserted Flash Memory. See Section 4.1.1.

Select ‘Open’.

The software will now auto-locate the Compact Flash and load the recordings. There will normally be only one recording unless the VER4000 has been reset during the recording period. The Window always shows the last recording period first and will display a down arrow if more than one recording period. Select the recording period required. See Screen 2.1.1.

The same date/time as the recording period selected will be shown in the ‘Transport’ window.

In the ‘Transport’ window, see Section 4.2., left click mouse on  to commence playback.

If available, data will now appear in the various open windows, presuming that the Window ‘Data Source’ has been set up for the appropriate data sentence in the recording, see Section 4.6.

3 Operating Procedures – to replay using Live Playback

3.1 Connecting the Replay Computer to the VER4000 MEE

Open the front cover from the MEE and press the front panel Alarm Accept button, to silence the ‘Tamper’ alarm.

Refer to the Broadgate VER4000 Operation & Shipboard Maintenance Manual for the Control Functions and Operation of the VDR.

Connect the test computer using the Crossover Ethernet lead (500.15.02.00.002), to the Installers port on the Control pcb and the Ethernet connector on the test computer, as per photo 3.1.1.

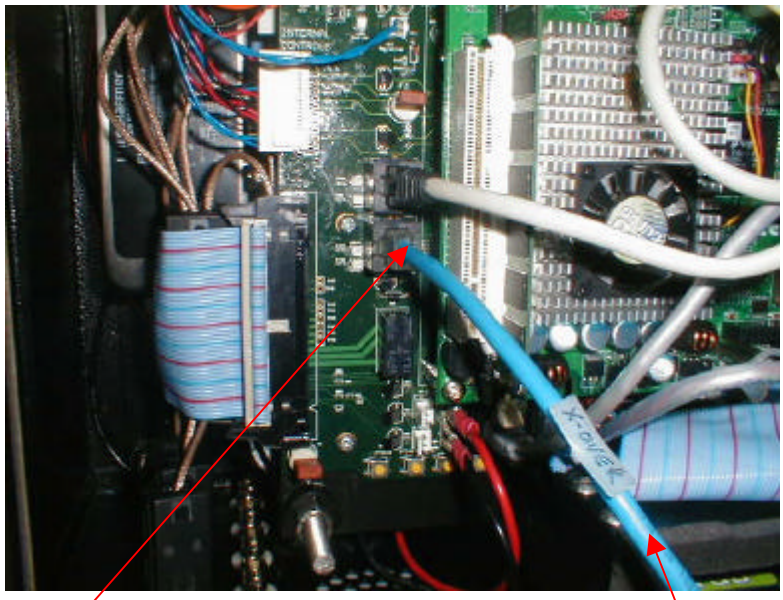
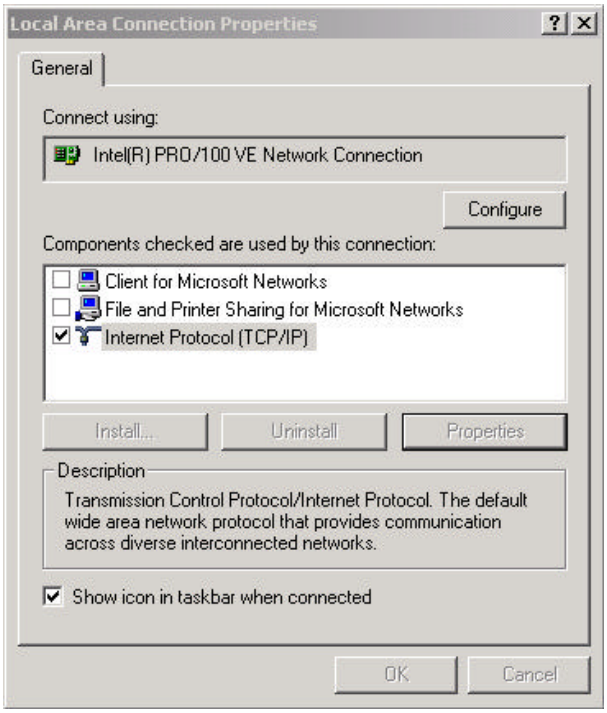
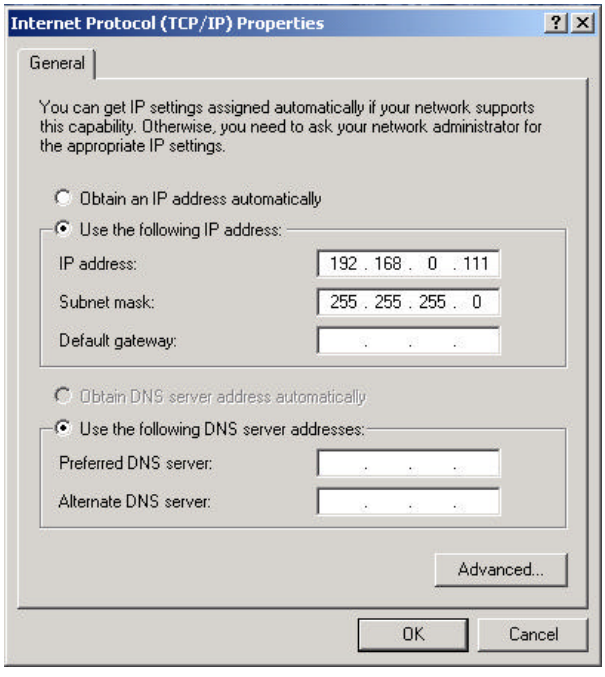


Photo 3.1.1.

Set the test computer's LAN Properties to Internet Protocol (TCP/IP) and the IP address to 192.168.0.111 and Subnet Mask to 255.255.255.0, see Screen 3.1.1. and 3.1.2.



Screen 3.1.1.



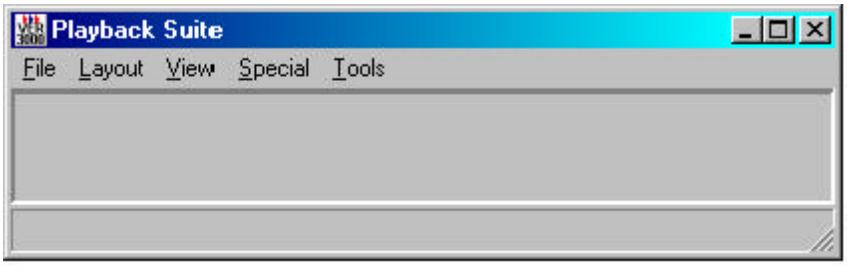
Screen 3.1.2.

See section 4.3 to start Live Playback.

4 Menus

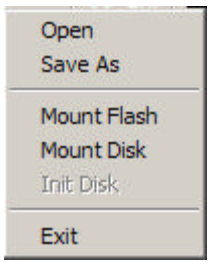
There are a number of menus and functions available which allows the user to either save or replay different ship recordings or to re-configure a particular window to suit their ship requirements.

4.1 Playback Suite



Screen 4.1.1.

4.1.1 File

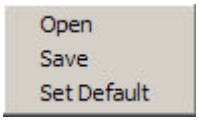


- Selects Recordings Directory
- Saves the recording to the computer hard disk
- Interrogates the Compact Flash, VER4000 only
- Interrogates the removable hard disk, VER3000 only
- Initialises a removable hard disk drive, VER3000 only *
- Exits the Playback program

Screen 4.1.1.1.

* This command will erase all existing data from a disk. Do not use this command unless absolutely sure you wish to delete the data on the removable hard disk drive.

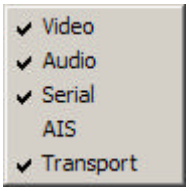
4.1.2 Layout



- Opens the Layout Directory
- Saves the screen layout to the Layout directory – see Section 4.9.2.
- Sets the current Layout as the Default layout – see Section 4.9.1.

Screen 4.1.2.1.

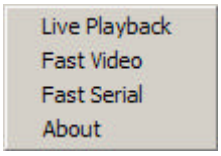
4.1.3 View



- If checked, puts the Radar display on the desktop – see Section 4.5.2.
- If checked, puts the Audio window on the desktop – see Section 4.5.1.
- If checked, puts the Serial Data window on the desktop – see Section 4.5.3.
- If checked, puts the AIS window on the desktop – see Section 4.8.
- If checked, puts the Transport window on the desktop – see Section 4.2. and 4.3.

Screen 4.1.3.1.

4.1.4 Special



- If checked Live Playback is in use – see Section 4.3.
- If checked, speeds up the Radar replay
- If checked, speeds up the serial replay
- Gives software version and date

Screen 4.1.4.1.

4.1.5 Tools

- Access the Configuration information
- Access to VER4000 Monitor Program (Service UseVER4000 only)
- Access to VER3000 Terminal Program (Service Use VER3000 only)

Screen 4.1.5.1.

4.2 Transport – Compact Flash Playback

Screen 4.2.1.

Starts replay.

Stops replay.

Fast Forward. Right click to reveal time period use up/down arrows to set desired time. See Screen 4.2.1.1.

Fast Reverse. Right click to reveal time period use up/down arrows to set desired time. See Screen 4.2.1.1.

Replays last 5 seconds. Right click to set time use up/down arrows set desired time. See Screen 4.2.1.1.

Loops back between Start and End time.

To alter the start, current or end time, place pointer on a section of time and click either the left or right mouse button to change the time.

To alter the Fast Forward, Fast Reverse or Replay last seconds, right click on the appropriate icon and it will change, as below :-

Screen 4.2.1.1.

Left click on the Up or Down arrow to adjust the step time, on completion right click again to exit.

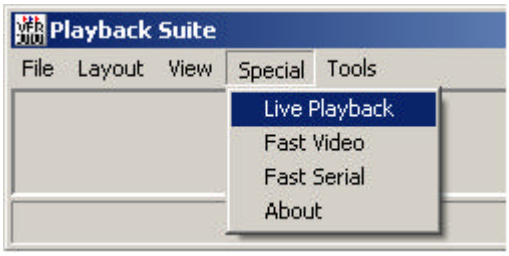
4.3 Transport – Live Playback Starting

The Live Playback will playback live data from the MEE, however, to ensure that all elements of the recorded information are displayed in the correct time relationship, there is a six second delay between recording and replay.

Ensure that the Playback Computer is connected to the VER4000 MEE, as per section 3.1.

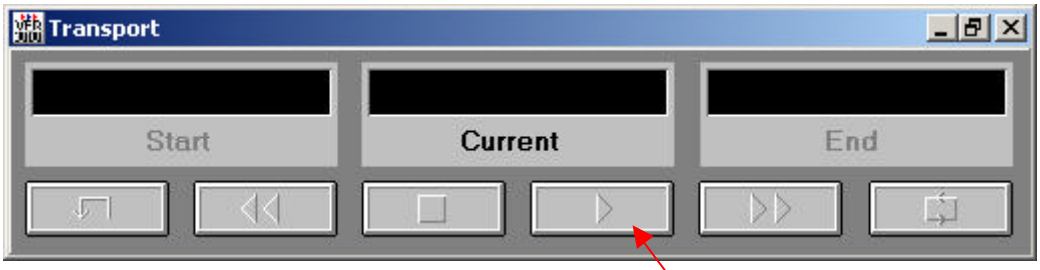
Transport Icons have the same meaning as in section 4.2.

In the 'Playback Suite' window, select 'Special' and 'Live Playback', as per Screen 4.3.1.



Screen 4.3.1.

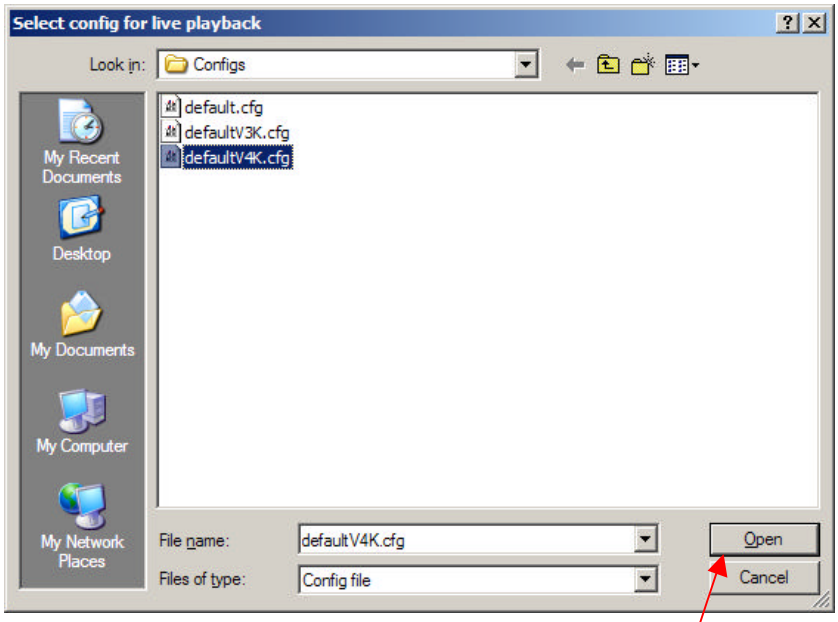
In the 'Transport' window, select Play, as per Screen 4.3.2.



Screen 4.3.2.

Play

Select and ‘Open’ the ships ‘MEE Configuration’, as per Screen 4.3.3. Note, this file must be available in the C:VER4000/Config/Configs directory of the replay computer. In this example, this is called ‘defaultV4K.cfg’.



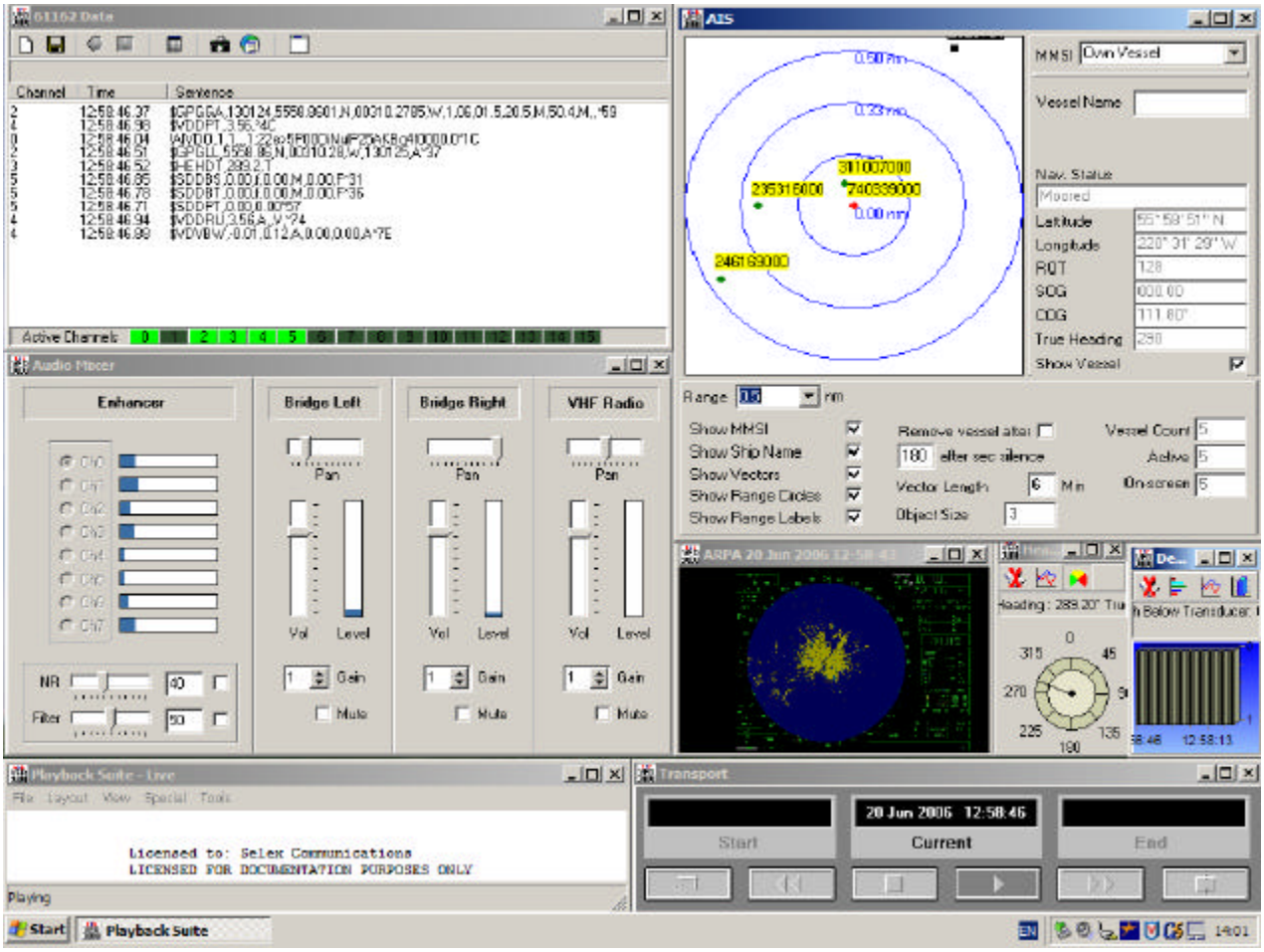
Screen 4.3.3.

Open

The ‘Playback Suite’ window will now display the following message, when it is connecting to the VER4000 MEE, ‘Connecting to VER, please wait….‘, as per Screen 4.3.4.

Screen 4.3.4.

Once connection has been established, a screen similar to Screen 4.3.5. will be displayed. The actual items displayed are at the users discretion.



Screen 4.3.5.

When using Audio replay, ensure that the audio level is low, to ensure that re-recording of recorded audio does not occur, as this will detract from the recording audio quality.

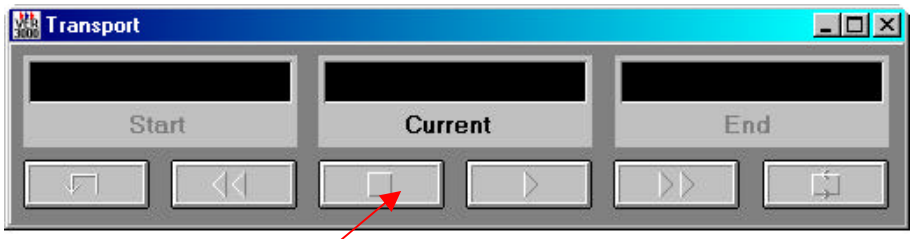
4.3.1 Saving recording when using Live Playback

To save a recording, in the Live Playback mode, before commencing Live Playback, in the ‘Playback Suite’ window, select ‘File’, then ‘Save’. Enter a file name and save the file as per normal Windows file saving. Then start Live Playback, as per Section 4.3. Ensure that sufficient disk space is available on the computer to handle the large recording file that will be produced. For example thirty seconds of recording is about 1 M-Byte in size. The file will close when the Live Playback is stopped. It can subsequently be opened again, for review, by using the ‘File’ then ‘Open’ option in the ‘Playback Suite’ window.

4.4 Transport – Live Playback Stopping

To ensure that the computers and MEE communication ports are closed correctly, the following procedure must be followed, to ensure that the VER4000 continues recording correctly.

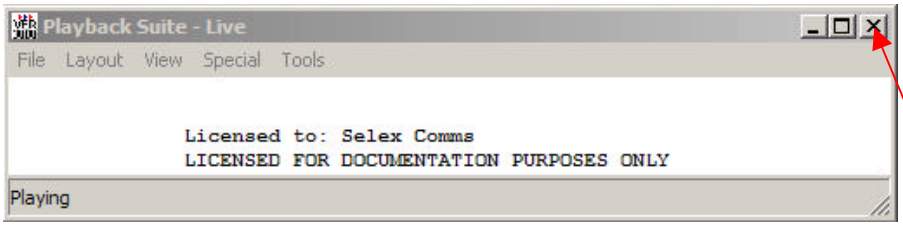
a) In the 'Transport' window select 'Stop', as per Screen 4.4.1.



Screen 4.4.1.

Stop

b) Close the Playback Software by clicking the 'Close' button on the 'Playback Suite' window, see Screen 4.4.2.



Screen 4.4.2.

Close

The Ethernet cable should now be unplugged and the door of the VER4000 MEE closed. Correct operation of the VER4000 MEE is to be confirmed. Note: To clear the 'Tamper' alarm, the VER4000 should be switched off and back on, using the front panel keyswitch.

4.5 Playback Windows

The Playback software displays 8 different displays (1280 x 1024 pixel monitor) or 6 displays (1024 x 768 pixel monitor) plus radar and audio control windows as standard. There are however, other displays available to the user that can be accessed via the IEC 61162 Data window as follows.

4.5.1 Audio

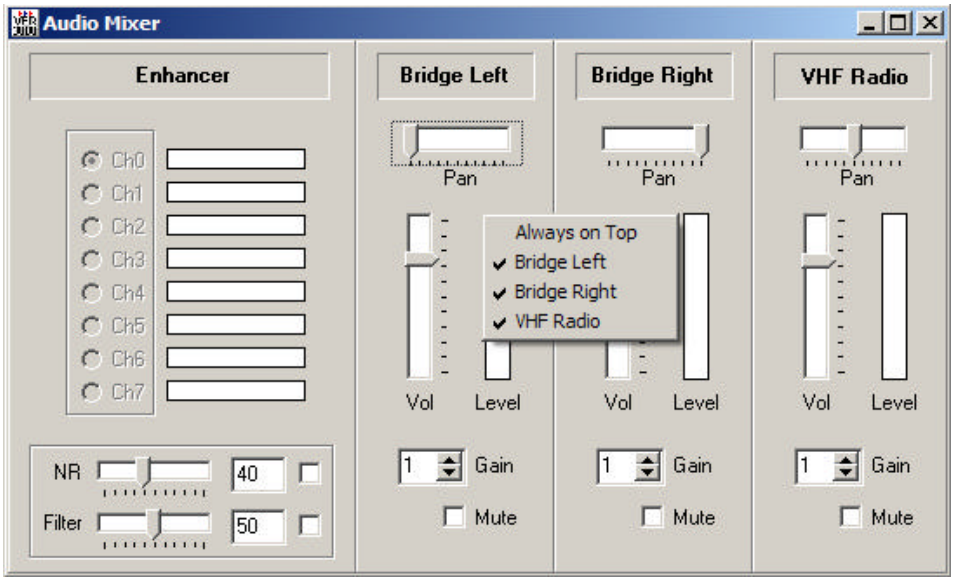
The Audio Replay window allows the user to select ‘Bridge Left’, ‘Bridge Right’ or ‘VHF Radio’. The balance and level are set to the operators requirements by left clicking the mouse and dragging the ‘Vol’ (Volume) Slider up to increase volume or down to reduce volume. See Screen 4.5.1.1.

The channel can be muted by left clicking on the mouse in the appropriate ‘Mute’ box.

The audio can be ‘Panned’ to the left or right speaker, by left clicking the mouse on the ‘Pan’ slider and dragging it left or right.

The ‘Enhancer’ allows closer inspection of a particular microphone, by selecting ‘NR’ – Noise Reduction and ‘Filter’ accordingly. To enhance the audio left click the box to the right of the NR/Filter. The appropriate slider can then be moved, by left clicking the slider and dragging it left or right. The check box to the left of each microphone number is used to enhance a particular microphone. Only one microphone can be selected at any time.

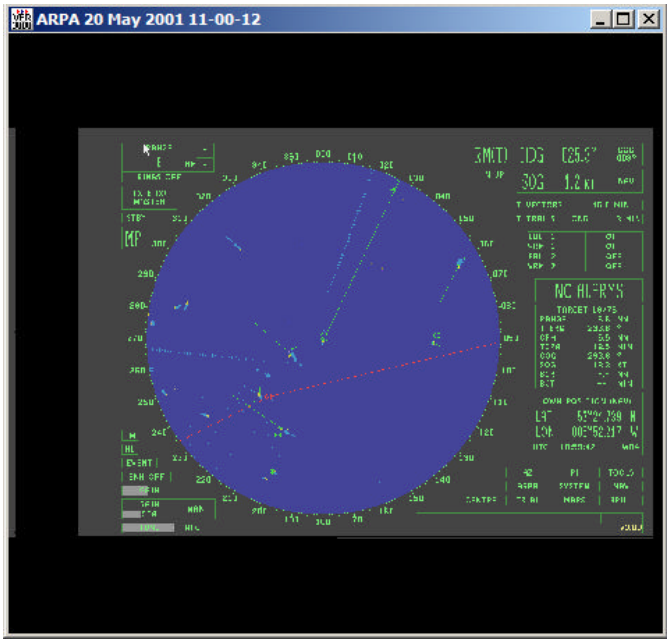
The channels being displayed can be changed by right clicking the mouse over the Audio window, then checking the required channel ‘Bridge Left’, ‘Bridge Right’ or ‘VHF Radio’. If the Audio window is required always to be in view, on the replay screen, the ‘Always on Top’ is to be checked.



Screen 4.5.1.1.

4.5.2 ARPA – Radar Video Replay

The ARPA or Radar Replay window allows the ships radar picture to be displayed. See Screen 4.5.2.1. The display will update within 15 seconds, when video is present in the recording.



Screen 4.5.2.1.

The view shown above is in the 'Fit Frame' mode. To view this in more detail right click the mouse with the pointer over the window and Screen 4.5.2.2. will be displayed.

Screen 4.5.2.2.

'Always on Top' will ensure that this window is always visible.

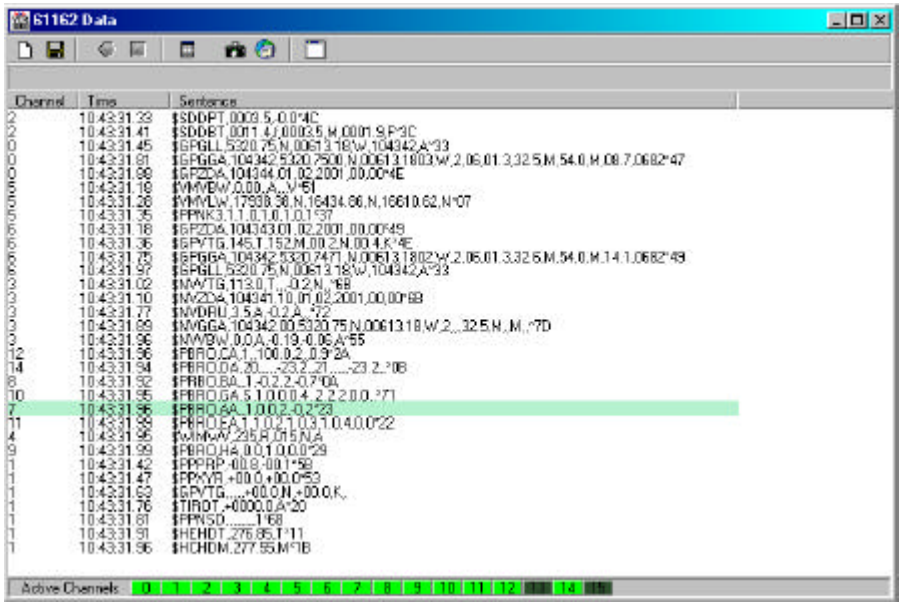
'Fit Frame', changes between above view and normal view. The ability of the radar computer to view the complete screen depends upon the maximum resolution of the Replay Computers Monitor.

'Colour Balance' is used to alter the colour balance between the red, green and blue video that make up the picture.

'Save Frame' saves the current frame to a Bit Map image, for closer inspection. It is saved in the VER4000/Recordings folder, with date and time.

4.5.3 Serial IEC 61162 Data window

In Playback Suite left click on ‘View’ then left click on ‘Serial’ to open the IEC 61162 Data window, as per screen 4.5.3.1.

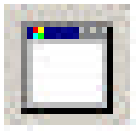


Screen 4.5.3.1.

To view a description of the different parts of a recorded sentence, double left click on the required sentence. See Screen 4.5.3.2., which shows the $GPGLL sentence. Note: Standard IEC61162 sentences and Broadgate Proprietary sentences (see Section 6) are recognised. For other manufacturers Proprietary and non-standard sentences refer to the relevant manufacturers information. These can be added to the replay, as per Section 4.6. ‘To Add a Data Source’.

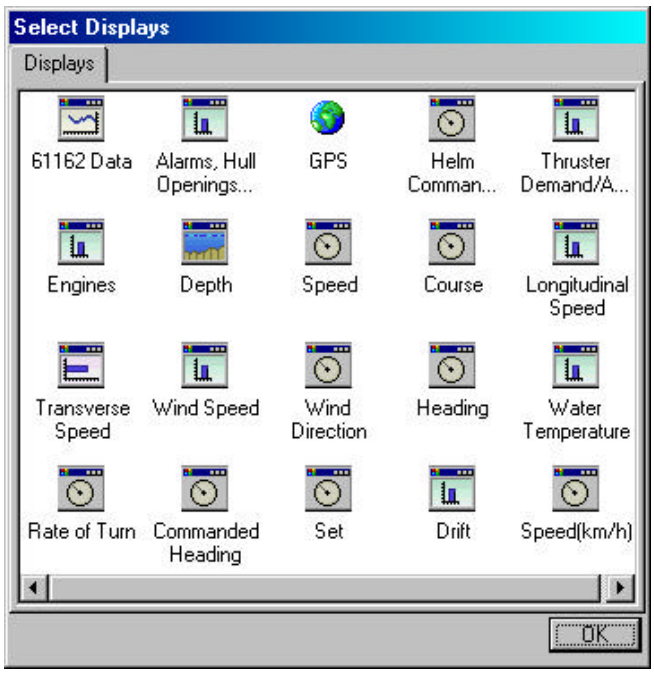
Screen 4.5.3.2.

To show which serial data streams are available as a graphical display, right click on the right hand most icon of the 61162 Data window toolbar, see Screen 4.5.3.3. This will open the ‘Select Displays’ window.



Screen 4.5.3.3.

The following ‘Select Displays’ window will now open. See Screen 4.5.3.4.



Screen 4.5.3.4.

Double click on any of the icons to open that window display.

Click ‘OK’ button to close down above window.

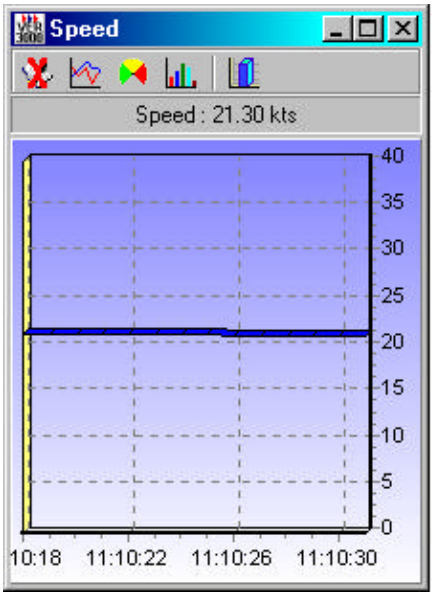
The appropriate window will now be displayed on the screen and providing there is data being received for that type of display and the correct Data Source is selected, the appropriate data will be displayed. See Section 4.6.

For example, if there is no information on water temperature being recorded, the window can be brought up on the screen but no information will be displayed.

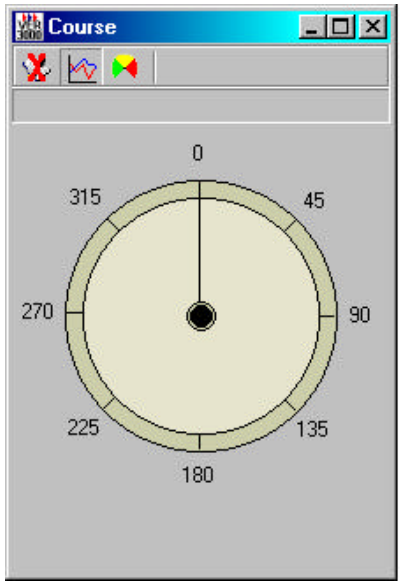
For Data Source information, please refer to the IEC 61162-1 ‘Maritime Navigation and Radiocommunication Equipment and Systems – Digital Interfaces’ specification part 1 (plus updates) and section 6 below.

4.6 Configuring a window

To change type of display, click mouse pointer on one of the toolbar icons. If it has a red cross through an icon it means it is not available or has not been set up.



Screen 4.6.1.
Speed shown as a trend.



Screen 4.6.2.
Course shown as a dial.

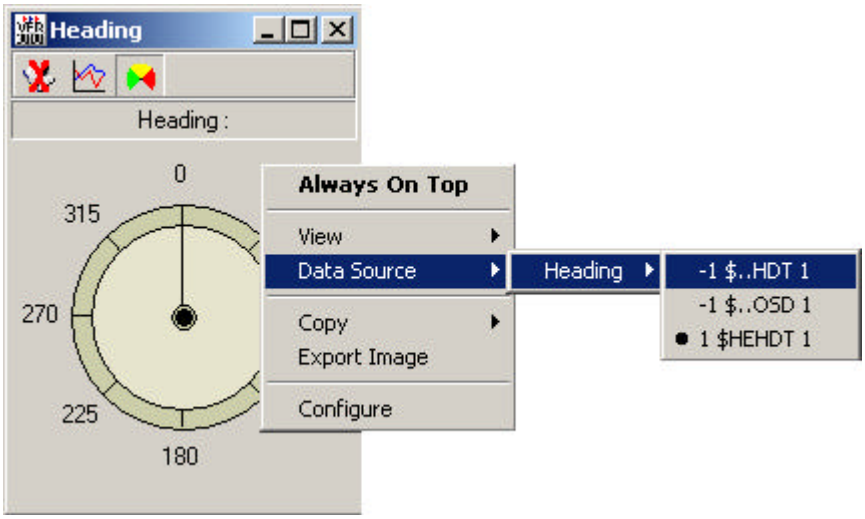
To configure the data window further, place the mouse pointer in the window and right click the mouse to access the menu

Shows the type of display available
Shows what data sources are available
Copies to image or bitmap
Exports image to other programs

Enters Configuration window

Screen 4.6.3.

Selecting Data Source will open another window to show which source is currently being used. To change the data source, move cursor to relevant line and double click left hand mouse button.



Screen 4.6.4.

In this example the Heading data source '? 1 $HEHDT 1' is selected.

? – Indicates option selected
1 – Indicates Replay Channel in use
$HE – Indicates IEC61162 Talker Identifier
HDT – Indicates IEC61162 Talker Formatter
1 – Indicates location in IEC61162 sentence in use (refer to IEC61162 specification for details)

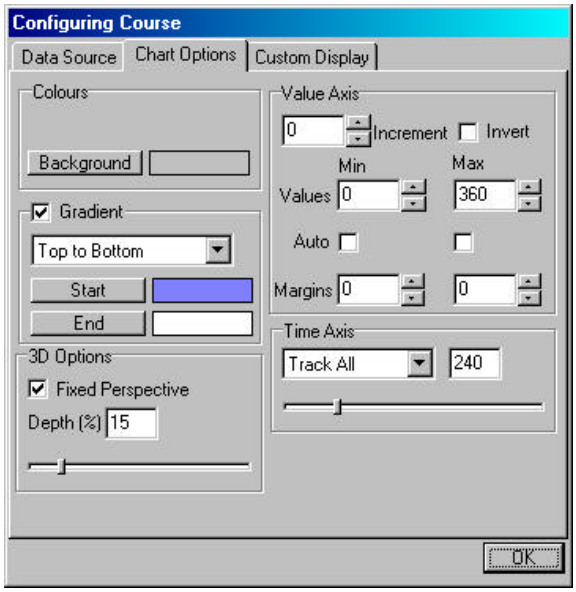
The alternatives available, in this example, are as follows :-

-1 – Indicates that Auto Channel selection is selected
$.. – Indicates that the Talker Identifier is not specified
HDT – As above
1 – As above

The required information is also available in the $..OSD sentence.

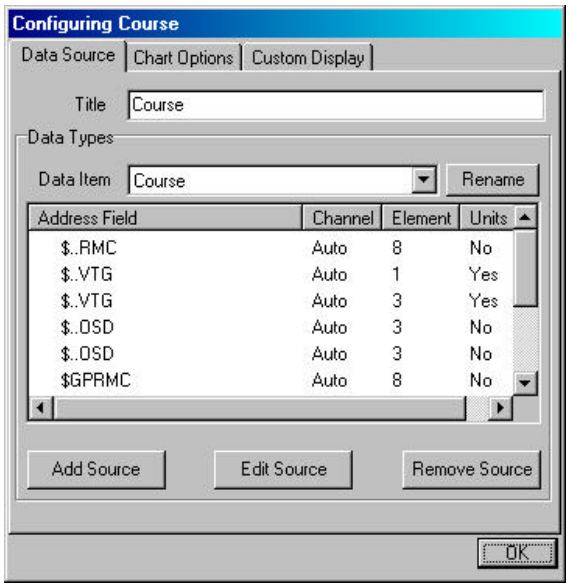
Note: Standard and Broadgate Proprietary IEC61162 sentence formats can be displayed, as per Screen 4.5.3.2.

Selecting the ‘Configure’ option will open the configuration window. This window will allow you to change the colour settings of the display, rename the window and change the source of data being displayed etc.



Screen 4.6.5.

Left click mouse button to open up ‘Data Source’ (see Screen 4.6.6.) or ‘Custom Display’ (See Screen 4.5.3.4.)

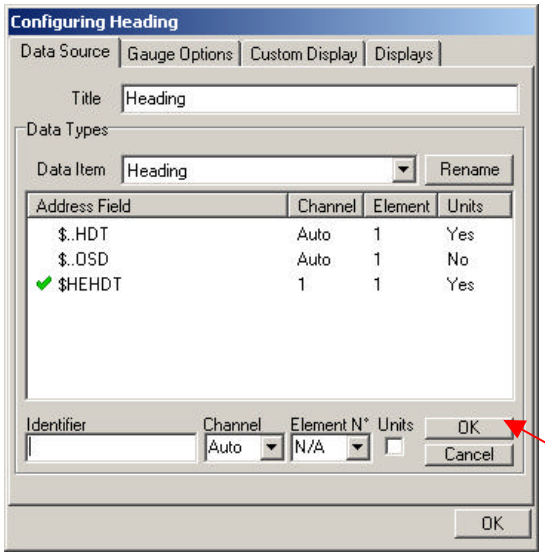


Screen 4.6.6.

Configuration window selections.

A data source can be Added, Edited or Removed, as required.

To Add a Data Source, left click the ‘Add Source’ button, Screen 4.6.7. will appear.

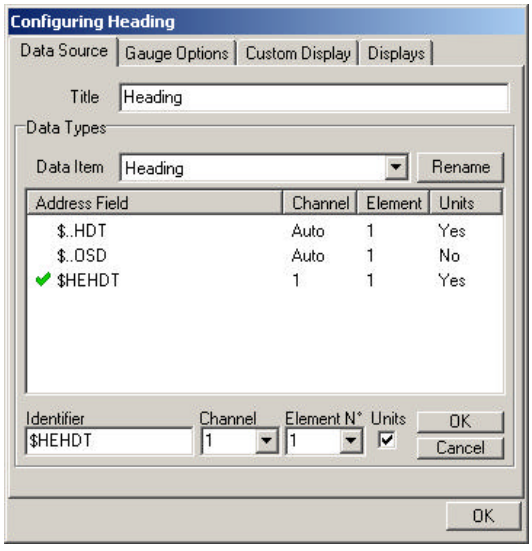


OK to add new line

Screen 4.6.7.

The data is entered in the Identifier box with other information as required. On completion the ‘OK’ button in the same line is pressed. This will add the new line in the Address Field. Then select ‘OK’ on the bottom line of the window. To save this for future use, ensure that the layout is saved either as a specific name or as a ‘Default Layout’. See Section 4.9.

To ‘Edit a Data Source’, left click the ‘Edit Source’ button, the following screen will appear.



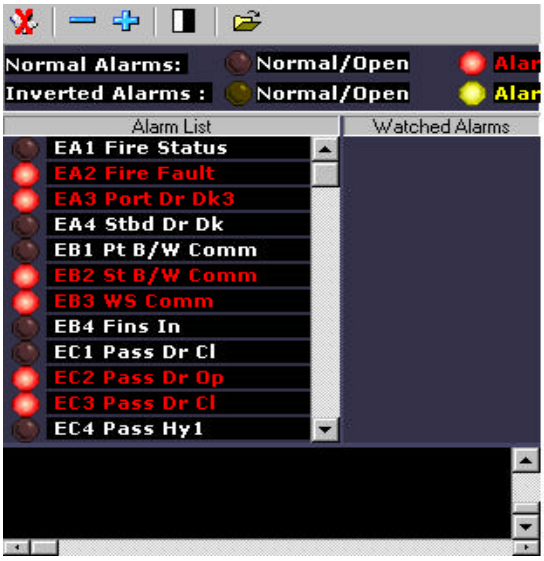
Screen 4.6.8.

To select the Data Source to be edited, left click on the header in the ‘Address Field’ then the Identifier line will be displayed and the data can be edited accordingly.

A green tick indicates the data source in use. Move mouse to another source and double click left hand mouse button to select the required data source.

4.7 Alarms & Hull Openings

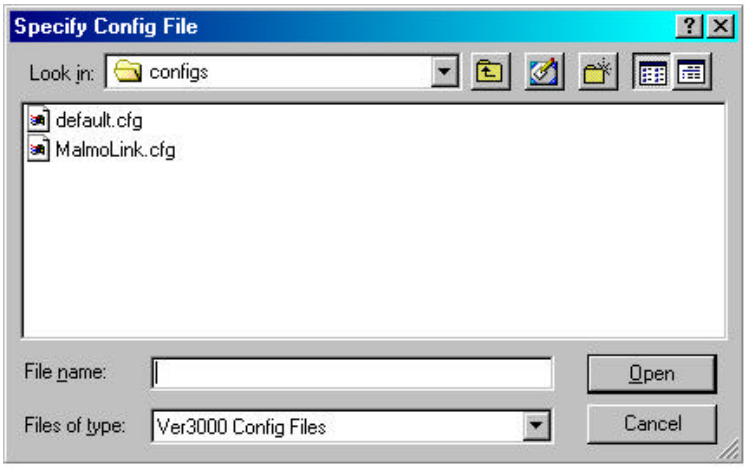
To look at the status of the alarms being recording double click the left mouse button on the alarms icon to open it and display the following window :-



Screen 4.7.1.

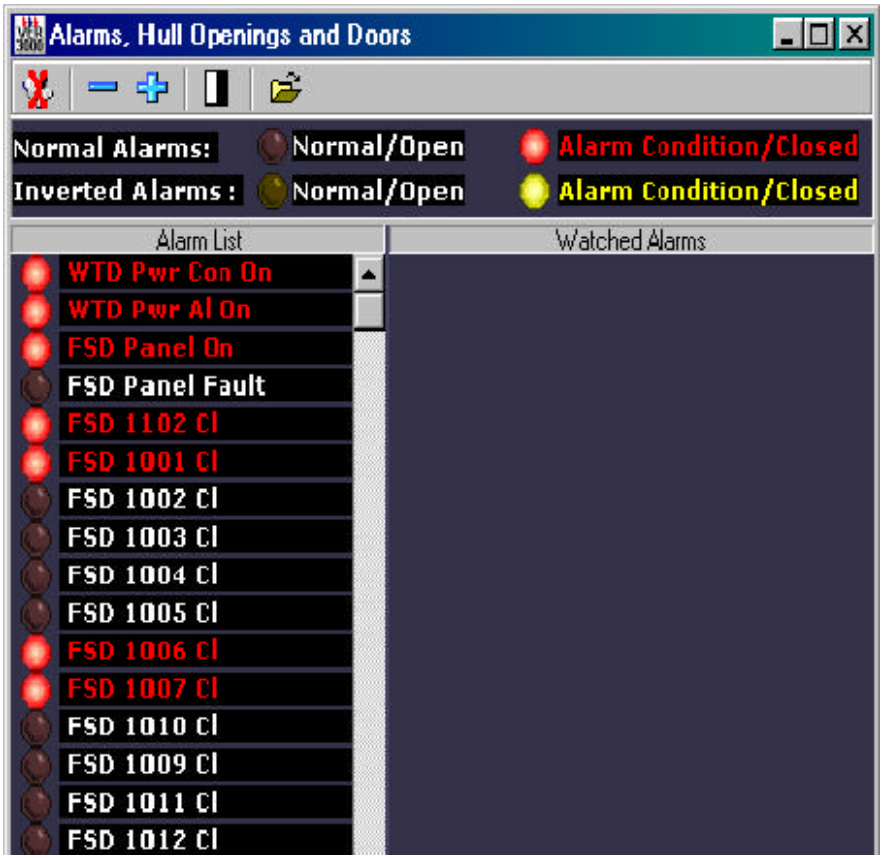
The Window opens to a default alarm configuration as above, if the correct ships Config file cannot be located in the C:\VER4000\Config\Configs folder or Compact Flash Config directory.

To manually select the actual ship alarm configuration, open the right hand most icon (open folder) and select the appropriate vessel, in the above folder.



Screen 4.7.2.

For example “Malmolink.cfg”



Screen 4.7.3.

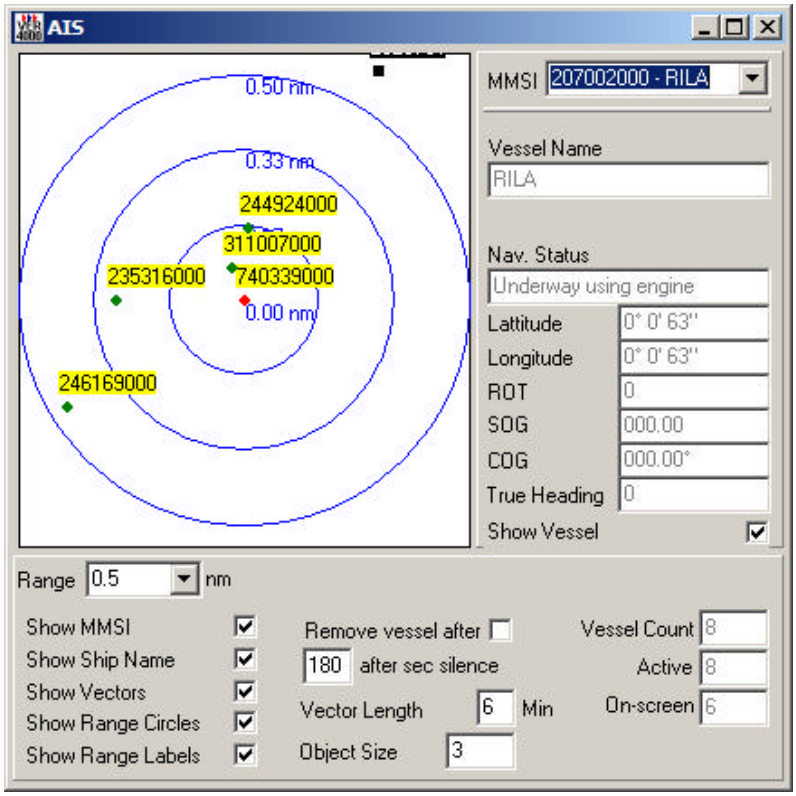
The ‘black/white’ icon switches from normal to inverted ‘alarm status’. If the VER4000 Configuration File contains Inverted/Normal alarm information, the replay should automatically be configured to show Normal or Inverted alarms, as per the legend below the tool bar.

The + or – icons select or de-select watched alarms.

An item is active, when the Alarm List description is in Red, and inactive when in White. Note: Some items may be active all the time and change to inactive when the described state is reached. Due to limited characters available in each Alarm List line, a complete description may be required to enable full understanding of each line, which will be specific to each ship.

4.8 AIS Data Window

The AIS Data window displays received AIS data, when the AIS is selected, see Screen 4.1.3.1. The screen is a ‘North Up’ display.



Screen 4.8.1.

The ‘Range’ in view is selected by left clicking on the ‘Down’ arrow in the ‘Range’ box.

To select information regarding a specific vessel, use the ‘Down’ arrow in the ‘MMSI’ box and highlight the required vessel. Information on this vessel will then be displayed in the boxes below the ‘MMSI’ box. Note: Accuracy of information is entirely dependant on the transmission from the appropriate vessel.

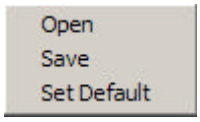
MMSI, Ship Name, Vectors, Range Circles or Range Labels are selected checking the appropriate boxes, to the reviewers own discretion.

4.9 To Save a Layout

A Replay screen ‘Layout’ can be saved in two ways.

4.9.1 Saving Layout as ‘Default’.

In the ‘Playback Suite’ window select ‘Layout’ and then ‘Set Default’, this will save the current screen layout and this will be opened when the Playback Software is used on the next occasion.



Screen 4.9.1.1.

4.9.2 Saving Layout as an Option.

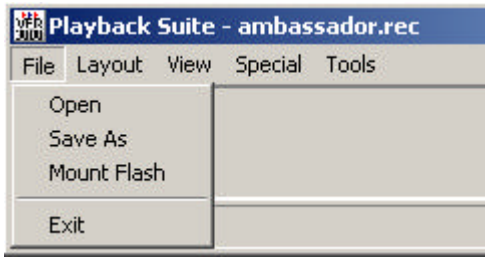
In the ‘Playback Suite’ window select ‘Layout’ and then ‘Save’. The file is then saved to the C:VER4000/Layout folder and can be selected on subsequent occasions by using the ‘Layout’ then ‘Open’ option.

4.10 To Save a section of Recording to a file

A section of recording between 30 seconds and 12 hours can be saved to a file. In the 'Transport' window, set the 'Start' and 'End' time for the period required. See Screen 4.10.1. Note: The 'Current' time must be between the 'Start' and 'End' times.

Screen 4.10.1.

In the 'Playback Suite' window select 'File and then 'Save As'. The file is then saved into the C:VER4000/Recordings folder. Ensure that sufficient disk space is available, 30 seconds of recording is about 1 M-Byte in size. See Screen 4.10.2.

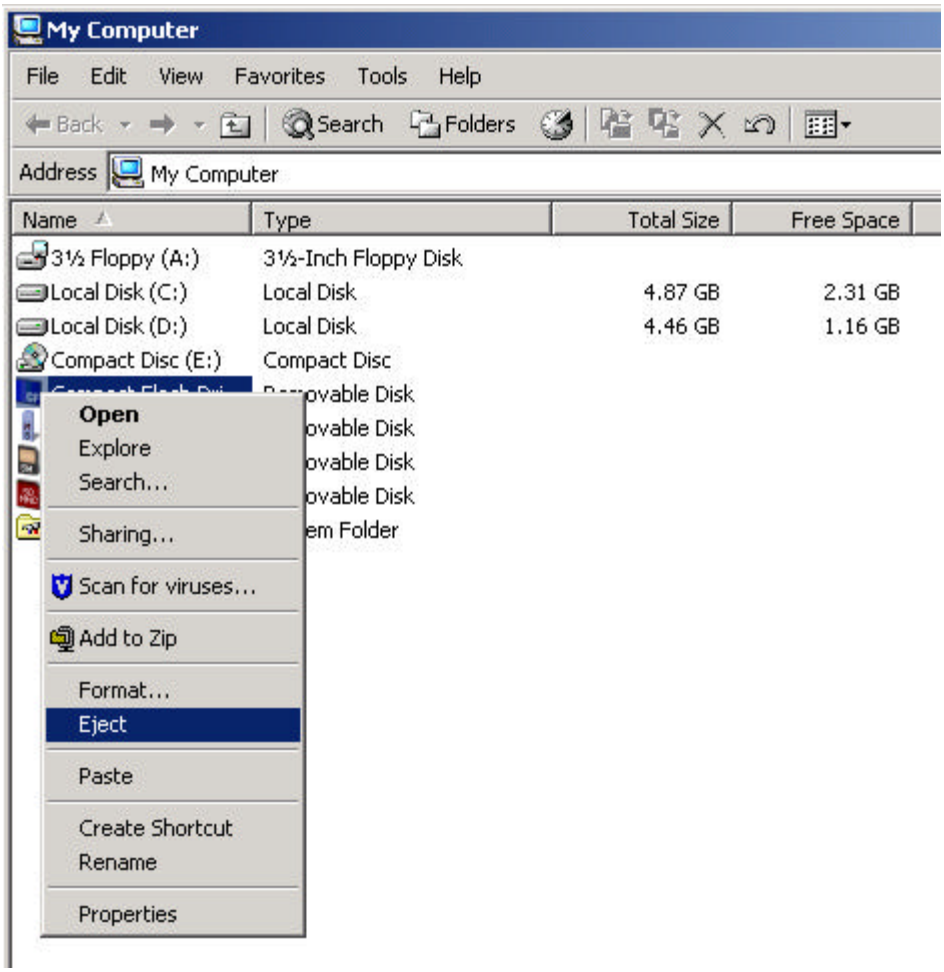


Screen 4.10.2.

5 Closing down

To close down the Playback software, select “File” from the “Playback Suite” window and then select “Exit” from the drop down menu.

Use the Windows ‘Safely Remove Hardware’ option from the tool bar to eject the Compact Flash or use the Windows ‘Eject’ operation in ‘My Computer’



Screen 5.1.

To close down the computer, select “Shut down” from the “Start” menu on the desktop toolbar.

6 Broadgate Proprietary Sentence Format

All serial data inputs to the VER4000/VER4000-S Main Electronics Equipment are in IEC 61162 format. This format is also known as NMEA.

There are no published 61162 sentences available for some of the data items that must be recorded on a VDR. Broadgate has designed 'proprietary sentences' to record these data items. The sentences are prefixed by the manufacturer's proprietary code '$PBRO', and this has been registered with the NMEA.

The proprietary sentences used are shown below.

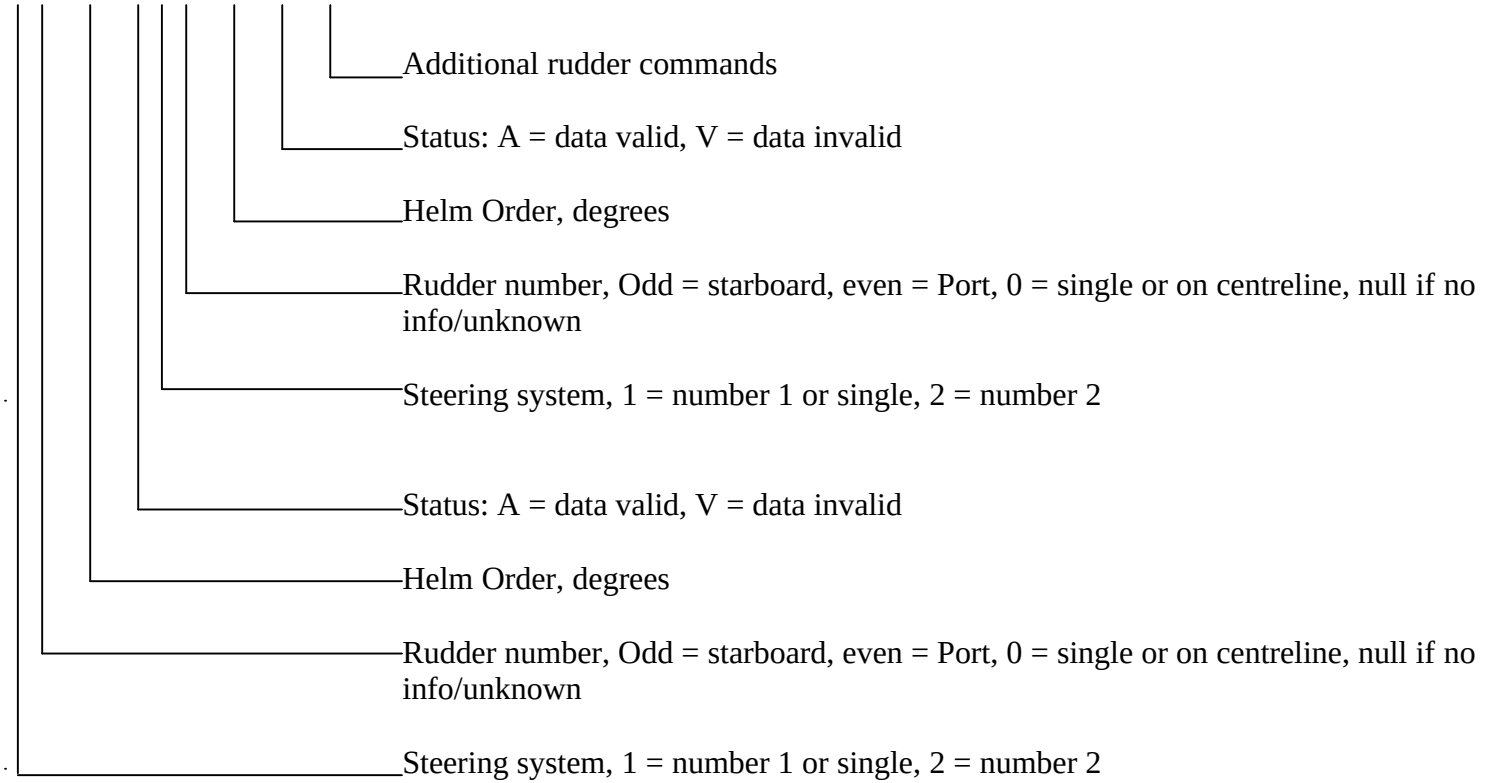
Sentences will be in the form:-

$PBRO AA …….. Data.

Broadgate sentence identifier

6.1.1 Helm Command - $PBRO AA

$PBRO, AA, x, x, x.x, A, x, x, x.x, A,…….*hh<CR><LF>

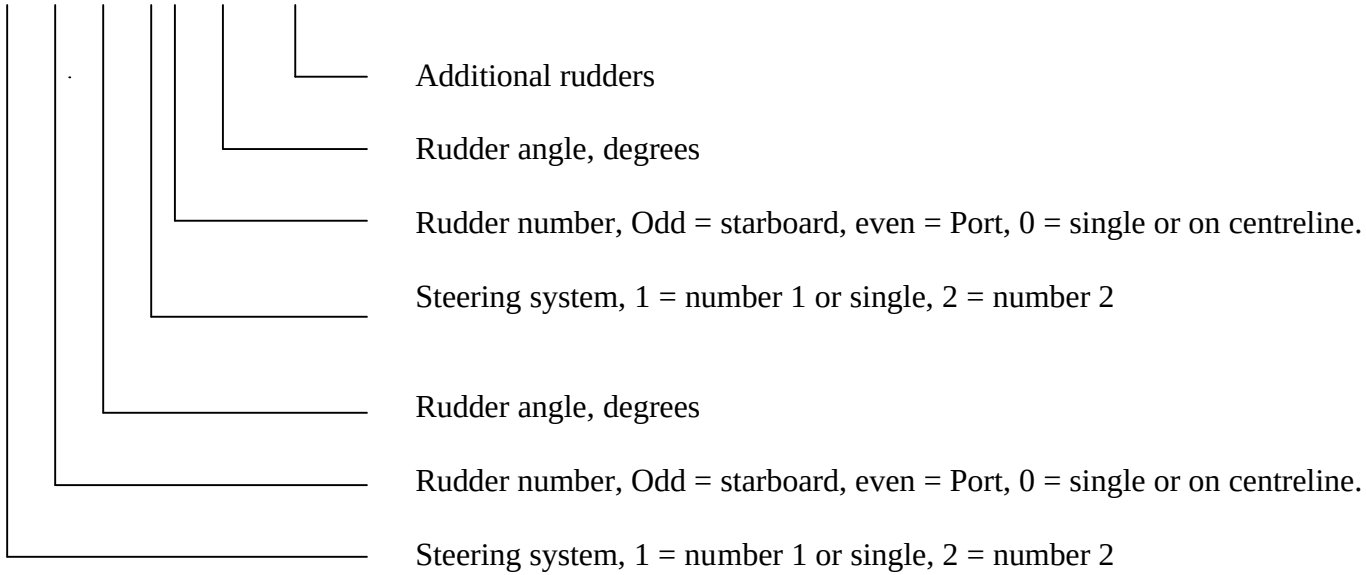


Use $PBRO AB if additional sentence required

6.1.2 Rudder sensor angle - $PBRO BA

(used if more than one steering systems or rudder are used)

$PBRO, BA, x, x, x.x, x, x, x.x, …….*hh<CR><LF>

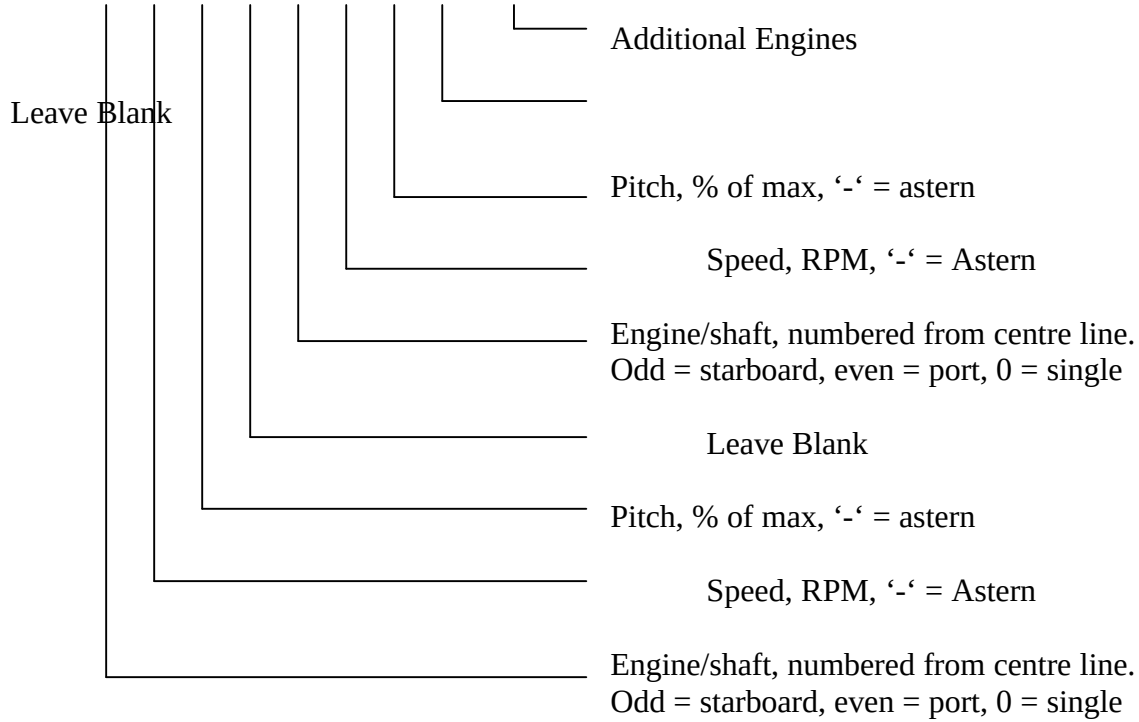


Use $PBRO BB if additional sentence required

6.1.3 Engine Command - $PBRO CA

Note – IMO require either '*engine telegraphs **or** direct engine/propeller controls*' to be recorded. Not both.

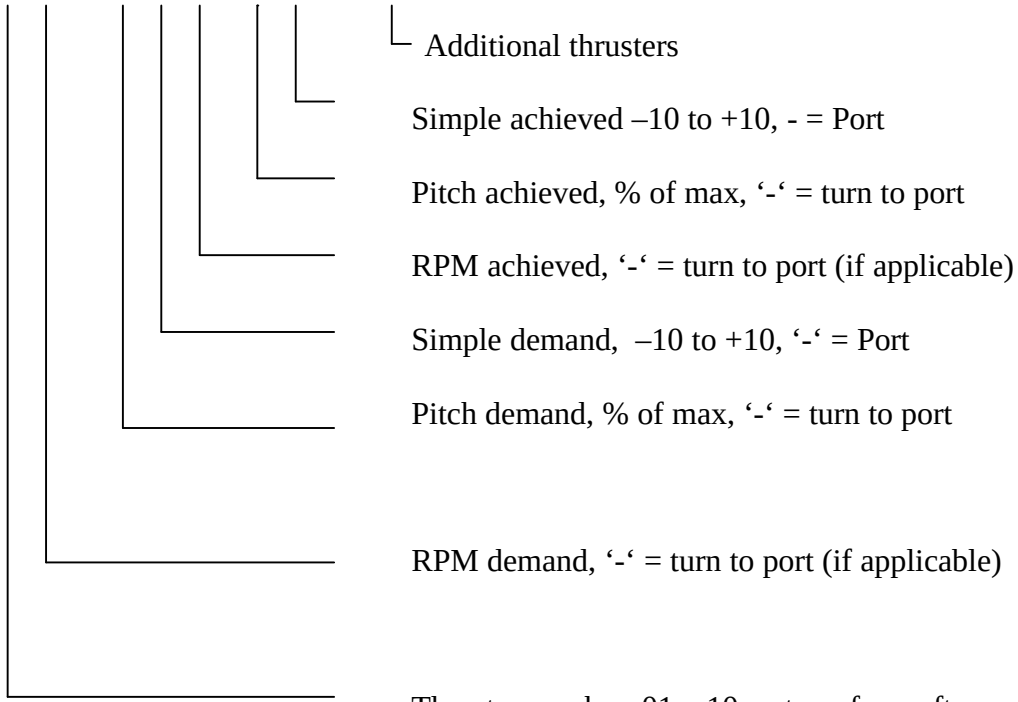
$PBRO, CA, x, x.x, x.x, a, x, x.x, x.x, a,……..*hh<CR><LF>



Note if an additional sentence required then use $PBRO CB

6.1.4 Thruster Demand/Achieved - $PBRO DA

$PBRO, DA, x, x.x, x.x, a, x.x, x.x, x, …….*hh<CR><LF>



Note if an additional sentence required then use $PBRO DB

6.1.5 Main alarms, Hull openings, Watertight/Firedoors - $PBRO EA

```
$PBRO,EA,1,xxxxxxxx,2,xxxxxxxx, …….. *hh<CR><LF>
              |    |
              |    |______________________ status of inputs
              |_________________________ input identifier, in groups of 32
```

Use $PBRO,EB… if additional sentences are required

Where 1, 2 is an input identifier which continues consecutively from sentence EA. For example, sentence EA could contain identifiers 1 to 3, and sentence EB identifiers 4 to 6.

where xxxxxxxx is a 32 bit hexadecimal number representing the status of 32 digital inputs

Example. For inputs 1-32

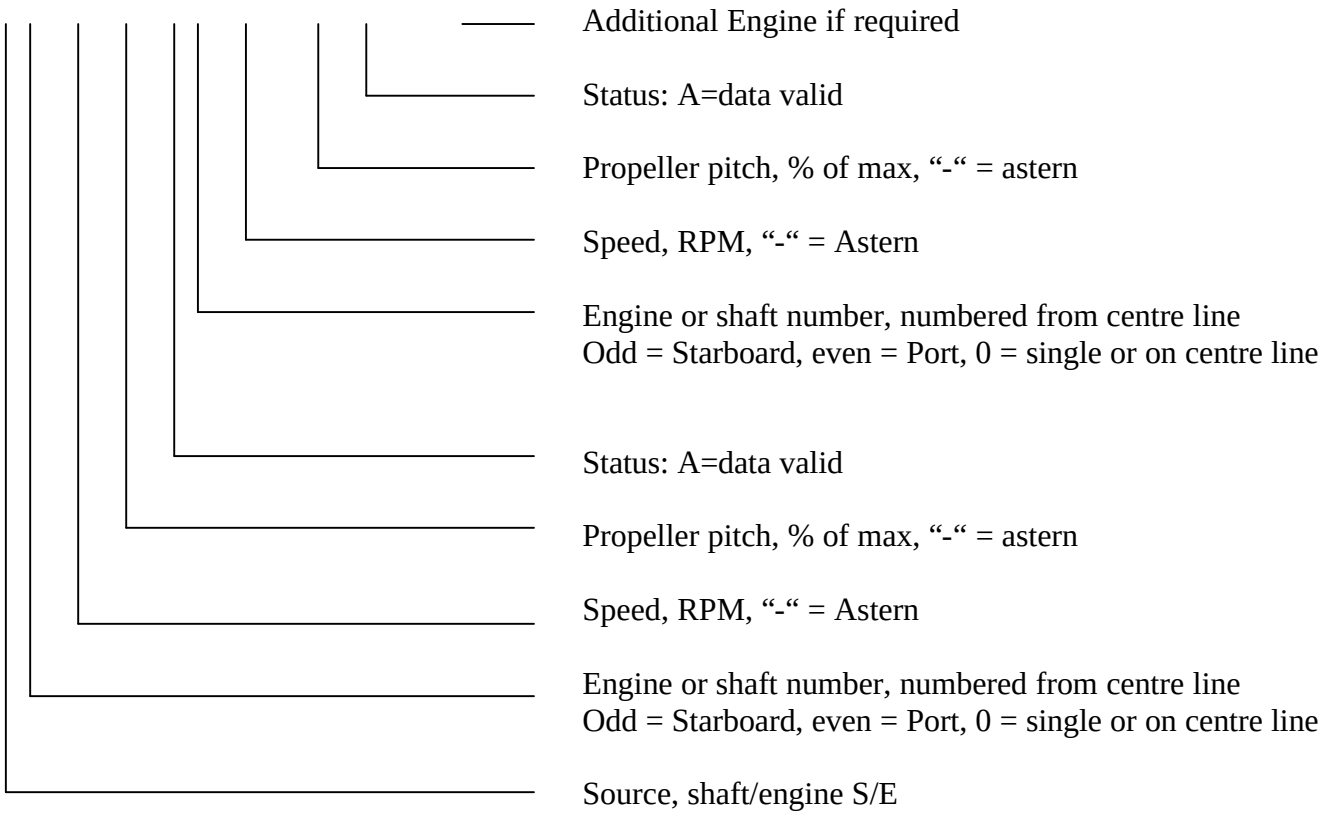
x x x x x x x x

hexadecimal value representing inputs 1-4
hexadecimal value representing inputs 5-8
hexadecimal value representing inputs 9-12
hexadecimal value representing inputs 13-16
hexadecimal value representing inputs 17-20
hexadecimal value representing inputs 21-24
hexadecimal value representing inputs 25-28
hexadecimal value representing inputs 29-32

6.1.6 Engine Response - $PBRO GA

(must always be used if more than one Engine is fitted)

$PBRO, GA, a, x, x.x, x.x, A, x, x.x, x.x, A,……..*hh<CR><LF>



Note if an additional sentence required then use $PBRO GB

6.1.7 Steering Mode - $PBRO HA

$PBRO, HA, x, y, z ,v, w *hh <CR><LF>