



STRAINSTALL UK LIMITED

Berth M Manager

The Berth Data Management System

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1 INTRODUCTION To BERTH MANAGER

The Strainstall **Berth Manager** is designed to assist the mooring master during a vessel's approach to, and whilst moored alongside the jetty, and is a fully integrated system, customised to the Client's specification and application. The system monitors the vessel approach, loads in the mooring lines, drift off, environmental parameters, and can provide communication outputs to repeaters on board the vessel.

Berth Manager handles data from of a number of Strainstall sub-systems:-

- | | | |
|---|---|---|
| 1 | Mooring Load Monitoring :-
MoorAlert system | Strainstall load measuring pins, for incorporation into the quick release hooks to monitor the tensions in the mooring lines. |
| 2 | Vessel Approach and Docking :-
DockAlert system | Strainstall laser or radar sensors monitor the approach of a vessel to the jetty, and drift-off once the vessel is moored. A large-digit display visible to ships' masters can be mounted on the jetty. |
| 3 | Environmental Monitoring :-
(from a nominated vendor). | Sensors to monitor meteorological and oceanographic conditions at the berth, linked into the system. |

The operator's terminal is a PC with all the required accessories, loaded with **Berth Manager** applications software operating under WINDOWS NT. The system can be supplied with one operator workstation, or networked with multiple work stations and dedicated Data Acquisition Units.

Transmission of **Berth Manager** data to onboard personnel can be via a fibre optic link between jetty and vessel to shipboard repeaters, or by data link to pager-type displays. Data can also be made available for Internet access via a secure site.

Berth Manager is a well proven product based on Strainstall's long experience and tradition in the provision of monitoring systems. The advanced information and data logging capability provides moment-by-moment analysis of load, drift-off and environmental conditions to ensure safe and accurate vessel approach and optimum mooring line performance, whatever the stresses and weather conditions.

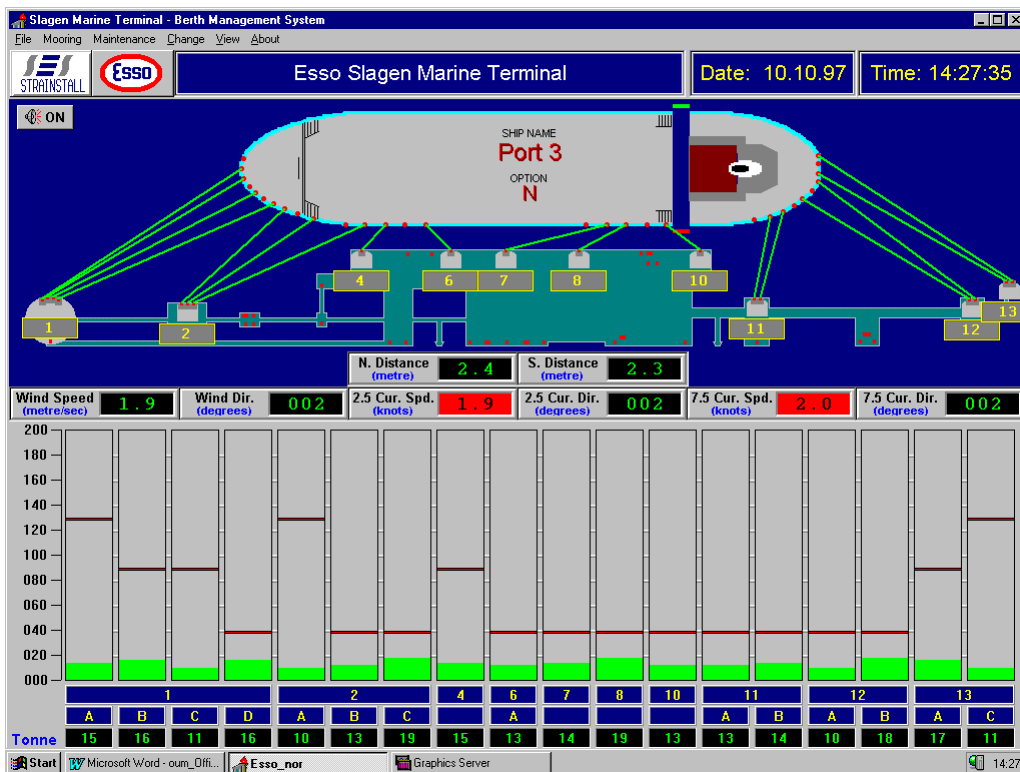
This document is a summary description, with samples of VDU screens indicating some of the data monitored and displayed, the interactions between the sub-systems, the options of controls, system settings, etc.

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2 MAIN PAGE

The Berth Manager main display incorporates the mooring loads, environmental data and vessel drift-off in real time. In addition to this, the system stores data for historical processing, enabling trends to be displayed and printed. In order to assist the operator the system also includes facilities for storing ship configurations for future use, when the same ship returns for loading/offloading of cargo.

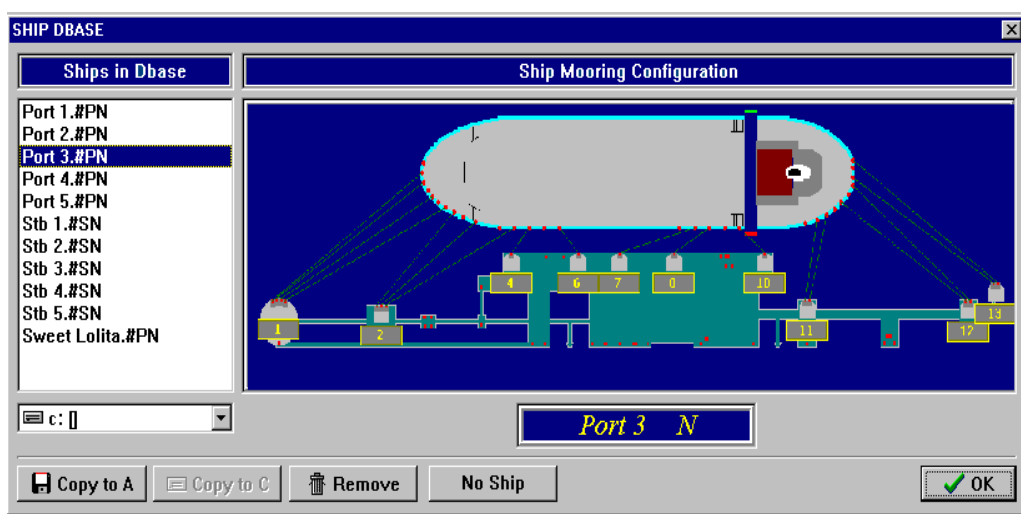
The Main Page displays the Mooring Line Monitoring and incorporates the environmental data. Several functions are available through defined Function keys or by use of the Mouse.



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3 MOORING – DBASE

The Menu Mooring / DBase, is accessed via the Function key or from the tool bar, and the operator is given the option of retrieve a ship and its configuration from the DBase. This function is password protected. The operator will see the following pop-up box:



The following options are available for the operator:



This function is only available if a ship is selected from the Dbase, and allows the selected ship file to be copied to a diskette in the floppy disk drive. If no floppy diskette is present in the drive, the error message **I/O error 21** will be displayed.



This function is only available if a ship from the A-drive is selected.



This function is only available if a ship is selected on either the C- or A-drive, and enables removal or deletion of a ship, as selected.

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No Ship

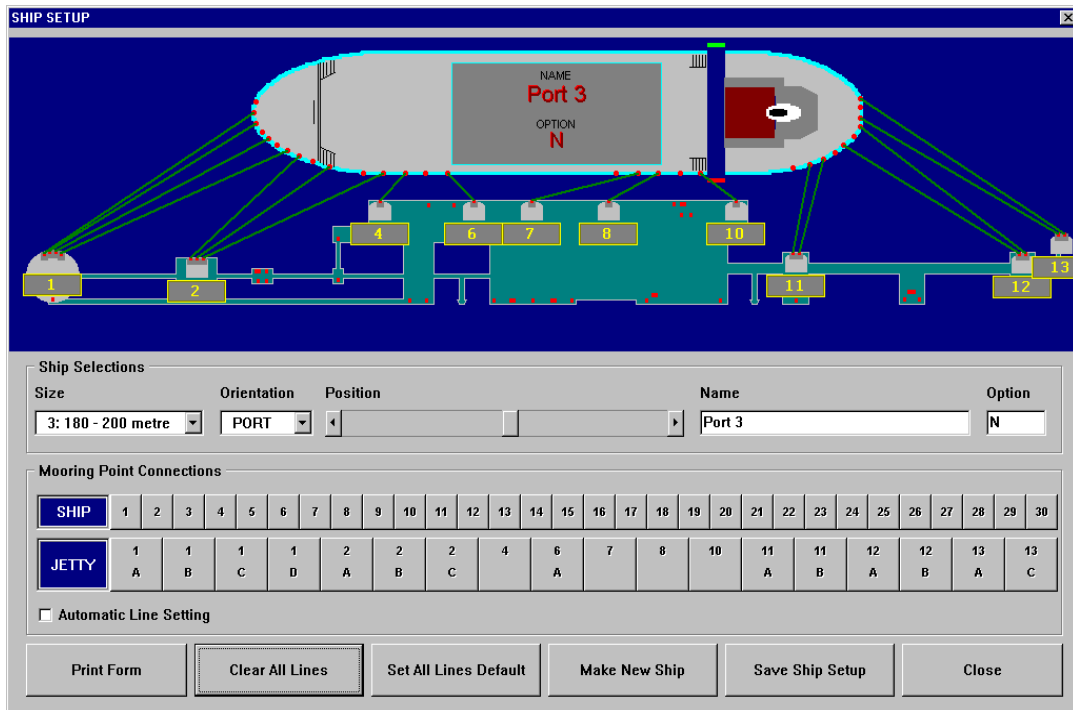
This function is for the situation of no ship present. If selected, there will be no display of ship on the Main VDU page or on the Vessel Approach/Radar display..

 **OK**

This function to be used to confirm the request and complete the 'dialog box', and return to the Main Menu.

4 MOORING - SHIP SETUP

Mooring/Ship Set-up, is accessed via the tool bar or the dedicated function key. This enables the operator to create a new ship configuration, or modify an existing set-up within the stored ships of the Dbase. This function is password protected. Shown below is the set-up start menu and display.



SHIP SETUP

NAME
Port 3
OPTION
N

Ship Selections

Size: 3: 180 - 200 metre Orientation: PORT Position: Name: Port 3 Option: N

Mooring Point Connections

SHIP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
JETTY	1 A	1 B	1 C	1 D	2 A	2 B	2 C	4	6 A	7	8	10	11 A	11 B	12 A	12 B	13 A	13 C												

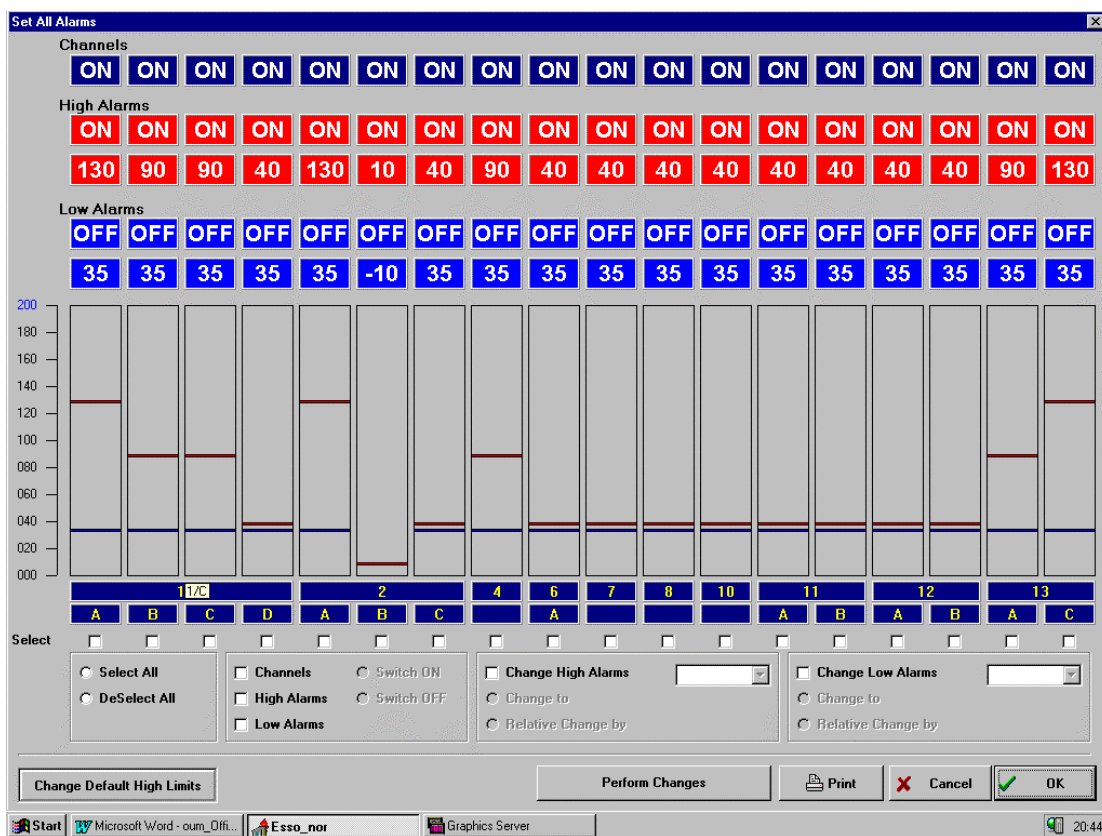
Automatic Line Setting

Print Form Clear All Lines Set All Lines Default Make New Ship Save Ship Setup Close

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5 MOORING – ALARM SETTING

The Mooring/Alarm Setting Menu, is available from the tool bar, and enables setting and amending of the mooring line load alarm limit settings.



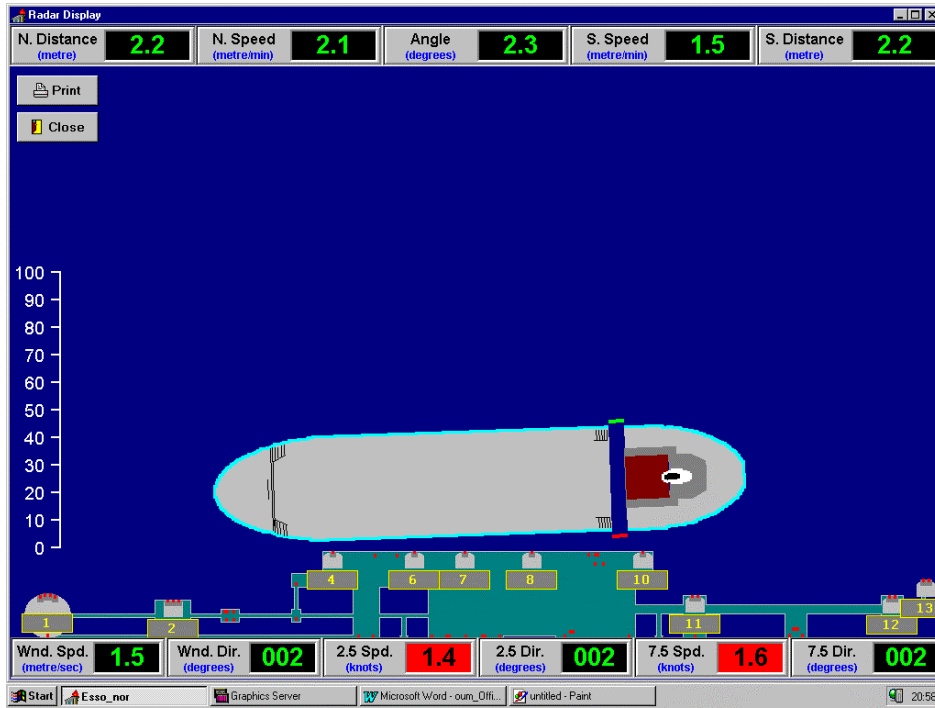
The procedure of setting and changing the alarm limits is based on a simple operation, all fully described and based on “what you see is what you do” basis. The facility is password protected.

6 MAINTENANCE – PARAMETER LIST

The Maintenance/Parameter List is a function to amend vital common parameters within Berth Manager. It allows amendment of the **Hysteresis Alarm** (0 – 100%), **Over Range** (10 to 500 tonne), **Under Range** (-10 to 10 tonne).

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7 VIEW – VESSEL APPROACH



The Vessel Approach and Drift Off mode displays and monitors the position of the vessel in real time, from a distance of 200 meters from the jetty.

The following functions are available:

- Print the current graphic page
- Return to Mooring and Main Page
- Do historical data simulation, Replay of the Vessel Approach

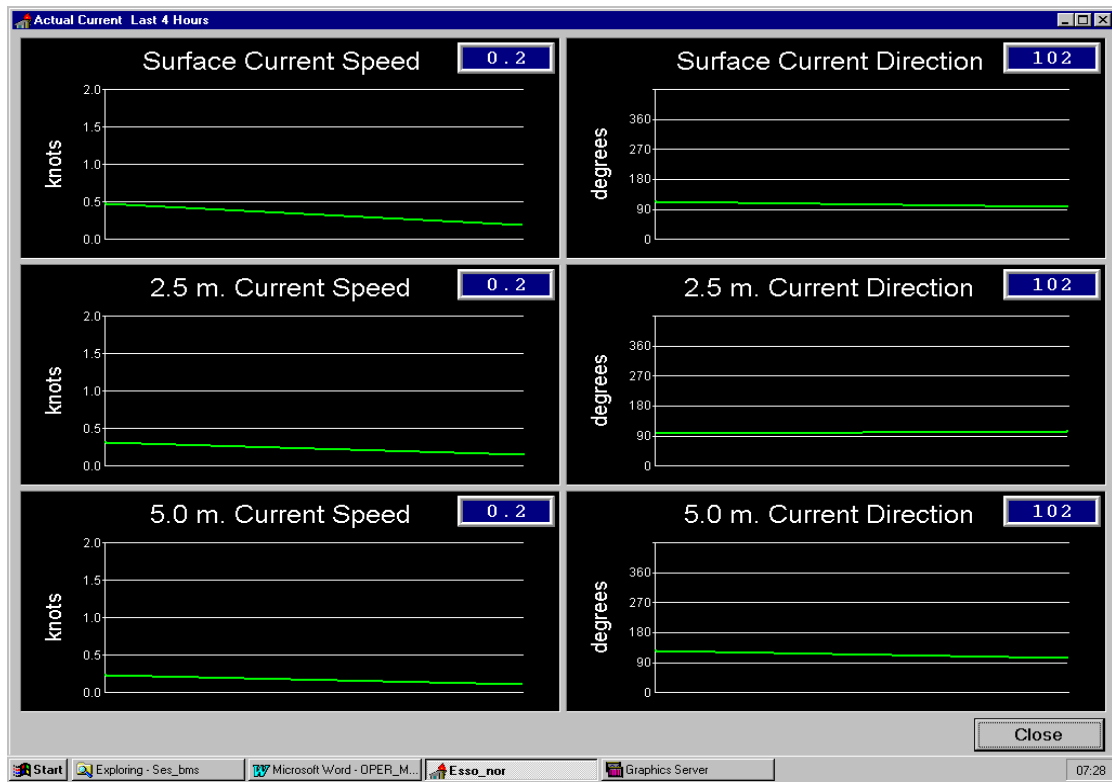
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8 VIEW – ENVIRONMENTAL DATA

From the tool bar, select View/Environmental Data or use the function key, and the environmental data is displayed.

This VDU display shows the TREND for the last 4 hours.

(The current sensor used as the example is an acoustic doppler type and has the facility to measure the speeds and directions at 5 levels). The default depth is 2.5 metre and the other depths are selected via function keys



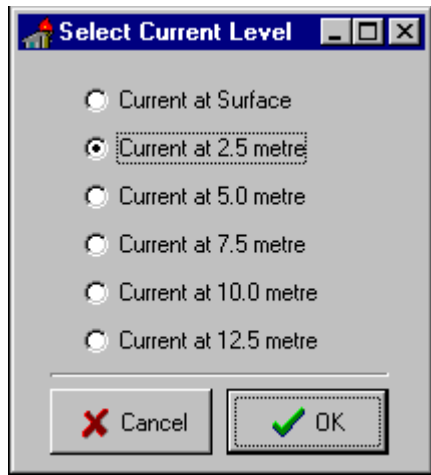
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9 VIEW - CURRENT DATA

To select current data, from the tool bar either, select View/Current Data or use the function key.

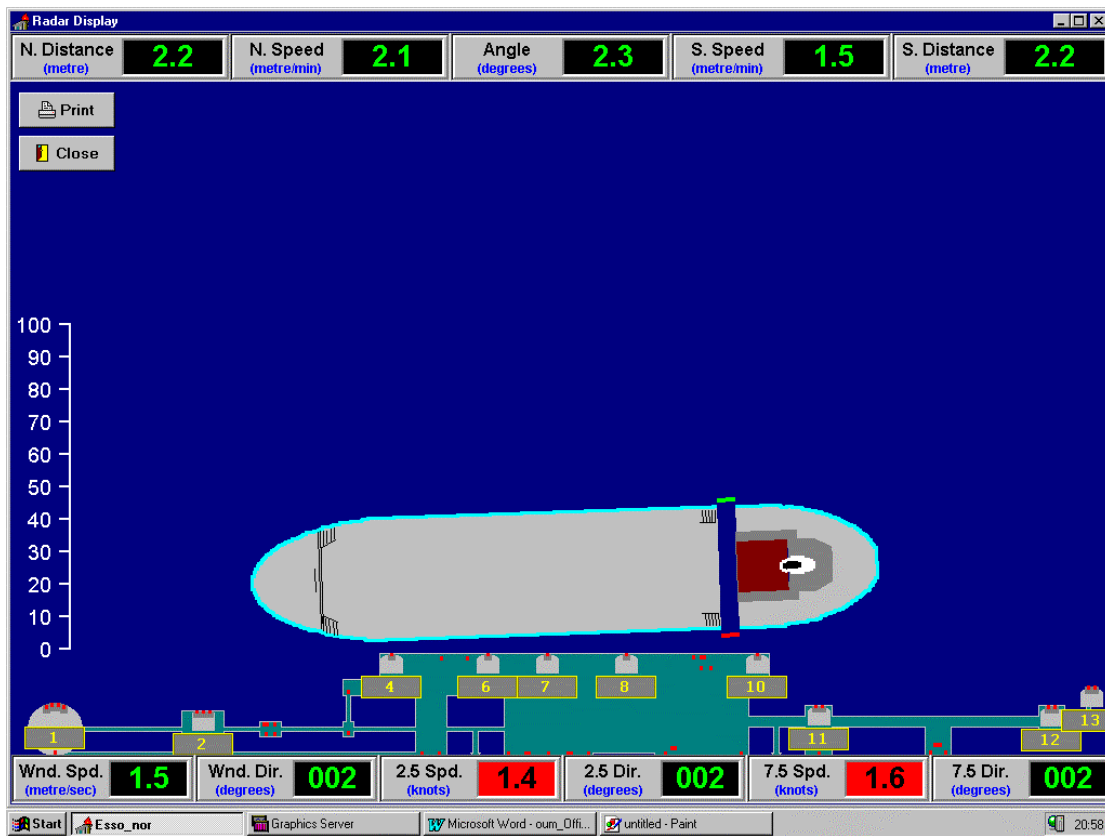
The TREND displays the last four hours.

Alternatively, the pop-up box is made available:



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10 VIEW – VESSEL APPROACH



The Vessel Approach and Drift Off mode displays and monitors the position of the vessel in real time, from a distance of 200 metres from the jetty.

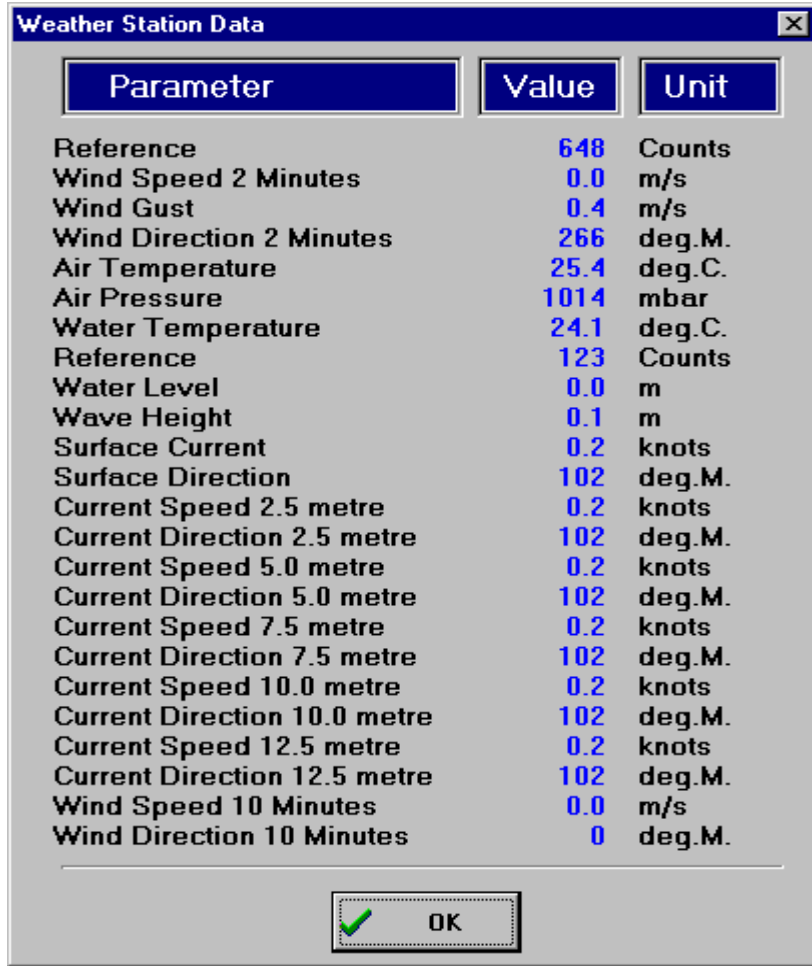
The following functions are available:

- Print the current graphic page
- Return to Mooring and Main Page
- Do historical data simulation, Replay of the Vessel Approach


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11 VIEW – WEATHER DATA

The function will display the Weather data in tabular form:



Parameter	Value	Unit
Reference	648	Counts
Wind Speed 2 Minutes	0.0	m/s
Wind Gust	0.4	m/s
Wind Direction 2 Minutes	266	deg.M.
Air Temperature	25.4	deg.C.
Air Pressure	1014	mbar
Water Temperature	24.1	deg.C.
Reference	123	Counts
Water Level	0.0	m
Wave Height	0.1	m
Surface Current	0.2	knots
Surface Direction	102	deg.M.
Current Speed 2.5 metre	0.2	knots
Current Direction 2.5 metre	102	deg.M.
Current Speed 5.0 metre	0.2	knots
Current Direction 5.0 metre	102	deg.M.
Current Speed 7.5 metre	0.2	knots
Current Direction 7.5 metre	102	deg.M.
Current Speed 10.0 metre	0.2	knots
Current Direction 10.0 metre	102	deg.M.
Current Speed 12.5 metre	0.2	knots
Current Direction 12.5 metre	102	deg.M.
Wind Speed 10 Minutes	0.0	m/s
Wind Direction 10 Minutes	0	deg.M.

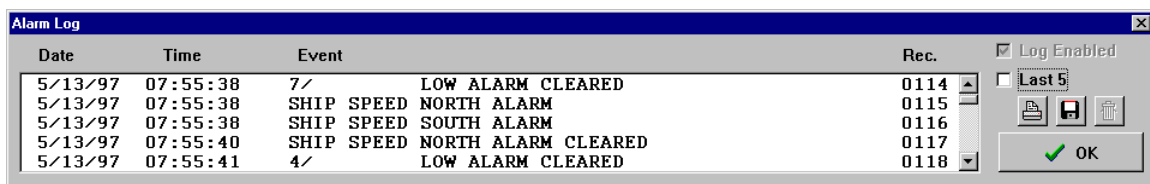
 OK

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12 VIEW – LOG

An event and alarm log feature enhances the Safety with all changes in the system logged, in addition to any alarm occurrence. If an alarm occurs, this will automatically 'pop-up', regardless of which display is active, main or sub-menu. The alarm and event log can also be printed out.

This function is used for viewing the Event Log. This records all alarms, etc, that have occurred during the set period of time.



The screenshot shows a window titled "Alarm Log" with a table of events and a control panel on the right. The table has columns for Date, Time, Event, and Rec. The control panel includes a "Log Enabled" checkbox, a "Last 5" dropdown, and icons for print, save, and delete. An "OK" button is at the bottom right.

Date	Time	Event	Rec.
5/13/97	07:55:38	7/ LOW ALARM CLEARED	0114
5/13/97	07:55:38	SHIP SPEED NORTH ALARM	0115
5/13/97	07:55:38	SHIP SPEED SOUTH ALARM	0116
5/13/97	07:55:40	SHIP SPEED NORTH ALARM CLEARED	0117
5/13/97	07:55:41	4/ LOW ALARM CLEARED	0118

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13 VIEW - TREND

The TREND is for viewing the historical data recorded by Berth Manager, and the following dialog box is responded:

TREND SETUP

Hooks and Winches:

1	1	1	1	2	2	2	4	6	7	8	10	11	11	12	12	13	13
A	B	C	D	A	B	C		A				A	B	A	B	A	C

Environmental Data from Deck 3127 Unit:

REF	WND	WND	WND	AIR	AIR	WTR	REF	WTR	WAV	CUR	CUR	CUR	CUR	CUR	CUR	CUR	CUR	CUR	CUR	WND	WND		
1	SPD2	GST	DIR2	TMP	PRE	TMP	2	LVL	HGT	SP0	DR0	SP25	DR25	SP5	DR5	SP75	DR75	SP10	DR10	SP125	DR125	SPD10	DIR10

Autronica Berthing Aid Data:

DIS	SPD	ANG	SPD	DIS
1	1		2	2

Selected Channels [Max. 6]

4/ 7/ 11/A 11/B 12/A 12/B

Trend Start and Stop

Start Date: 13.10.1997 Stop Date: 13.10.1997

Start Time: 06:07:00 Stop Time: 06:15:00

Trend Resolution

1: Point: 1 sec. Page: 8 min.

Keep Start Reference
 Keep Stop Reference

View Graphic Trend View Table Trend Close Trend

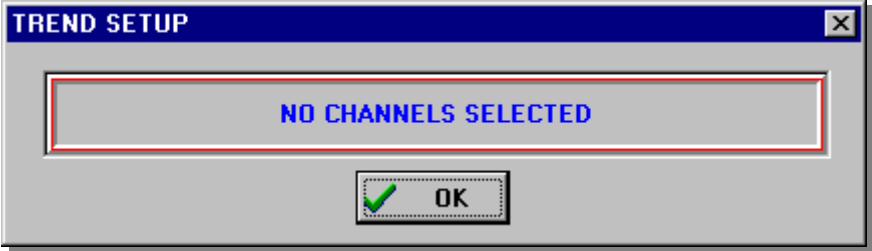
The operator can select 6 channels at the time for viewing, grouped as either Hook loads, Environmental data or Vessel approach data.

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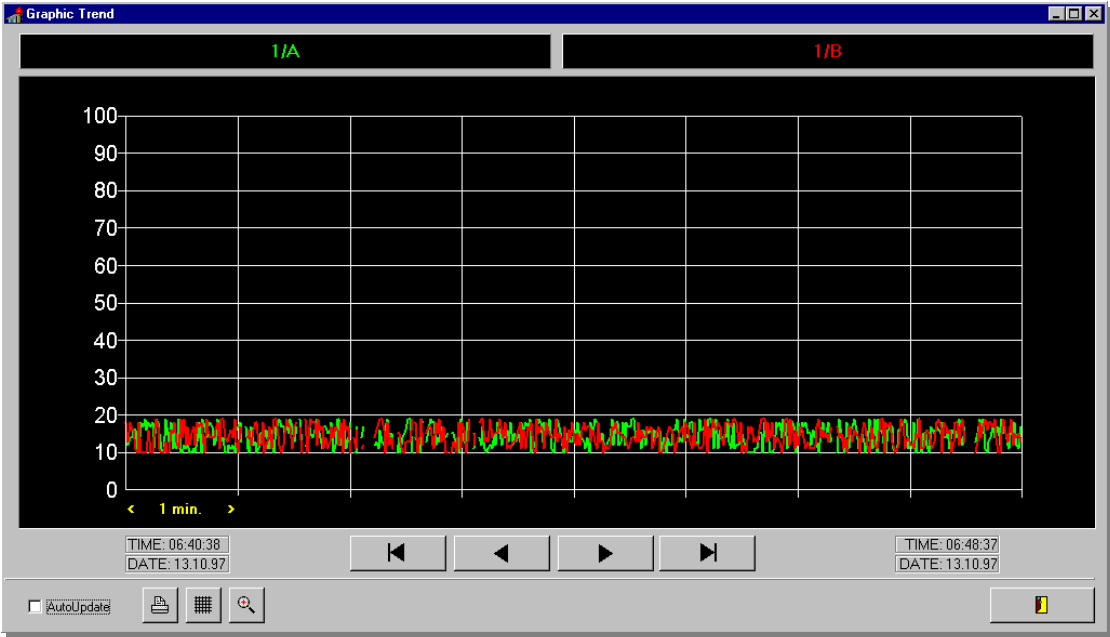
13.1 GRAPHIC TREND



This button will activate the TREND as selected. If no channels are selected, the system will pop-up and prompt the operator.



Accept with **OK**, and try again with channels selected.
If channels are selected, these will be displayed:



The TREND will be displayed as selected.

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13.2 TABLE TREND

View Graphic Trend

This button will activate and start the TREND as selected. If no channels are selected, the system will pop-up and respond:



Select **OK**, and selection of channels/tag numbers can be done:

DATE	TIME	AIR/TMP	WTR/TMP
21.05.1997	10:24:35	26.0	24.7
21.05.1997	10:24:36	26.0	24.7
21.05.1997	10:24:37	26.0	24.7
21.05.1997	10:24:38	26.0	24.7
21.05.1997	10:24:39	26.0	24.7
21.05.1997	10:24:40	26.0	24.7
21.05.1997	10:24:41	26.0	24.7
21.05.1997	10:24:42	26.0	24.7
21.05.1997	10:24:43	26.0	24.7
21.05.1997	10:24:44	26.0	24.7
21.05.1997	10:24:45	26.0	24.7
21.05.1997	10:24:46	26.0	24.7
21.05.1997	10:24:47	26.0	24.7
21.05.1997	10:24:48	26.0	24.7
21.05.1997	10:24:49	26.0	24.7
21.05.1997	10:24:50	26.0	24.7
21.05.1997	10:24:51	26.0	24.7
21.05.1997	10:24:52	26.0	24.7
21.05.1997	10:24:53	26.0	24.7
21.05.1997	10:24:54	26.0	24.7

This table shows from left to right; date, time, channel no. and real value for up to 6 channels, as selected. If no data is available for a time period, the comment 'No Data' will be displayed in the column for the date..

A graphic TREND has 480 points (pixels) and a tabular display has the same, though, page by page, equivalent to 24 pages with 20 points. The Up and Down Arrow enables scanning through the points.