



CONNING DISPLAY (Box-Pc)

Description

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SAFETY NOTES:

- **Warning!**
Take care during maintenance and repair work: avoid touching live electrical connections. The applicable safety regulations such as VDE, VBG 4, OSHA 1919 and other appropriate safety standards must be followed.
- The installation and first putting into operation may only be performed by trained and qualified personnel.
- Maintenance and repair work may only be performed by trained and qualified personnel having knowledge of the national safety regulations for this type of equipment.
- The equipment can be damaged!
Parts may only be replaced when the supply voltage is switched off.

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1

General

The Conning Display is part of a NAUTOCONNING system.

The Computer contains the Conning Display software, which offers the following functionality:

- Manoeuvre-oriented Data and Alarm displays (see example Figure: 1-1)
- Data monitoring
- Alarm level setting
- Sensor selecting

The Computer receives the data, alarm and status information from connected devices/sensors via Ethernet. The Ethernet data distribution is managed by the Ethernet Switch.

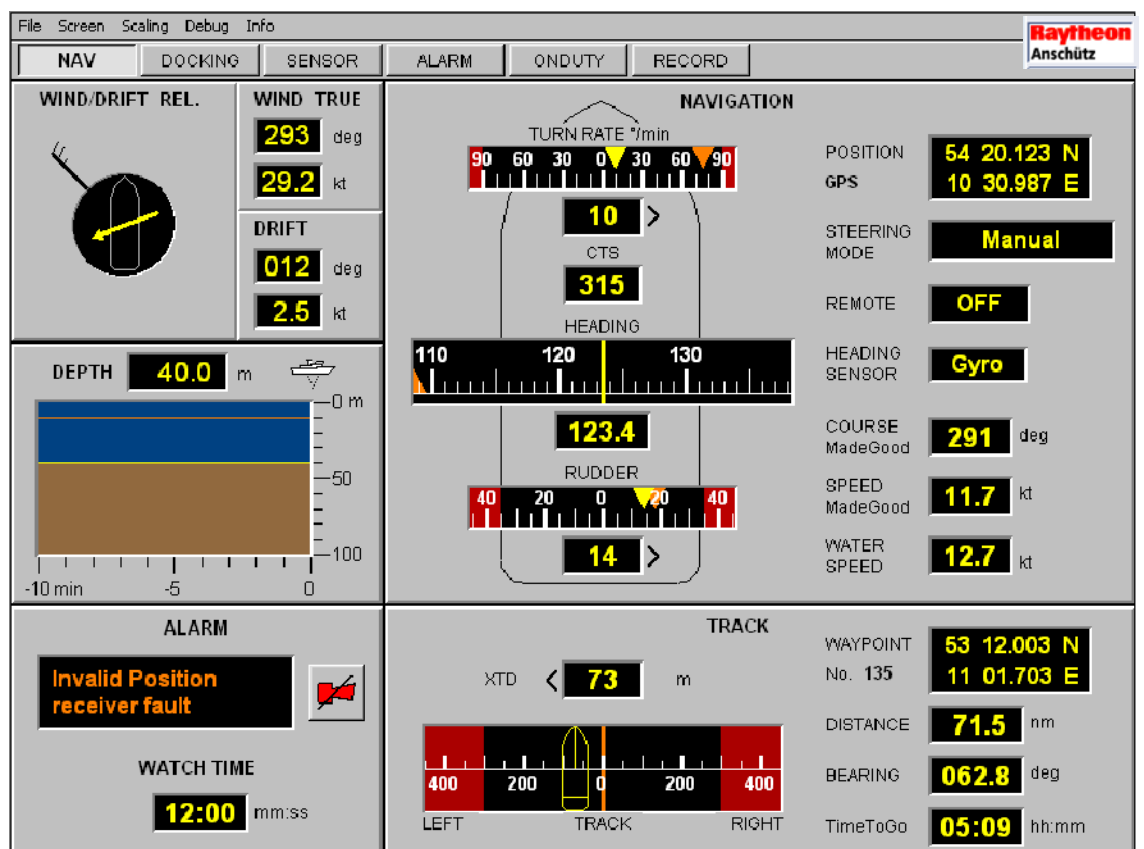


Figure: 1-1: Display „NAVIGATION“

CONNING DISPLAY

1.1 Construction

A Conning Display consists of the following hardware components (see Figure: 1-2).

- 1 TFT Display
- 2 Trackball
- 3 Computer with Conning Display Software and a external Ethernet Switch

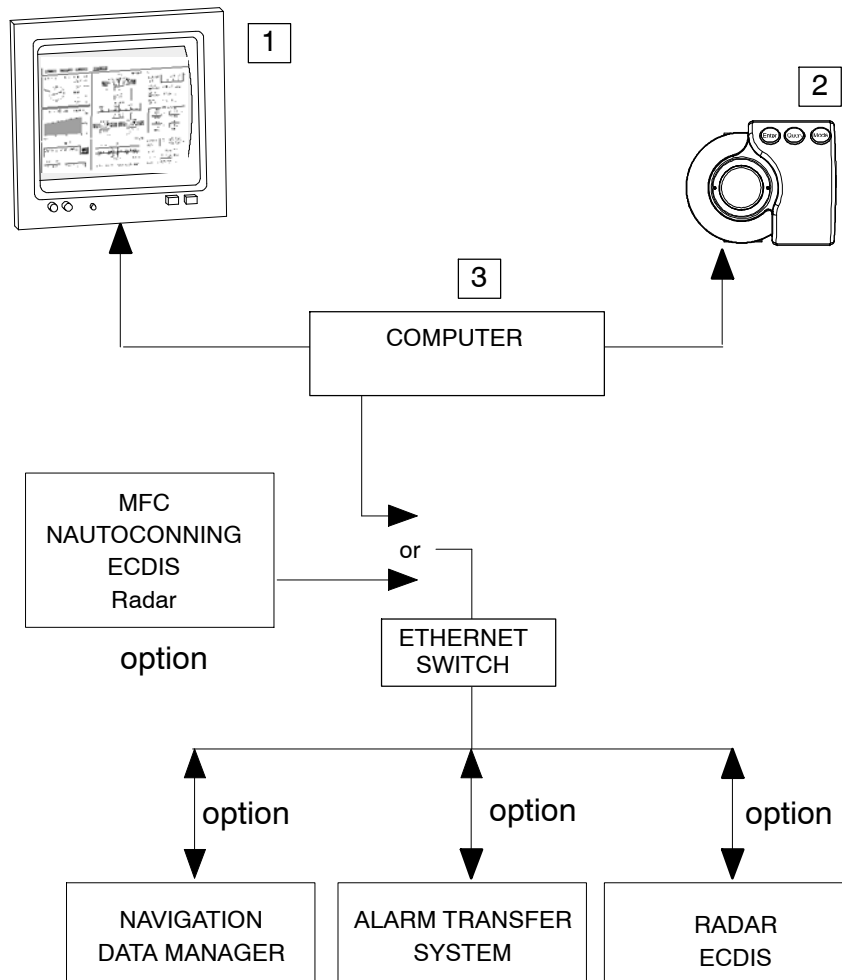


Figure: 1-2: CONNING DISPLAY Overview

1.1.1 TFT-Display -1-

The display is a high-resolution TFT (Thin Film Transistor) flat screen color monitor. It shows the data, status and alarm messages in appropriate CONNING DISPLAYS.

1.1.2 Trackball -2-

Operation is carried out via Trackball (see Figure: 1-3).
Using the trackball, the cursor is moved by rolling the ball in the appropriate direction.

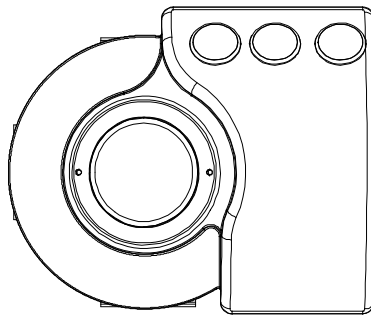


Figure: 1-3 Trackball

The trackball is equipped with three buttons.

The *middle* and *right* button has no function for the NAUTOCONNING System.

The [*left*] button is used as set button (or left mouse button)

- Using the trackball, place the cursor over a softkey from the menu bar and press the button. The softkey function is activated.

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1.1.3 Computer

The Computer is a PC compatible computer system designed to be used in maritime environment.

The computer is based on high processor technology and incorporates the GM45, ICH9M chipset.

Detailed information see annex Service Manual no. 4090 (in NAUTOCONNIG manual 4093).

1.2 Functional Description

Via the NAVIGATION DATA MANAGER the Computer receives all required sensor data and status signals. This data information displays in different CONNING DISPLAYS.

Examples:

The DATA MONITORING checks the received sensor data.

If the data are valid and up-to-date, they are transmitted to the DATA DISPLAY to indicate them in manoeuvre oriented displays.

Received alarms, coming from the Alarm Transfer System (ATS), are directly transmitted to the ALARM DISPLAY .

The ALARM LEVEL SETTING of the NAUTOCONNING software allows to configure threshold values for specified sensors to release an alarm, if these limits exceed (e.g. Depth Alarm).

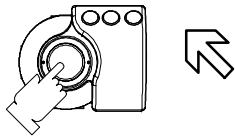
By means of a SENSOR display it is possible to select a sensor or to switch-over to another sensor if actual data are not available or are not valid (SENSOR SELECT).

The actual status of the listed sensors is marked.

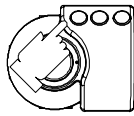
CONNING DISPLAY

2 Operation

2.1 Explanation of Symbols and Software Buttons and Functions



Using the trackball to place the Cursor



Press the [left] button

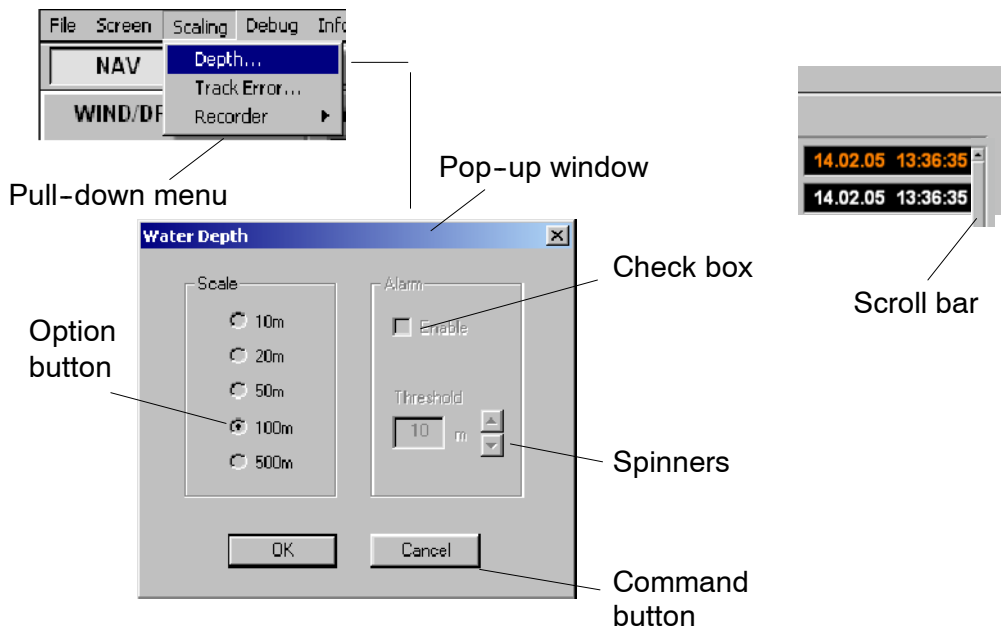
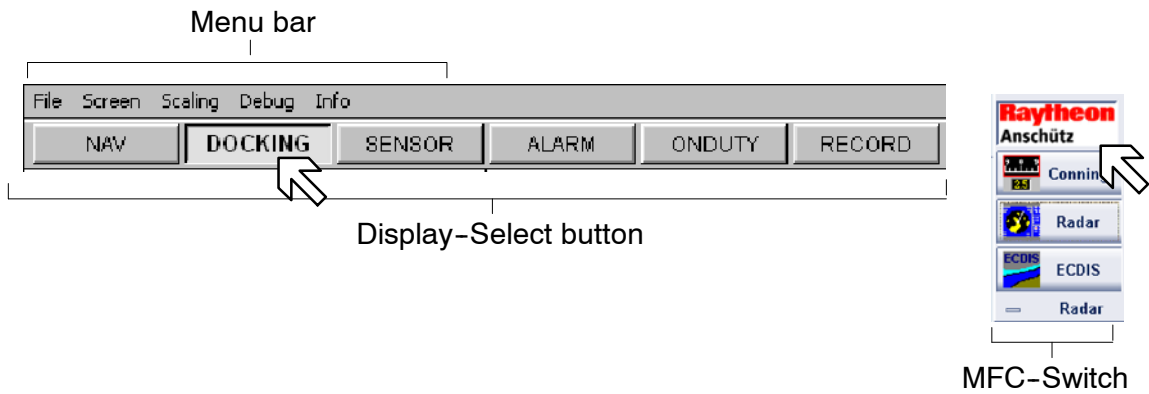


Figure: 1-4 Menus and Commands

- Symbols in the Display 'ALARM'



- Alarm Section (Watch Time), red flashing alarm symbol indicates a current alarm



- Alarm List, alarm was acknowledged (white text string)
- Alarm List, flashing alarm symbol was not acknowledged (red text string)

- Symbols in the Display 'SENSOR'



- Sensor is selectable



- System integration is in process



- Sensor is selected



- Sensor is disturbed

- Symbols in the Display 'ON DUTY'



- Alarm unit No. is selectable



- System integration is in process



- Alarm unit No. is selected

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2.2 Operator Involvement during Operation

2.2.1 General

The operating is exclusively carried out via the Trackball.

The controlling of the NAUTOCONNING software is carried out via a menu bar, the selection of the different displays via corresponding select buttons.

2.2.2 The Menu bar

	Indications	Comment/Notes										
	<table border="1"><tr><td data-bbox="411 943 491 992">File</td><td data-bbox="491 943 603 992">Screen</td><td data-bbox="603 943 730 992">Scaling</td><td data-bbox="730 943 810 992">Debug</td><td data-bbox="810 943 890 992">Info</td></tr><tr><td data-bbox="411 992 491 1041">*)</td><td></td><td></td><td data-bbox="730 992 810 1041">*)</td><td></td></tr></table>	File	Screen	Scaling	Debug	Info	*)			*)		*) For RAN service support
File	Screen	Scaling	Debug	Info								
*)			*)									

The menu bar offers the following functions:

- File (used for RMG service support and settings only)
- Screen (Day/Night)
- Scaling of Sensor Data
- Debug (used for RMG service support and settings only)
- Info

Figure: 1-5 gives an overview of all available menu functions.

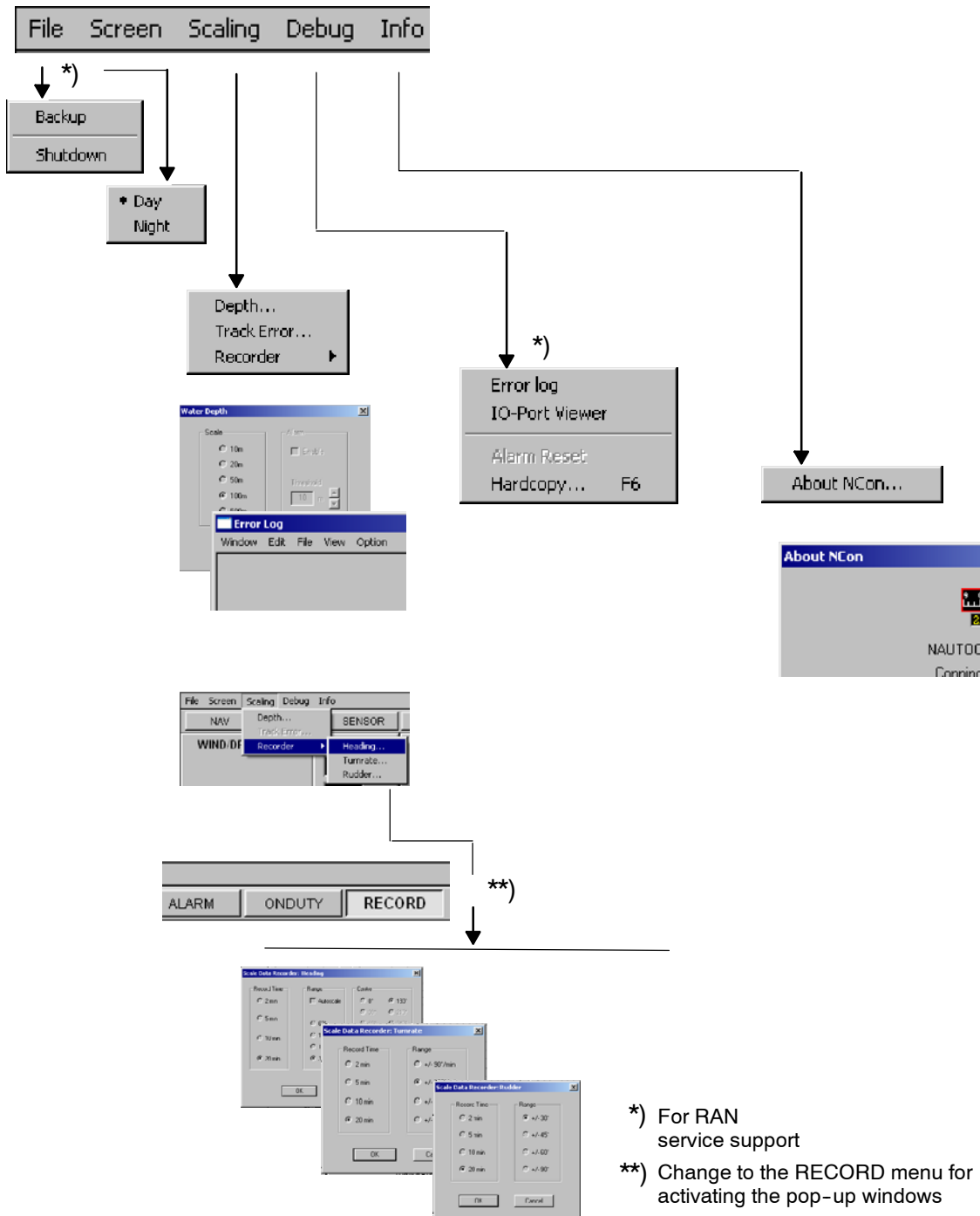


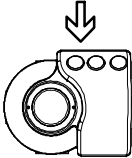
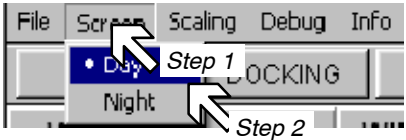


Figure: 1-6: Menu options (Overview)

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2.2.3 Working with the menu bar

	Indications	Comment/Notes
		Menu bar is not active.
[1] Selecting a menu function...		
		<p><i>Step 1</i> Menu bar is active.</p> <p>Select the desired menu function (e.g. Screen).</p> <p><i>Step 2</i> The pull-down menu appears.</p> <p>Select the desired Screen mode.</p>



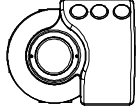
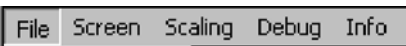

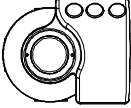
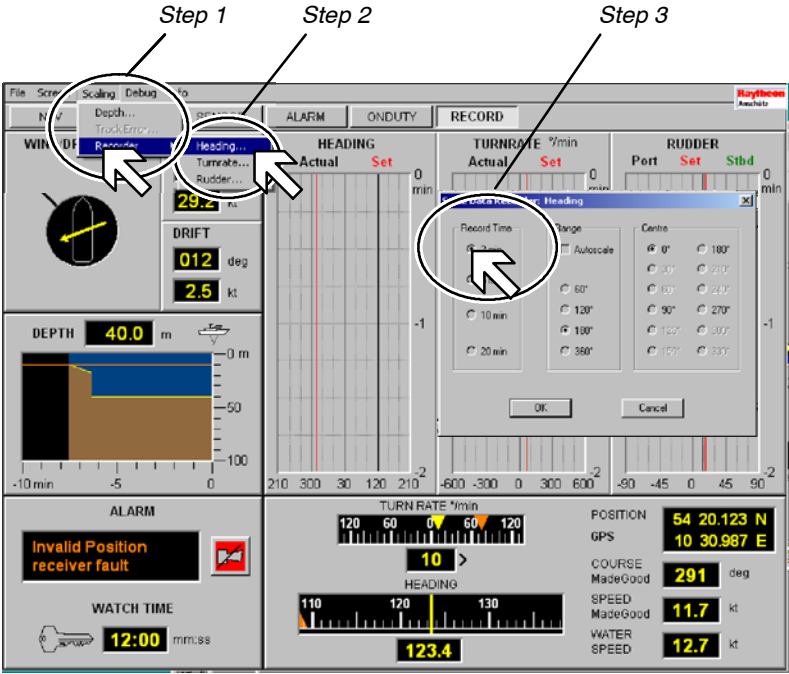
2.2.4 Settings in the Pop-up window (Example)

Settings in the pop-up window will be done over the menu bar function SCALING.

These settings will be transferred to the relevant conning display sections;

- DEPTH
- HEADING (in the RECORD display)
- TURN RATE (in the RECORD display)
- RUDDER (in the RECORD display)


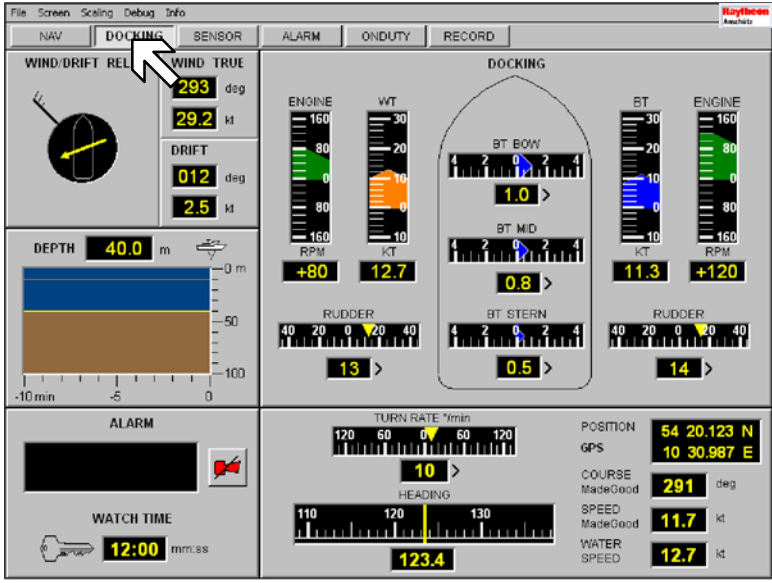
In the following example the Record Time should be changed to 5 min.

	<p style="text-align: center;">Indications</p>	<p style="text-align: center;">Comment/Notes</p>
 		<p>Menu bar is active.</p> <p>Select the scaling menu function</p>
 		<p><i>Step 1</i> The pull-down menu appears.</p> <p>Select the Record menu function</p> <p><i>Step 2</i> Select the next pull-down menu</p> <p>The pop-up window Heading appears.</p> <p><i>Step 3</i> Select the option button, change to 5 min. The Heading Scale changes to 5 min.</p>

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2.2.5 Selecting a Display


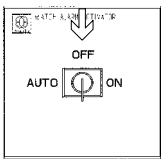
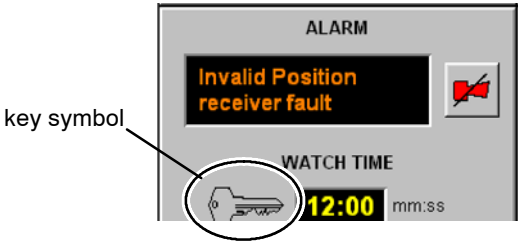
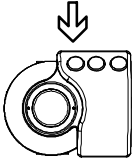
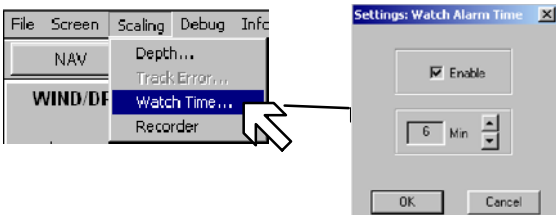
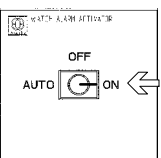

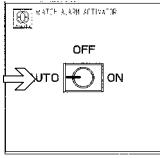

Example: Docking Display

	Indications	Comments/Notes
<p>[1] Select Display ...</p>	 <p>The screenshot shows the 'DOCKING' display interface with the following data:</p> <ul style="list-style-type: none"> WIND/DRIFT REL: WIND TRUE 293 deg, 29.2 kt; DRIFT 012 deg, 2.5 kt DEPTH: 40.0 m ALARM: Watch time 12:00 mm:ss DOCKING Parameters: <ul style="list-style-type: none"> ENGINE (Left): +80 RPM, 12.7 KT ENGINE (Right): 11.3 KT, +120 RPM RUDDER (Left): 13 RUDDER (Right): 14 BT BOW: 1.0 BT MID: 0.8 BT STERN: 0.5 TURN RATE: 10 °/min HEADING: 123.4 POSITION: 54 20.123 N, 10 30.987 E COURSE: 291 deg SPEED: 11.7 kt WATER SPEED: 12.7 kt 	

2.2.6 Indication of Alarms


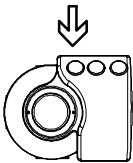
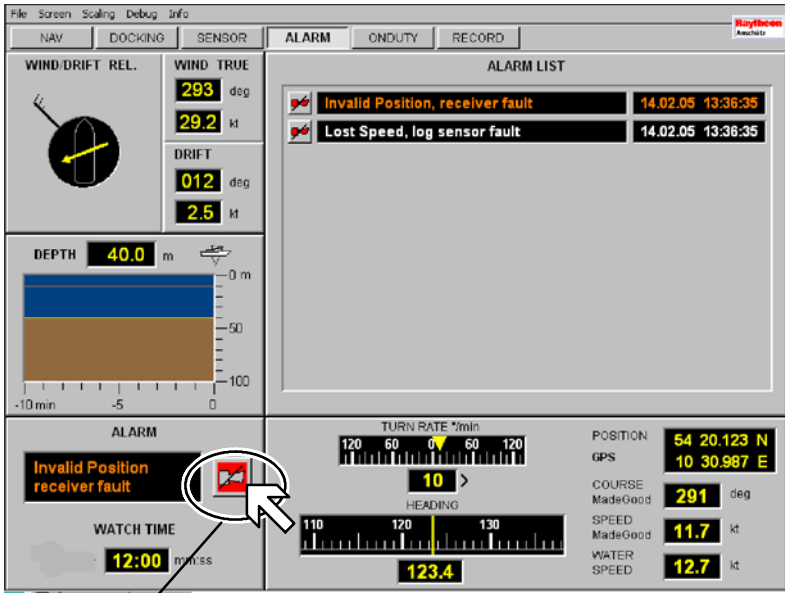
NAUTOCONNING includes a configurable watch alarm for W1-application. If a preset period of time is exceeded, preliminary warnings and alarms are given.


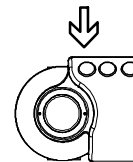
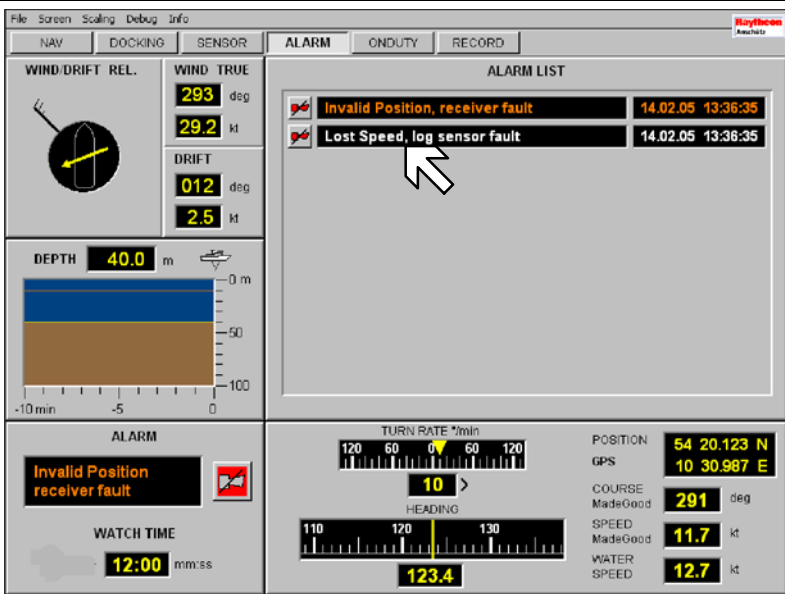
The controlling timer is reset through pressing of keys or operations on the connected navigation equipment.

	Indications	Comments/Notes
[1] Watch Alarm		
 <p>Watch Alarm Activator</p>		<p>Key symbol is visible; the watch alarm activator is switched to OFF. The preset watch time settings can be selected.</p>
[2] Watch Alarm settings		
		<p>(see chapter 2.2.4)</p>
[3] Activate the Watch Alarm		
		<p>Key symbol is not visible; the watch alarm activator is switched to ON. The preset watch time is running downwards.</p> <p>The watch time settings are blocked know.</p>
[4] Activate the Watch Alarm when AUTOPILOT is active		
		<p>Key symbol is not visible; the watch alarm activator is switched to AUTO. The AUTOPILOT is switched to TRACK or HEADING Control. The preset watch time is running downwards.</p> <p>The watch time settings are blocked know.</p>


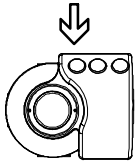

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2.2.7 Acknowledgement of Alarms

	Indications	Comments/Notes
Acknowledging the current Alarm		
	 <p style="text-align: center;">Step 1</p>	<p>The alarm symbol is flashing <u>red</u>.</p> <p>The external buzzer sounds (e.g. external alarm unit).</p> <p>After pressing the key the buzzer sound and the flashing alarm symbol is stopped.</p> <p>The alarm message appears in the alarm list as acknowledged alarm (white text string), if the alarm can be acknowledged (Step 1).</p> <p>Otherwise only the buzzer sound stops and the alarm has to be acknowledge at the alarm generating system (e.g. Radar, Ecdis).</p>

	Indications	Comments/Notes
Indication and acknowledging of Alarms in the Display 'ALARMS' (ALARM LIST)		
		<p>A still active alarm (not yet acknowledged) is indicated in <u>red</u>.</p> <p>An already acknowledged alarm is indicated in <u>white</u> and remains so long in the alarm list until the trouble source is fixed.</p> <p>Select an alarm message. and press the <i>[left]</i> button for acknowledging the selected alarm message.</p> <p>Otherwise the selection has to be done at the alarm generating system (e.g. Radar, Ecdis).</p>

2.2.8 The MFC Switcher (Option)

	Indications	Comments/Notes
Switching over to another application		
		<p>Select another application in the pull down menu. In this example the Multi-function Console switches over to the ECDIS application.</p>

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3 Installation and first Putting into Operation



Warning!

The installation and first commissioning may only be performed by trained and qualified personnel.

3.1 Installation

The equipment is to be connected in accordance with the cable and connection plans shown in the appendix.

3.2 First Putting into Operation

The NAUTOCONNING system is given a ship-specific configuration at the works, making the system operationally ready.

4 Servicing, maintenance and repair

4.1 Safety instructions



Warning!

Take care during maintenance and repair work: avoid touching live electrical connections. The applicable safety regulations such as VDE, VBG 4, OSHA 1919 and other appropriate safety standards must be followed.



Warning!

Maintenance and repair work may only be performed by trained and qualified personnel having knowledge of the national safety regulations for this type of equipment.



Warning!

The equipment can be damaged!

Parts may only be replaced when the supply voltage is switched off.

4.2 Servicing and maintenance

Servicing and maintenance are not needed for the NAUTOCONNING system.

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4.3 Repair

4.3.1 Computer

Detailed information see Service Manual Doc. No. 4090 in annex.