

19. RECORDING FUNCTIONS

The chart radar records various voyage-related items like movement and position of own ship and dangerous radar targets (from Radar). These items are recorded in the following logs:

Update log:	Records the install and update history for the ENC, ARCS and C-MAP charts (see section 7.13).
Event log:	Records user events and position events.
NAV log:	Records entire voyage (i.e., a sailing of a route from first point to the last, also MOB data), details (position, speed and course every minute), chart usage (information on charts used for display).
Target log:	Records dangerous TT, AIS.
Alert log:	Records alerts generated by the system (see section 20.6).
Route transfer log:	Records sent and received route-related communications.

19.1 How to Record User, Position Events

This equipment can save/show a maximum of 2,000 events.

19.1.1 User events

A user event is a comment about an event (weather, etc.). You can show user events on the chart area. Open the [Tracking] page of the [Symbol Display] menu show or hide the events.

To record a user event:

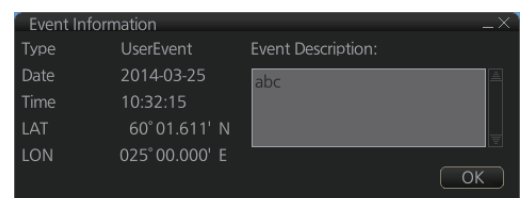
1. Get into the Navigational or Voyage planning mode then click the [Log], [Event Log] and [User Event] buttons on the InstantAccess bar™ to show the [Record User Event] window.
2. Enter a comment. Click the [OK] button to finish and close the text box.

An event marker (☒) appears at your position and the event is recorded to the [Voyage] log.

To view the comment entered for an event, put the cursor on the event then left click to show the [Event Information] window.

Note: The [Event Information] window is shown with the [CHART for RADAR] mode.

The window shows the name of the event ([UserEvent]), time and date of entry, latitude and longitude position of the event and comment. Note that the comment can be edited from this window. Edit the comment then click the [OK] button to save.

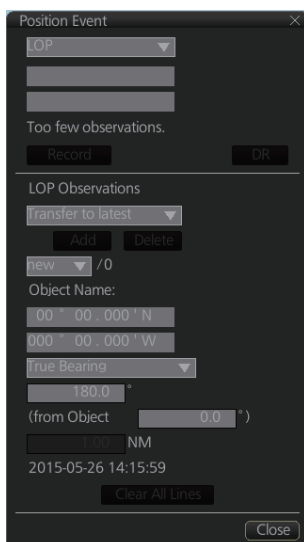


19.1.2 Position events

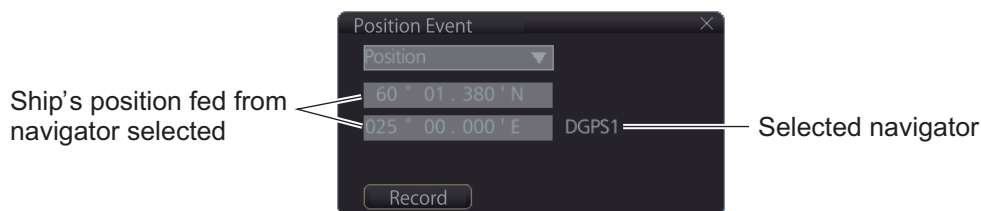
The operator may manually save positions to the [Event] log by position or LOP (Line of Position):

To record a position, do as follows:

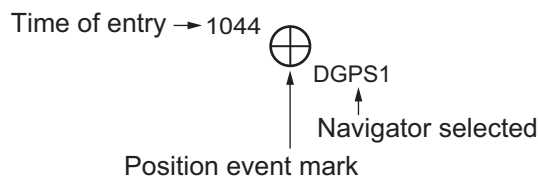
1. Get into the Navigational or Voyage planning mode then click the [Log], [Event Log] and [POSN Event] buttons on the InstantAccess bar™ to show the [Position Event] dialog box.



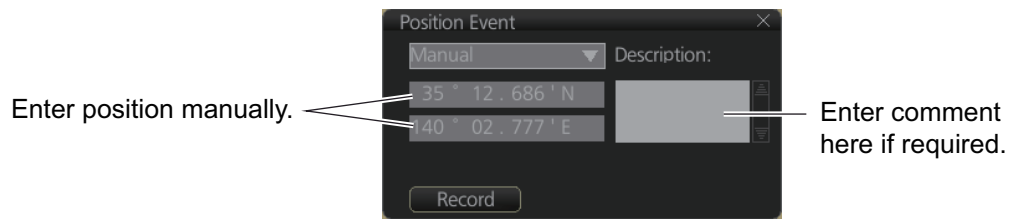
2. At the list box at the top of the dialog box, select position type.
 [Manual]: Manual input of ship's position. Go to step 4.
 [LOP]: Latitude and longitude position of a fixed object at ship's position. Go to step 5.
 [Position]: Ship's position fed from navigator selected. Go to step 3.
3. For [Position], click the [Log] button.



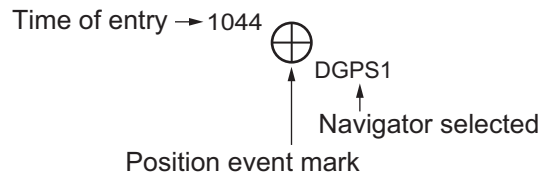
The position event mark appears at the ship's position. The position is recorded to the [Voyage] log.



- For [Manual], manually enter position, enter a comment if required, then click the [Log] button.



The position event mark appears at the manual input position. The position is recorded to the [Voyage] log.



- For [LOP], see the description below.

Position fixes defined by Line of Position (LOP)

A plotted line on which a vessel is located, determined by observation or measurement of the range or bearing to an aid to navigation or other charted element. Two or more simultaneous observations can be combined to produce an estimate of the ship's current position. If the position is based on only two observations, it is an "estimated position" (EP); otherwise it is called a fix. A maximum of 6 observations can be entered to obtain a fix.

Basic operation: Coordinates of the aid to navigation can be entered into dialog boxes or they can be selected graphically on the chart. Click on a charted object (beacon, light, buoy etc.). Description of the object appears above coordinate boxes.

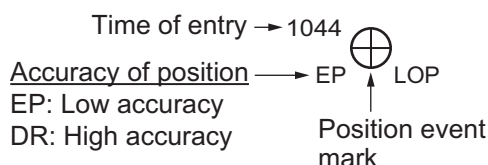
Default values for bearing and range are approximated from ship's current position information. The time of observation is stopped when the object is selected (or when the [Add] button is clicked). Click the [Add] box to include the observation in the fix computation. The counter shows "new/1", at the input of the second observation. The word "new" indicates that the observation currently displayed is not yet included in the fix computation, and it appears as a dashed line or ring on the chart. The added observations can be edited or deleted after selecting them at the counter. When at least two measurements are entered, the EP or fix is computed and the coordinates are shown in the top part of the dialog. To show a position symbol on the chart, click the [Log] button. In the case of an EP, the letters EP are shown on the right side of the coordinates. If a valid position estimate cannot be obtained, a message is displayed under the coordinates. This may happen, for example, if the lines / circles have multiple crossings that are far apart, or if two lines are nearly parallel or don't intersect at all. The accuracy limit (estimated standard error) is 1.0 NM. If the estimate is valid, the [Log] box can be clicked to record the current position estimate in the [Voyage] log. Discrepancy between LOP result and ship position is also recorded in the log (this information may be viewed by Info query on the position event symbol on the chart - which is displayed if position event display is on in chart display settings).

Time transfer: If the observations are not simultaneous, they should be transferred to a common time. Transferring is based on dead reckoning of ship movement. If a position line (or ring) is transferred, the letters TPL are shown beside its timestamp on the chart. The method of transfer may be selected in the bottom of the dialog. [Transfer to latest] transfers the measurements as if they were all made at the time of the newest measurement. [Continuous transfer] transfers all measurements to real time. [Transfer off] can be used to check where the measurement origins are. The position estimate and the record function follow the same logic, which means that Transfer off shows a position that has no relevance and Transfer to latest sends an old position to the [Voyage] log (timestamp in the log does not match the position).

If you are satisfied with the position shown in the latitude and longitude fields, then click the [Log] button to save the position observation to the Voyage log. If you wish you can also enter latitude and longitude values manually.

Timeouts: The observations cannot be used long after they were made because dead reckoning is inaccurate.

Click the [Log] button to put a position event at the LOP-calculated position. The position is recorded to the [Voyage] log.

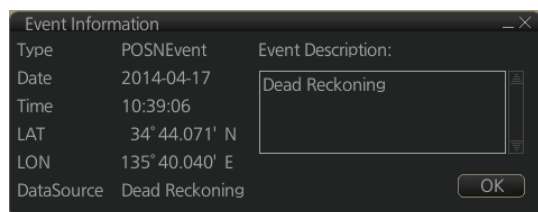


How to find position event information

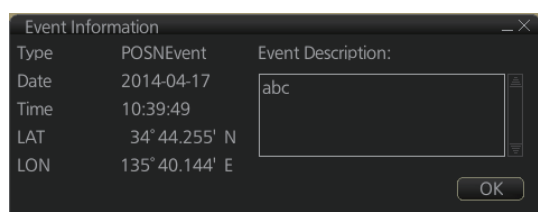
You can find information about a position event by putting the cursor on the event mark then left click. The [Event Position] window shows event type (position event), time of entry, event position, name of sensor ([Position] only), comment (automatic for [LOP] and [Position]; user-entered comment* for [Manual]), and position line data ([LOP] only).

*Comment cannot be changed from this window.

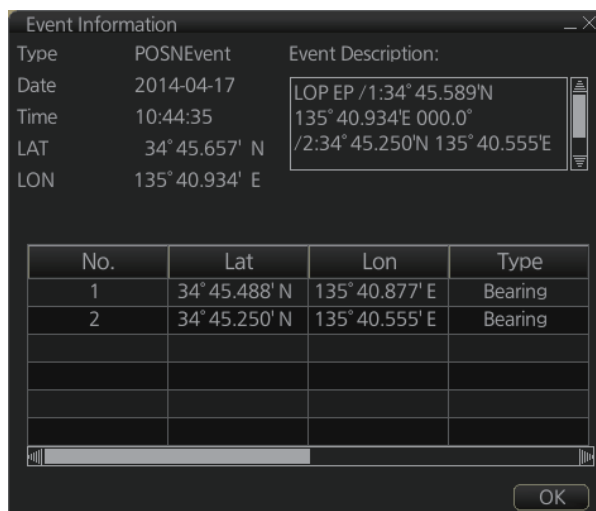
Note: The [Event Information] window is shown with the [CHART for RADAR] mode.



Position event: Position



Position event: Manual



Position event: LOP

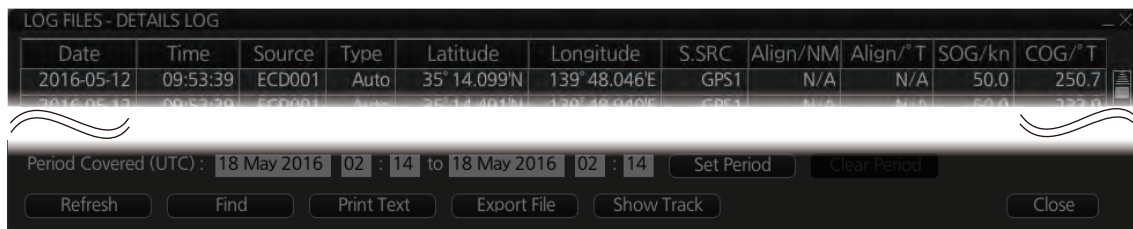
19.2 Details Log

The [Details] log contains voyage information, recorded once per minute.

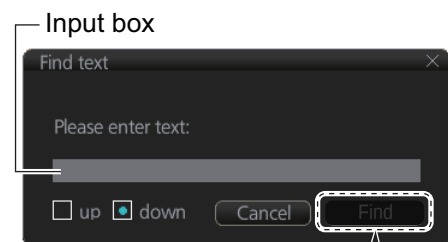
- Date of entry
- Time of entry
- Source: No. of unit which generated log
- Type: Type of position data
 - Auto: Automatic input of position
- Latitude, Longitude, S.SRC: Position as output by selected sensor and sensor used as the data source.
- Align/NM, Align/°T: Range, bearing offset, if used
- SOG/kn, COG/°T, S.SRC: Speed over the ground, Course over the ground and sensor used as the data source.
- HDG/°T, S.SRC: Heading and sensor used as the data source.
- CORR/°T: Gyro correction value, if used.

How to view the Details log

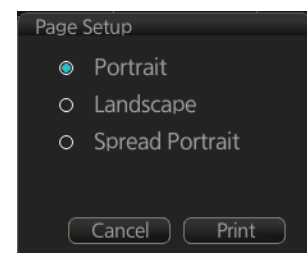
Click the [Log], [NAV Log] and [Detail] buttons on the InstantAccess bar™.



- **To show the logs of a specific period**, enter the period to show with [Period Covered (UTC)] then click the [Set Period] button. Use the [Clear Period] button to display all logs. Log entries outside the set period become gray and the entries inside the set period remain visible. To show log entries which are not visible, spin the scrollwheel upward to scroll up the log, downward to scroll down the log.
- **To refresh the log**, click the [Refresh] button.
- **To search the log**, do as follows:
 - 1) Click the [Find] button to show the [Find text] box.
 - 2) Click the input box then enter the text to search.
 - 3) Select the search direction with the up or down radio button.
 - 4) Click the [Find] button. The first matching text is highlighted in yellow at the top of the screen.
 - 5) To continue the search click the [Find] button. To cancel the search, click the [Cancel] button.
- **To print the log**, click the [Print Text] button. Select printing format then click the [Print] button. [Spread Portrait] prints two pages of data on one page.
- **To show track for the period selected**, click the [Show Track] button. Use the [Hide Track] button to erase the track.
- **To export the log**, click the [Export File] button. The file is named DetailsLogYYYYMMDDhhmmss.csv.



Input text in box and [Find] button appears.



19.3 Voyage Log

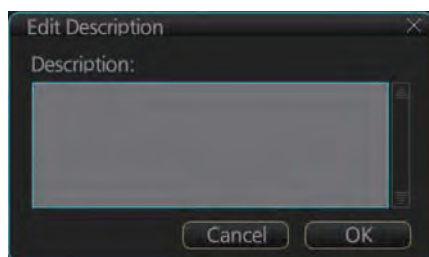
The [Voyage] log records all voyage-related data of the past three months. Recorded events are:

- Date: Date of entry
- Time: Time of entry
- Type: Log entry types
 - Auto: Automatic entry of ship position, in 1 to 4 hr intervals, set by operator.
 - Ship: Logged if the amount of change in speed or course equals or is greater than the set values.
 - MOB: MOB position, entered with [MOB] button.
 - User: Operator-entered position. The information entered in the [Description] box is logged.
 - Posdev: Record user-entered position event. The [Description] window shows automatically entered data (Position, LOP) or manually entered comment (Manual). Automatically entered data (Position: data source, LOP: see below). The latitude and longitude position and bearing (or distance) of a maximum of three objects are automatically recorded to each log entry. An object whose position accuracy is low is not recorded. If an object has both a bearing and distance, separate entries are made.

L/L position, bearing of object (no.1)

LOP DR /1:35 ° 20.743' N 139 ° 44.925' E 123.4 ° /2:35 ° 20.482' N 139 ° 48.658' E 214.9 ° /3:35 ° 17.437' N 139 ° 44.820' E 3.07NM
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- Latitude, Longitude: Position as output by selected sensor and sensor used as the data source.
- SOG/kn, COG/°T, S.SRC: Speed over the ground, course over the ground. and their source
- HDG/°T, S.SRC: Heading and its source
- CORR/°T: Offset bearing, if used
- Wind/kn Wind/°T: Wind speed and angle
- Dist/NM: Navigation distance
- Depth/m: Depth in meters
- Description: Show recorded contents, for [User], [PosDev] above.
If desired items other than [Posdev] can be edited. Click an item to show the [Edit Description] box. Edit the description as required then click the [OK] button.



How to view the Voyage log

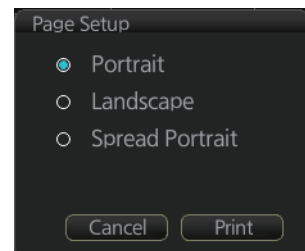
To open the Voyage log, click the [Log], [NAV Log] and [Voyage] buttons on the InstantAccess bar™.

Date	Time	Source	Type	Latitude	Longitude	S.SRC	SOG/kn	COG/°T	S.SRC
30.05.2013	15:38:18	ECD001	Auto	47° 30.529'N	065° 27.930'W	19.9	243.3	243.2	LOG1
30.05.2013	13:29:08	ECD002	Auto	47° 43.856'N	064° 27.605'W	20.0	260.4	260.4	LOG1

Period Covered (UTC) : 29 May 2013 19 : 38 to 29 May 2013 19 : 38

Buttons: Refresh, Find, Print Text, Export File, Show Track, Close

- **To show the logs of a specific period**, enter the period to show with [Period Covered (UTC)] then click the [Set Period] button. Use the [Clear Period] button to display all logs. Log entries outside the set period become gray and the entries inside the set period remain visible. To show log entries which are not visible, spin the scrollwheel upward to scroll up the log, downward to scroll down the log.
- **To refresh the log**, click the [Refresh] button.
- **To search the log**, do as follows:
 - 1) Click the [Find] button to show the [Find text] box.
 - 2) Click the input box then enter the text to search.
 - 3) Select the search direction with the up or down radio button.
 - 4) Click the [Find] button. The first matching text is highlighted in yellow at the top of the screen.
 - 5) To continue the search click the [Find] button. To cancel the search, click the [Cancel] button.
- **To print the log**, click the [Print Text] button. Select printing format then click the [Print] button. [Spread Portrait] prints two pages of data on one page.
- **To show track for the period selected**, click the [Show Track] button. Use the [Hide Track] button to erase the track.
- **To export the log**, click the [Export File] button. The file is named
VoyageLogYYYYMMDDhhmmss.csv.



19.3.1 How to set conditions of logging

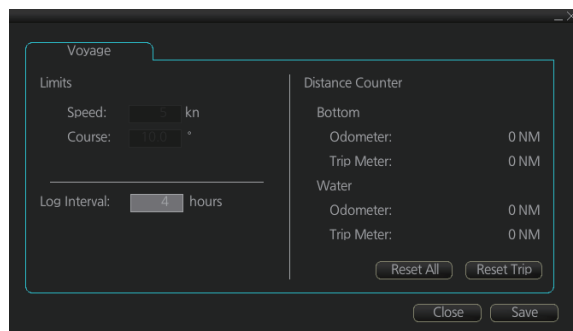
The operator can set the conditions for automatic voyage logging (logging interval only). When the following conditions are met, data is stored into the Voyage log.

- Speed (or course) change is equal to the set value.
- The logging interval time has elapsed.

To set the conditions of logging, do as follows:

1. Open the menu and select [Log], [NAV Log] and [Voyage] to show the [NAV Log] dialog box.
2. Set desired limit for log interval.
Setting range: 1 to 4 hr, 1 hr interval

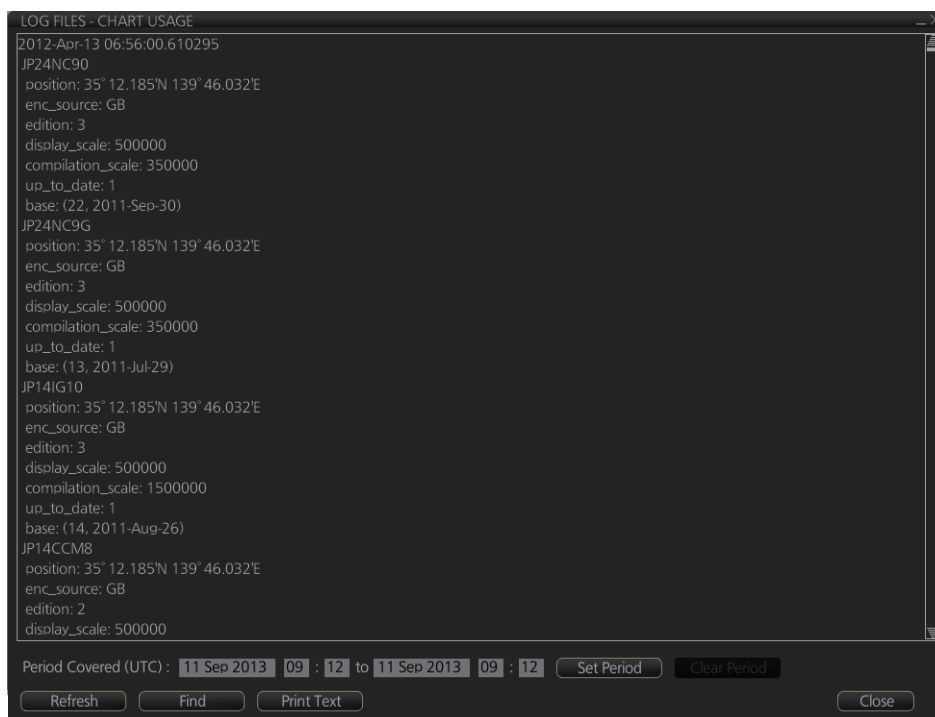
When your speed or course changes by the amount set here, an entry is made in the [Voyage] log, at the interval selected.



19.4 Chart Usage Log

The [Chart Usage] log stores which charts were used in chart alerts. To open the log, click [Log], [NAV Log] and [Chart Usage] on the InstantAccess bar™. The following information is recorded in the chart usage log:

- Date and time chart was displayed
- Chart ID
- Center position of display (Lat, Lon)
- Chart source
- Chart edition
- Display scale
- Compilation scale
- The latest update included to chart
- Chart base



- **To show the logs of a specific period**, enter the period to show with [Period Covered (UTC)] then click the [Set Period] button. Use the [Clear Period] button to display all logs. Log entries outside the set period become gray and the entries inside the set period remain visible. To show log entries which are not visible, spin the scrollwheel upward to scroll up the log, downward to scroll down the log.
- **To refresh the log**, click the [Refresh] button.
- **To search the log**, do as follows:
 - 1) Click the [Find] button to show the [Find text] box.
 - 2) Click the input box then enter the text to search.
 - 3) Select the search direction with the up or down radio button.
 - 4) Click the [Find] button. The first matching text is highlighted in yellow at the top of the screen.
 - 5) To continue the search click the [Find] button. To cancel the search, click the [Cancel] button.
- **To print the log**, click the [Print Text] button.

19.5 Danger Targets Log

The [Danger Targets] log stores information about dangerous targets that are received from a radar (TTs) and/or targets that are received from an AIS transponder (AIS targets).

If a TT or AIS target is within the set CPA (Closest Point of Approach) and TCPA (Time to CPA), information of all TTs (including non-dangerous targets) are recorded into the danger target log. This data is as follows:

- Date: Date of entry
- Time: Time of entry
- Source: Unit which generated log
- Type: Type of dangerous target
- Target ID: When [Type] is [TT] - Dangerous target's number.
When [Type] is [AIS] - MMSI number
- Latitude and Longitude: Latitude and longitude position of dangerous target
- SPD/kn: Speed of dangerous target
- CRS/°T: Course of dangerous target
- HDG/°T: Heading of dangerous target
- CPA/NM, TCPA/min: CPA and TCPA of dangerous target

How to view the danger targets log

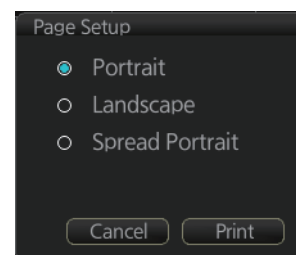
To open the [Danger Targets] log, click the [Log], [Target Log] and [Danger Target] buttons on the InstantAccess bar™.

LOG FILES - DANGER TARGETS LOG										
Date	Time	Source	Type	Target ID	Latitude	Longitude	SPD/kn	CRS/°T	HDG/°T	CPA/NM
2016-05-12	13:55:59	ECD001	TT	01	35°38.164'N	139°49.842'E	15.1	193.3	N/A	1.3

Period Covered (UTC) : 07 May 2013 14 : 56 to 07 May 2013 14 : 56
 Set Period
Clear Period

Refresh
Find
Print Text
Export File
Close

- **To show the logs of a specific period**, enter the period to show with [Period Covered (UTC)] then click the [Set Period] button. Use the [Clear Period] button to display all logs. Log entries outside the set period become gray and the entries inside the set period remain visible. To show log entries which are not visible, spin the scrollwheel upward to scroll up the log, downward to scroll down the log.
- **To refresh the log**, click the [Refresh] button.
- **To search the log**, do as follows:
 - 1) Click the [Find] button to show the [Find text] box.
 - 2) Click the input box then enter the text to search.
 - 3) Select the search direction, with the up or down radio button.
 - 4) Click the [Find] button. Matching text is highlighted in yellow at the top of the screen.
 - 5) To continue the search click the [Find] button. To cancel the search, click the [Cancel] button.
- **To print the log**, click the [Print Text] button. Select printing format then click the [Print] button.
- **To export the log**, click the [Export File] button. The file is named DangerTargetLogYYYYMMDDhhmmss.csv.

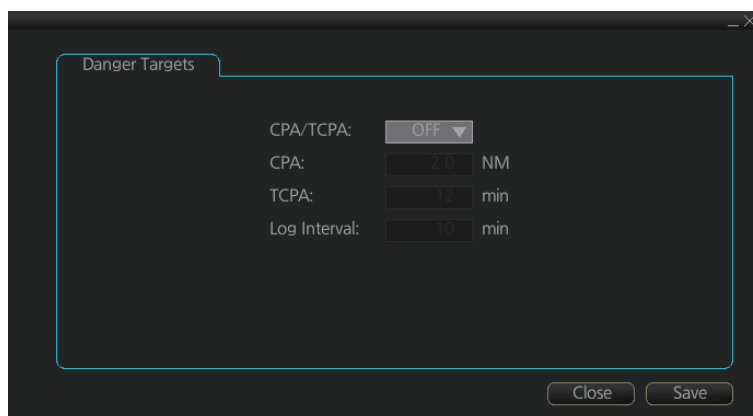


19.5.1 How to filter the danger targets log

You can filter the danger targets log by CPA or TCPA. When a TT or AIS target's CPA or TCPA is lower than the setting here, the target's details are automatically logged.

To set the filter, do the following:

1. Open the menu and select [Log], [Target Log] and [Danger Target] to show the [Danger Targets] menu.



2. At [CPA/TCPA], select [ON].
3. At [CPA], set the distance for the CPA.
4. At [TCPA], set the time for the TCPA.
Note: [Log Interval] is fixed at 10 minutes.
5. Click [Save] to save the settings, then click [Close] to close the menu.

19.6 Route Transfer Log

The [Route Transfer] log keeps a tab of sent and received route-related communications. When one or more of the following conditions are met, an entry is made in the [Route Transfer] log.

- RRT sentence is sent from this system.
- RRT sentence is received by this system.
- A sent RRT sentence is not acknowledged by an external device.

The log data includes the following:

- Date: Date of entry
- Time: Time of entry
- Communication Type: Send, Receive or No Response
- Source: UID of route related communication
- Destination: UID of destination of route related communication
- Detail: Content of transfer
- Transfer Type: Type of communication - Monitor route, Plan route, or Query
- Transfer Name: Name of transferred route
- Transfer Version: Transferred route's version
- Current WPT: Current waypoint
- Transfer Status: Current transfer status of the transferred route
- Application Status: Current status of the transfer application

How to view the route transfer log

On the InstantAccess bar, click the [Log], [Target Log] and [Route TRANS Log] buttons

Date	Time	Communication Type	Source	Destination	Detail	Transfer Type
2007-06-02	21:26:56	Send	EI0002	*****	Information request.	Query
2007-06-02	15:39:47	Receive	EI0001	EI0002	Success.	Plan route

Period Covered (UTC) : 05 Apr 2016 00 : 43 to 05 Apr 2016 00 : 43 Set Period Clear Period

Refresh Find Print Text Export File Close

- **To show the logs of a specific period**, enter the period to show with [Period Covered (UTC)] then click the [Set Period] button. Use the [Clear Period] button to display all logs. Log entries outside the set period become gray and the entries inside the set period remain visible. To show log entries which are not visible, spin upward to scroll up the log, downward to scroll down the log.
- **To refresh the log**, click the [Refresh] button.
- **To search the log**, do as follows:
 - 1) Click the [Find] button to show the [Find text] box.
 - 2) Click the input box then enter the text to search.
 - 3) Select the search direction with the up or down radio button.

19. RECORDING FUNCTIONS

- 4) Click the [Find] button. Matching text is highlighted in yellow at the top of the screen.
 - 5) To continue the search click the [Find] button. To cancel the search, click the [Cancel] button.
- **To print the log**, click the [Print Text] button. Select the printing format then click the [Print] button.
 - **To export the log**, click the [Export File] button. The file is named RouteTransferLogYYYYMMDDhhmmss.csv.

20. ALERTS

20.1 What is an Alert?

“Alert” is a generic name for a notice to any unusual or potentially dangerous situation generated within the system.

Alerts are classified according to priority and category.

Alert priority

There are four alert priorities: emergency*, alarm, warning and caution.

* Generated when this radar is connected to an AMS.

Emergency: Immediate danger to human life or to the ship and its machinery exists and that immediate action must be taken. **Emergency alerts are handled the same as an alarm.**

Alarm: Situations or conditions which require immediate attention, decision and (if necessary) action by the bridge team to avoid any kind of hazardous situation and to maintain the safe navigation of the ship.

Warning: Conditions or situations which require immediate attention for precautionary reasons, to make the bridge team aware of conditions which are not immediately hazardous, but may become so.

Caution: Awareness of a condition which continues to require attention out of the ordinary consideration of the situation or of given information.

Alert category

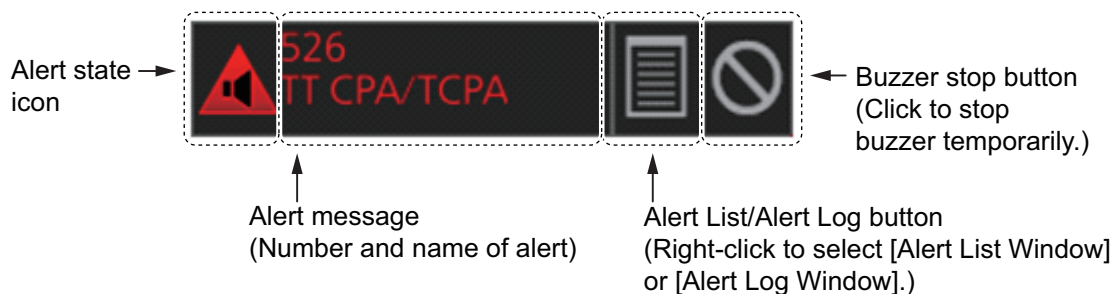
An alert is further classified by category, A, B or C, according to its degree of severity or source.

Category	Description
A	Category A alerts include alerts indicating • Danger of collision • Danger of grounding
B	Category B alerts are alerts where no additional information for decision support is necessary. Category B alerts are all alerts not falling under category A.
C	Engine-related alert

20.2 Alert Box

When an alert is generated, the related alert message and alert state icon appear in the [Alert] box, which is at the bottom right corner on the screen. An audible alarm is additionally generated for alarms and warnings.

In addition to the alert message and alert state icon, the [Alert] box has the buzzer stop button and provides access to the [Alert List] and [Alert Log].



Alert state icon: The state of an alert is shown with an icon. See page 20-4.

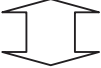
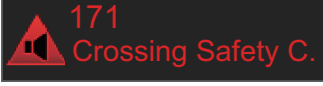
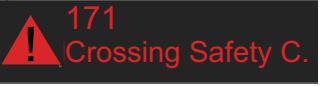
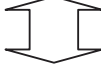
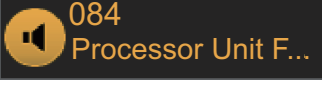
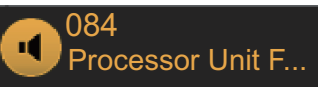
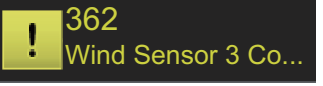
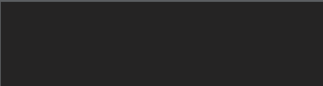
Alert message: The number and name of all active alerts appear in the message area, with the alert of the highest priority on top always. The color of both the message and the background change according to alert priority and alert state. See the table on the next page.

An alert can be acknowledged from the [Alert] box or [Alert List]. An alert remains in the [Alert] box and [Alert List] until it is acknowledged and rectified. See section 20.5.

Alert List/Alert Log button: Right-click to select [Alert List Window] or [Alert Log Window]. The background color of the button is light blue when the list or log is open. See sections 20.5 and 20.6 for a description of the list and log.

Buzzer stop button: Click to temporarily silence the buzzer, which sounds against alarms and warnings. See page 20-5.

Alert message display format

Alert indication	Priority of alert	Alert state	Display state
  Displayed alternately 	Emergency, Alarm	- Not acknowledged/Not rectified. OR - Not acknowledged/Rectified.	Black characters on red background. (Flashing) Red characters on gray background.
	Emergency, Alarm	Acknowledged/Not rectified.	Red characters on gray background.
  Displayed alternately 	Warning	- Not acknowledged/Not rectified. OR Not acknowledged/Rectified.	Black characters on yellow-orange background. (Flashing) Yellow-orange characters on gray background.
	Warning	Acknowledged/Not rectified.	Yellow-orange characters on gray background.
	Caution	Not rectified.	Yellow characters on gray background.
	Emergency, Alarm, Warning	Acknowledged/Rectified.	No display.
	Caution	Rectified.	No display.

Alert state icons

The table shows the icons used to indicate the various alert states for the alarm, warning and caution alerts.

Icon		Alert state	Icon description
Alert priority: Alarm			
1		Not acknowledged/Not rectified	Red triangle with black loudspeaker in center of triangle. Flashing (on 1 s, off 1 s).
2		Not acknowledged/Not rectified, Buzzer temporarily silenced	Red triangle with crossed out black loudspeaker in center of triangle. Flashing (on 1 s, off 1 s).
3		Acknowledged/Not rectified	Steadily displayed red triangle with black exclamation point in center of triangle.
4		Active - responsibility transferred alarm	Steadily displayed red triangle. Right arrow at center. Presented together with alert text.
5		Not acknowledged/Rectified	Red triangle with black check mark in center of triangle. Flashing (on 1 s, off 1 s).
Alert priority: Warning			
6		Not acknowledged/Not rectified	Yellow-orange circle with black loudspeaker in center of circle. Flashing (on 1 s, off 1 s).
7		Not acknowledged/Not rectified, Buzzer temporarily silenced	Yellow-orange circle with crossed out black loudspeaker in center of circle. Flashing (on 1 s, off 1 s).
8		Acknowledged/Not rectified	Steadily displayed yellow-orange circle with black exclamation point in center of circle.
9		Active - responsibility transferred warning	Steadily displayed yellow-orange circle. Right arrow at center. Presented together with alert text.
10		Not acknowledged/Rectified	Yellow-orange circle with black check mark in center of circle. Flashing (on 1 s, off 1 s).
Alert priority: Caution			
11		Caution	Steadily displayed yellow square with black exclamation point in center of square.
Other icons			
12		Aggregation	Plus sign. Presented together with the icon numbers 1 - 11.
13		Acknowledge not allowed for alarm	Red triangle. Cross in center of triangle. Presented together with icon numbers 1, 2 and 5.
14		Acknowledge not allowed for warning	Yellow-orange circle. Cross in center of circle. Presented together with icon numbers 6, 7 and 10.

Buzzer stop button

The color of both the background and the icon change according to alert state.

Button state	Description
	No alert generated. The background is gray and the icon is grayed out.
	An alarm or warning is being acknowledged. The background is gray and the icon is white.
	Button clicked to silence buzzer temporarily. The background is light-blue and the icon is black.

20.3 How to Temporarily Silence the Buzzer for an Emergency, Alarm or Warning

When the buzzer for an emergency, alarm or warning sounds, you can temporarily silence it by doing one of the following:

- Click the buzzer stop button in the [Alert] box.
- In the [Alert List], click the [Silence] button.

The buzzer is stopped and the alert state changes. An alert message remains in the [Alert] box and [Alert List] until acknowledged and rectified.

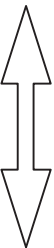
20.4 How to Acknowledge an Emergency, Alarm or Warning

When an alarm or warning is generated, the buzzer sounds and the name of the alert appears and flashes in the [Alert] box and [Alert List].

To acknowledge the alert, do one of the following:

- Press the **ALARM ACK** key.
- In the [Alert] box, click the unacknowledged alert.
- In the [Alert List], click either the alert name or the [ACK] button.

After acknowledgement, the buzzer and the flashing for the alert message are stopped and the priority of the alert changes as shown in the table below. The alert message remains on the display until rectified.

Priority no.		Priority of alert	Alert state
High		1	Emergency, Alarm
		2	Warning
		3	Emergency, Alarm
		4	Warning
		5	Emergency, Alarm
		6	Warning
Low		7	Caution

Category of alert and place of alert acknowledgement

The place of alert acknowledgement depends on the category of the alert.

Category	Where the alert is generated	Place of alert acknowledgement
A	Equipment that generated the alert.	Equipment that generated the alert.
B	Equipment and AMS* (Alert Management System) *No use	Equipment that generated the alert or AMS.
C	IAS (Integrated Automation System) generated engine-related alert	—

20.5 Alert List

The [Alert List] displays all active alerts, with unacknowledged alerts at the top, in priority order. The ZDA sentence is required to display the time in the list.

Note: The [Alert List] cannot be opened while the radar is transmitting.

The log shows the following information for each alert:

- Alert no.
 - Alert text
 - Source of alert
 - Time (UTC) alert was generated
 - Time (UTC) alert was acknowledged
 - Details about the alert selected
 - Quantity of unacknowledged alerts*
- *: chart mode only.

Alert list in radar mode

To show the alert list in radar mode, right-click the [Alert List/Alert Log] button in the Alert box, click [Alert List/Alert Log] then click the [Alert List] tab.



Page selection buttons

Click to select page.

Available only when multiple pages exist.

► : Show next page

►| : Jump to last page

◄ : Show previous page

|◄ : Jump to first page

The background color of an unacknowledged alarm is red and flashing and unacknowledged warning is yellow-orange and flashing. An acknowledged alert is displayed steadily, in red for alarm and yellow-orange for warning. A caution is displayed steadily in yellow.

The [Filter] checkboxes at the top of the window let you select what alerts to view. Check or uncheck the boxes to show or hide the corresponding alerts.

To find details about an alert, click the applicable alert icon, the alert details appear in the [Detail] box at the top of the window. The box shows the reason for the alert, how to handle the alert, etc.

An individual alarm or warning can be acknowledged by clicking it.

The [Silence] button silences the buzzer.

Alert list in chart mode

To show the alert list in radar mode, right-click the [Alert List/Alert Log] button in the Alert box, click [Alert List].

The screenshot shows the 'Alert List' window. At the top, there are buttons for 'ACK' and 'Silence', and a 'Right Click on Each Alert' instruction. Below these are 'Page selection buttons' (left arrow, 1/1, right arrow) and a 'UnACK.: 0' indicator. The main area is a table with columns: Status, AlertNo, Instance, Description, Source, Occur, and ACK. The table contains several rows of alerts, some with yellow-orange status icons. Annotations point to various elements: 'ACK the uppermost unacknowledged alert' points to the 'ACK' button; 'Silence buzzer' points to the 'Silence' button; 'Alert details' points to the 'Right Click on Each Alert' text; 'Page selection buttons' points to the navigation arrows; 'Click to select page. Available only when multiple pages exist.' points to the '1/1' page indicator; '► : Show next page', '►| : Jump to last page', '◄ : Show previous page', and '◄| : Jump to first page' point to the navigation arrows; 'Number of un-ACKed alerts' points to the 'UnACK.: 0' indicator; 'When all alerts are acknowledged, this indication appears as "UnACK: 0".' points to the 'UnACK.: 0' indicator; 'Alert info icon' points to the yellow-orange status icon in the first column; 'Alert text' points to the 'Description' column; 'Alert no.' points to the 'AlertNo' column; 'Time ACKed' points to the 'Occur' column; 'Time generated' points to the 'Occur' column; 'Source' points to the 'Source' column.

Status	AlertNo	Instance	Description	Source	Occur	ACK
!	380	-	AIS COM Error	No.1 Chart R..	05:07 27 May 2..	05:10 27 May 2..
!	170	-	Positioning System Fail..	No.1 Chart R..	05:07 27 May 2..	05:10 27 May 2..
!	083	-	Processor Unit Fan1 F..	No.1 Chart R..	05:07 27 May 2..	05:10 27 May 2..
!	084	-	Processor Unit Fan2 F..	No.1 Chart R..	05:07 27 May 2..	05:10 27 May 2..
!	450	-	Heading Sensor Not A..	No.1 Chart R..	05:07 27 May 2..	05:10 27 May 2..
!	770	-	SPU Error	No.1 Chart R..	05:07 27 May 2..	05:10 27 May 2..
!	781	-	MTR..	No.1 Chart R..	05:07 27 May 2..	05:10 27 May 2..
!	453	-	SDME Sensor Not Avail..	No.1 Chart R..	05:07 27 May 2..	05:10 27 May 2..
!	027	-	Main Monitor COM Tl..	No.1 Chart R..	05:09 27 May 2..	-
!	280	-	SDME 1 COM Error	No.1 Chart R..	05:09 27 May 2..	-
!	255	-	Gyro 1 COM Error	No.1 Chart R..	05:09 27 May 2..	-
!	030	-	EPFS 1 COM Error	No.1 Chart R..	05:09 27 May 2..	-
!	030	-	Sensor Adapter 1 CO..	No.1 Chart R..	05:07 27 May 2..	-
!	272	-	UTC Time Not Available	No.1 Chart R..	05:07 27 May 2..	-
!	080	-	Processor Unit Fan2 R..	No.1 Chart R..	05:07 27 May 2..	-
!	079	-	Processor Unit Fan1 R..	No.1 Chart R..	05:07 27 May 2..	-

The background color of an unacknowledged alarm is red and flashing and unacknowledged warning is yellow-orange and flashing. An acknowledged alert is displayed steadily, in red for alarm and yellow-orange for warning. A caution is displayed steadily in yellow.

The Status section has three columns. Icons appear in the columns as follows:

- Left column: Emergency, Alarm, Warning and Caution icons (numbers 1 to 11 in the table at "Alert state icons" on page 20-4).
- Middle column: Emergency, Alarm and Warning icons (numbers 13 and 14 in the table at "Alert state icons" on page 20-4).

20. ALERTS

- Right column: Aggregate icon (number 12 in the table at "Alert state icons" on page 20-4).

The [Filter] checkboxes at the top of the window let you select what alerts to view. Check or uncheck the boxes to show or hide the corresponding alerts.

To find details about an alert, click the applicable alert, the alert details appear in the [Detail] box at the top of the window. The box shows the reason for the alert, how to handle the alert, etc.

An individual alarm or warning can be acknowledged by clicking it.

The [Silence] button silences the buzzer.

How the alert list is updated after acknowledgement, rectification

When you acknowledge an alert, its display method on the [Alert] list changes according to alert category and alert state. Acknowledged and rectified alerts are immediately removed from the list.

No.	Alert priority	Alert state	Display after acknowledgement	Display after rectification
1	Emergency, Alarm	Not acknowledged/Not rectified	5	2
2		Not acknowledged/Rectified	8	—
3	Warning	Not acknowledged/Not rectified	6	4
4		Not acknowledged/Rectified	9	—
5	Emergency, Alarm	Acknowledged/Not rectified	—	8
6	Warning	Acknowledged/Not rectified	—	9
7	Caution	Not rectified	—	10
8	Emergency, Alarm	Acknowledged/Rectified	—	—
9	Warning	Acknowledged/Rectified	—	—
10	Caution	Rectified	—	—

20.6 Alert Log

The [Alert] log stores and displays the latest 10,000 alerts.

Note: The [Alert Log] cannot be opened while the radar is transmitting.

The log shows the following information for each alert:

- Priority of alert (Emergency, Alarm, Warning, Caution)
 - Category of alert (A, B or C)
 - Alert no., alert instance*¹
 - Alert name
 - Source of alert
 - Time (UTC) alert occurred
- Time (UTC) alert was acknowledged
 - Time (UTC) alert was rectified
 - Time (UTC) alert was silenced*¹
 - Time (UTC) alert was transferred to AMS*¹
 - Details for selected alert*²

*¹: Chart mode only

*²: Radar mode or Chart mode only

Alert log in radar mode

To show the alert log in radar mode, right-click the [Alert List/Alert Log] button in the Alert box, click [Alert List/Alert Log] then click the [Alert Log] tab.

The screenshot shows the 'Alert List/Log' window. At the top, there are tabs for 'Alert List' and 'Alert Log'. Below the tabs are 'Priority Filter' and 'Category Filter' sections with checkboxes for Emergency, Alarm, Warning, Caution, and categories A, B, C. A table lists alerts with columns for Priority, Cat., Alert no., Description, Source, and Occurred Time(UTC). Below the table is a 'Detail' section with 'Alarm Details' and a 'Log Search' box with 'Reset', 'Find', and 'Export Log' buttons. A 'Close' button is at the bottom right. Various UI elements are labeled with arrows: 'Priority filter', 'Category filter', 'Page selection buttons' (next to the table), 'Category', 'Alert text', 'Occurred time', 'Priority', 'Source', 'Alert no.', and 'Scroll right to show:' (pointing to the Log Search box).

Priority	Cat.	Alert no.	Description	Source	Occurred Time(UTC)
Caution	B	027	Master Monitor COM Timeout	No.1 Chart R..	05:07 27 May 2016
Caution	B	255	Gyro 1 COM Error	No.1 Chart R..	05:07 27 May 2016
Warning	B	170	Positioning System Failure	No.1 Chart R..	05:07 27 May 2016
Caution	B	290	EPFS 1	No.1 Chart R..	05:07 27 May 2016
Warning	B	380	AIS COM Error	No.1 Chart R..	05:07 27 May 2016
Caution	B	030	Sensor Adapter 1 COM Timeout	No.1 Chart R..	05:07 27 May 2016
Warning	B	453	SDME Sensor Not Available	No.1 Chart R..	05:07 27 May 2016
Warning	B	284	SOG Not Available	No.1 Chart R..	05:07 27 May 2016
Warning	B	279	COG/SOG Not Available	No.1 Chart R..	05:07 27 May 2016
Warning	B	278	STW Not Available	No.1 Chart R..	05:07 27 May 2016
Caution	B	272	UTC Time Not Available	No.1 Chart R..	05:07 27 May 2016
Warning	B	781	MTR-DRV COM Error	No.1 Chart R..	05:07 27 May 2016
Warning	B	770	Not Available	No.1 Chart R..	05:07 27 May 2016
Warning	B	450	Not Available	No.1 Chart R..	05:07 27 May 2016
Caution	B	084	Processor Unit Fan2 Rotation Spee..	No.1 Chart R..	05:07 27 May 2016
Warning	B	084	Processor Unit Fan2 Fan No Rotation	No.1 Chart R..	05:07 27 May 2016
Caution	B	079	Processor Unit Fan1 Rotation Spee..	No.1 Chart R..	05:07 27 May 2016
Warning	B	083	Processor Unit Fan1 Fan No Rotation	No.1 Chart R..	05:07 27 May 2016

Page selection buttons
Click to select page.
Available only when multiple pages exist.

- ▶ : Show next page
- ▶| : Jump to last page
- ◀ : Show previous page
- |◀ : Jump to first page

Scroll right to show:

- Time alert was acknowledged
- Time alert cause was rectified

You can select what type of alerts to display with [Priority Filter] and [Category Filter] at the top of the list. The list can be sorted by [Priority], [Cat.], [Alert No.], [Description], [Source], [Occurred Time], [ACKed Time] or [Rectified Time]. Click the corresponding column title to sort. To find detailed information about an alert, select it to show detailed information in the [Detail] box. To search the log, enter text in the [Log Search] box then click the [Find] button. You can save the contents of the log to a USB flash memory, in “.dat” format, by clicking the [Export Log] button.

Alert log in chart mode

To show the alert list in radar mode, right-click the [Alert List/Alert Log] button in the Alert box, click [Alert List].

Alert List/Log

Alert List | Alert Log

Priority: ☒ Emergency ☒ Alarm ☒ Warning ☒ Caution

Category: ☒ A ☒ B ☒ C

Log Search:

Export Log Reset Find

1/185

Priority	Cat.	AlertNo.	Instance	Description	Source	Occurred time
Warning	B	10601	6	SDME Sensor Not Available	No.1 Chart R..	06:23:56 19 Jul 2016
Warning	B	10601	4	SOG Not Available	No.1 Chart R..	06:23:56 19 Jul 2016
Warning	B	10601	3	COG/SOG Not Available	No.1 Chart R..	06:23:56 19 Jul 2016
Caution	B	10603	4	STW Not Available	No.1 Chart R..	06:23:56 19 Jul 2016
Warning	B	10601	1	UTC Time Not Available	No.1 Chart R..	06:23:56 19 Jul 2016
Warning	B	10601	5	Heading Sensor Not Availab..	No.1 Chart R..	06:23:54 19 Jul 2016
Warning	A	173	5	Caution Area	No.1 Chart R..	06:23:50 19 Jul 2016
Warning	A	173	10	Anchorage Area	No.1 Chart R..	06:23:42 19 Jul 2016
Warning	A	173	5	Marine Farm / Aquaculture	No.1 Chart R..	06:23:35 19 Jul 2016
Warning	A	173	5	Marine Farm / Aquaculture	No.1 Chart R..	06:23:35 19 Jul 2016
Warning	A	173	11	Marine Farm / Aquaculture	No.1 Chart R..	06:23:35 19 Jul 2016
Warning	A	173	11	Marine Farm / Aquaculture	No.1 Chart R..	06:19:45 19 Jul 2016
Warning	A	173	11	Marine Farm / Aquaculture	No.1 Chart R..	06:17:42 19 Jul 2016
Warning	A	173	5	Caution Area	No.1 Chart R..	06:16:49 19 Jul 2016
Warning	A	173	11	Marine Farm / Aquaculture	No.1 Chart R..	06:12:52 19 Jul 2016
Warning	A	10173	1	UKC Limit	No.1 Chart R..	06:12:52 19 Jul 2016
Warning	A	173	11	Marine Farm / Aquaculture	No.1 Chart R..	06:04:54 19 Jul 2016
Alarm	A	171	-	Crossing Safety Contour	No.1 Chart R..	06:04:54 19 Jul 2016

Close

Page selection buttons
Click to select page.
Available only when multiple pages exist.
▶ : Show next page
▶| : Jump to last page
◀ : Show previous page
|◀ : Jump to first page

Scroll right to show:

- Time alert was acknowledged
- Time alert cause was rectified
- Time alert was silenced
- Time alert was transferred to AMS

You can select what type of alerts to display with [Priority Filter] and [Category Filter] at the top of the list. The list can be sorted by [Priority], [Cat.], [Alert No.], [Description], [Source], [Occurred Time], [ACKed Time] or [Rectified Time]. Click the corresponding column title to sort. To find detailed information about an alert, select it to show detailed information in the [Detail] box. To search the log, enter text in the [Log Search] box then click the [Find] button. You can save the contents of the log to a USB flash memory, in ".dat" format, by clicking the [Export Log] button.

20.7 Alert Reception from Connected Sensors

An "ALR receive and ACK transmit" communication is available for every serial line input. The ALR message from the sensor includes information about alerts from the sensor, and is presented through the normal alert system. When you acknowledge an alert, an ACK message is sent to the sensor to do remote acknowledge.

This interface is based on IEC 61162-1 and IEC 80/520/INF.

20.8 List of Alerts

The table below lists the possible alerts for this radar. Each alert is listed with priority, category and escalation. This radar can output alerts in ALF or ALR format. The alert number for each depends on the output format and may differ.

Alert which are not acknowledge within the set time limit are escalated to either Alarm level, or are repeated as a warning.

You can change the escalation settings from the [Alert Settings] page in the [Settings] menu (see section 22.5).

You can downgrade the priority for some alerts to [Warning] from the [Chart Alerts] page (see section 11.1.2).

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
115	-	115	Loss of System Communication	Loss of System Communication	Warning/B	Repeated warning
150	-	150	Early Course Change	Early Course Change	Warning/A	Repeated warning
170	-	170	Positioning System Failure	Positioning System Failure	Warning/B	Repeated warning
171	-	171	Crossing Safety Contour	Crossing Safety Contour	Alarm/A	-
172	-	172	Off Track Alarm	Off Track Alarm	Alarm/A	-
173	1	620	Area With Special Conditions	User Chart Danger Area	Warning/A	Repeated warning
173	2	621		Traffic Separation Zone		
173	3	622		Inshore Traffic Zone		
173	4	623		Restricted Area		
173	5	624		Caution Area		
173	6	625		Offshore Production Area		
173	7	626		Military Practice Area		
173	8	627		Seaplane Landing Area		
173	9	628		Submarine Transit Lane		
173	10	629		Anchorage Area		
173	11	630		Marine Farm/ Aquaculture		
173	12	631		PSSA Area		
173	13	632		Areas to be Avoided		
173	14	633		Buoy		
174	-	174	WPT Approach	WPT Approach	Warning/A	Repeated warning
175	1	455	Datum Mismatch	EPFS1 Invalid/ missing datum	Warning/B	Repeated warning

20. ALERTS

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
175	2	456	Datum Mismatch	EPFS2 Invalid/missing datum	Warning/B	Repeated warning
175	3	457		EPFS3 Invalid/missing datum		
175	4	458		EPFS4 Invalid/missing datum		
175	5	459		EPFS5 Invalid/missing datum		
175	6	460		EPFS6 Invalid/missing datum		
175	7	461		EPFS7 Invalid/missing datum		
175	8	462		EPFS8 Invalid/missing datum		
175	9	463		EPFS9 Invalid/missing datum		
175	10	464		EPFS10 Invalid/missing datum		
190	1	531	Target Capacity	AIS Target Display 100%	Warning/A	Repeated warning
190	2	533		AIS Target Capacity 100%		
190	3	535		AIS Target Activate 100%		
190	4	523		TT Auto ACQ 100%		
190	5	525		TT MAN ACQ 100%		
191	1	526	CPA/TCPA	TT CPA/TCPA	Alarm/A	Repeated warning
191	2	536		AIS CPA/TCPA		
192	1	521	ACQUISITION/ACTIVATION (NEW TARGET)	TT New Target	Warning/A	Repeated warning
192	2	529		AIS New Target		
193	1	527	Lost Target Alert	TT Lost	Warning/A	Repeated warning
193	2	528		REF Target Lost		
193	3	537		AIS Lost		
194	1	720	Radar System Failure	No ANT Heading Signal	Warning/B	Repeated warning
194	2	721		No ANT Azimuth Signal		
194	3	722		No ANT Trigger Signal		
194	4	723		No ANT Video Signal		
194	5	724		No RPU Gyro Signal		
194	6	725		No ANT Echo Signal		
194	8	727		Radar Sensor COM Error		

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
194	9	770	Radar System Failure	SPU Error	Warning/B	Repeated warning
194	10	771		MTR-DRV Error		
194	11	772		PM Error		
194	12	773		RF-Converter Error		
194	13	774		PSU-Control Error		
194	14	781		MTR-DRV COM Error		
194	15	782		PM COM Error		
194	16	783		RF-Converter COM Error		
194	17	775		HPA Error		
260	-	260	Emergency Call	Emergency Call	Alarm/A	-
10001	1	001	HW Status Notice	Main Monitor Fan1 Rotation Speed Lowering	Caution/B	-
10001	2	002		Main Monitor Fan2 Rotation Speed Lowering		
10001	3	003		Main Monitor Fan3 Rotation Speed Lowering		
10001	4	004		Main Monitor Fan4 Rotation Speed Lowering		
10001	5	014		Sub Monitor Fan1 Rotation Speed Lowering		
10001	6	015		Sub Monitor Fan2 Rotation Speed Lowering		
10001	7	016		Sub Monitor Fan3 Rotation Speed Lowering		
10001	8	017		Sub Monitor Fan4 Rotation Speed Lowering		
10001	9	011		Main Monitor RS485 Communication Timeout		
10001	10	024		Sub Monitor RS485 Communication Timeout		
10001	11	012		Main Monitor No Signal		
10001	12	025		Sub Monitor No Signal		
10001	13	013		Main Monitor Sentence Syntax Error		
10001	14	026		Sub Monitor Sentence Syntax Error		

20. ALERTS

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
10001	15	027	HW Status Notice	Main Monitor COM Timeout	Caution/B	-
10001	16	028		Sub Monitor COM Timeout		
10001	17	073		Processor Unit CPU Temp High		
10001	18	074		Processor Unit GPU Temp High		
10001	19	075		Processor Unit CPU Board Temp High		
10001	20	076		Processor Unit Remote 1 Temp High		
10001	21	077		Processor Unit Remote 2 Temp High		
10001	22	078		Processor Unit CPU Fan Rotation Speed Lowering		
10001	23	079		Processor Unit Fan1 Rotation Speed Lowering		
10001	24	080		Processor Unit Fan2 Rotation Speed Lowering		
10001	25	081		Processor Unit Fan3 Rotation Speed Lowering		
10001	26	089		Processor Unit CPU board Battery Power Error		
10001	27	090		Processor Unit CPU board Core Power Error		
10001	28	070		RCU 1 COM Time-out		
10001	29	071		RCU 2 COM Time-out		
10001	30	072		RCU 3 COM Time-out		
10001	31	400		Network Printer Not Available		
10001	32	401		Local Printer Not Available		
10002	1	005	HW Status Abnormal	Main Monitor LCD Unit Lifetime Over	Warning/B	Repeated Warning
10002	2	018		Sub Monitor LCD Unit Lifetime Over		
10002	3	006		Main Monitor High Temperature Inside Monitor		

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
10002	4	019	HW Status Abnormal	Sub Monitor High Temperature Inside Monitor	Warning/B	Repeated Warning
10002	5	007		Main Monitor Fan1 No Rotation		
10002	6	008		Main Monitor Fan2 No Rotation		
10002	7	009		Main Monitor Fan3 No Rotation		
10002	8	010		Main Monitor Fan4 No Rotation		
10002	9	020		Sub Monitor Fan1 No Rotation		
10002	10	021		Sub Monitor Fan2 No Rotation		
10002	11	022		Sub Monitor Fan3 No Rotation		
10002	12	023		Sub Monitor Fan3 No Rotation		
10002	13	082		Processor Unit CPU Fan No Rotation		
10002	14	083		Processor Unit Fan1 Fan No Rotation		
10002	15	084		Processor Unit Fan2 Fan No Rotation		
10002	16	085		Processor Unit Fan3 Fan No Rotation		
10002	17	086		Processor Unit CPU board 5V Power Error		
10002	18	087		Processor Unit CPU board 3.3V Power Error		
10002	19	088		Processor Unit CPU board 12V Power Error		
10050	1	320	Serial Ch. COM Timeout	Processor Unit Ch.01 COM Timeout	Caution/B	-
10050	2	321		Processor Unit Ch.02 COM Timeout		
10050	3	322		Processor Unit Ch.03 COM Timeout		
10050	4	323		Processor Unit Ch.04 COM Timeout		

20. ALERTS

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
10050	5	324	Serial Ch. COM Timeout	Processor Unit Ch.05 COM Time-out	Caution/B	-
10050	6	325		Processor Unit Ch.06 COM Time-out		
10050	7	326		Processor Unit Ch.07 COM Time-out		
10050	8	327		Processor Unit Ch.08 COM Time-out		
10173	1	634	Crossing Special Area	UKC Limit	Warning/A	Repeated warning
10173	2	635		Non-official ENC		
10173	3	636		No Vector Chart		
10173	4	637		Not Up-to-date		
10173	5	638		Permit Expired		
10190	1	530	Target Capacity	AIS Target Display 95%	Caution/B	-
10190	3	534		AIS Target Activate 95%		
10190	4	522		TT Auto ACQ 95%		
10190	5	524		TT MAN ACQ 95%		
10300	1	030	Sensor Adapter COM Timeout	Sensor Adapter 1 COM Timeout	Caution/B	-
10300	2	031		Sensor Adapter 2 COM Timeout		
10300	3	032		Sensor Adapter 3 COM Timeout		
10300	4	033		Sensor Adapter 4 COM Timeout		
10300	5	034		Sensor Adapter 5 COM Timeout		
10300	6	035		Sensor Adapter 6 COM Timeout		
10300	7	036		Sensor Adapter 7 COM Timeout		
10300	8	037		Sensor Adapter 8 COM Timeout		
10300	9	038		Sensor Adapter 9 COM Timeout		
10300	10	039		Sensor Adapter 10 COM Timeout		
10300	11	094		Sensor Adapter 11 COM Timeout		
10300	12	095		Sensor Adapter 12 COM Timeout		
10300	13	096		Sensor Adapter 13 COM Timeout		
10300	14	097		Sensor Adapter 14 COM Timeout		

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
10300	15	098		Sensor Adapter 15 COM Timeout		
10300	16	099	Sensor Adapter COM Timeout	Sensor Adapter 16 COM Timeout	Caution/B	-
10310	-	510	IAS COM Timeout (MODBUS)	IAS COM Timeout (MODBUS)	Warning/B	Repeated warning
10331	-	331	Selected Gyro status missing	Selected Gyro status missing	Warning/B	-
10380	131	380	AIS COM Error	AIS COM Error	Warning/B	Repeated warning
10400	1	255	CCRS COM Error	Gyro 1 COM Error	Caution/B	-
10400	2	256		Gyro 2 COM Error		
10400	3	257		Gyro 3 COM Error		
10400	4	258		Gyro 4 COM Error		
10400	5	259		Gyro 5 COM Error		
10400	11	391		ROT Gyro 1 COM Error		
10400	12	392		ROT Gyro 2 COM Error		
10400	13	393		ROT Gyro 3 COM Error		
10400	21	290		EPFS 1 COM Error		
10400	22	291		EPFS 2 COM Error		
10400	23	292		EPFS 3 COM Error		
10400	24	293		EPFS 4 COM Error		
10400	25	294		EPFS 5 COM Error		
10400	26	295		EPFS 6 COM Error		
10400	27	296		EPFS 7 COM Error		
10400	28	297		EPFS 8 COM Error		
10400	29	298		EPFS 9 COM Error		
10400	30	299		EPFS 10 COM Error		
10400	41	280		SDME 1 COM Error		
10400	42	281		SDME 2 COM Error		
10400	43	282		SDME 3 COM Error		
10400	51	235		Echo Sounder 1 COM Error		
10400	52	236		Echo Sounder 2 COM Error		
10400	53	237		Echo Sounder 3 COM Error		
10400	61	300		Rudder 1 COM Error		
10400	62	301		Rudder 2 COM Error		
10400	63	302		Rudder 3 COM Error		

20. ALERTS

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
10400	71	303	CCRS COM Error	HCS 1 COM Error	Caution/B	-
10400	72	304		HCS 2 COM Error		
10400	81	305		VDR COM Error		
10400	91	306		BNWAS COM Error		
10400	101	360		Wind Sensor 1 COM Error		
10400	102	361		Wind Sensor 2 COM Error		
10400	103	362		Wind Sensor 3 COM Error		
10400	111	370		Water Current COM Error		
10400	121	371		Water Temp COM Error		
10400	141	390		NAVTEX COM Error		
10431	-	431	HUB-3000 LinkUP Error	HUB-3000 LinkUP Error	Warning/B	Repeated warning
10450	-	330	Double Gyro Status Conflict	Double Gyro Status Conflict	Warning/B	Repeated warning
10499	-	500	Watch Alert	Watch Alert	Warning/B	Repeated warning
10500	1	851	Sensor Banned	EPFS 1 Sensor Banned	Caution/B	-
10500	2	852		EPFS 2 Sensor Banned		
10500	3	853		EPFS 3 Sensor Banned		
10500	4	854		EPFS 4 Sensor Banned		
10500	5	855		EPFS 5 Sensor Banned		
10500	6	856		EPFS 6 Sensor Banned		
10500	7	857		EPFS 7 Sensor Banned		
10500	8	858		EPFS 8 Sensor Banned		
10500	9	859		EPFS 9 Sensor Banned		
10500	10	860		EPFS 10 Sensor Banned		
10500	11	871		Gyro 1 Sensor Banned		
10500	12	872		Gyro 2 Sensor Banned		
10500	13	873		Gyro 3 Sensor Banned		
10500	14	874		Gyro 4 Sensor Banned		

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
10500	15	875	Sensor Banned	Gyro 5 Sensor Banned	Caution/B	-
10500	21	861		SDME 1 Sensor Banned		
10500	22	862		SDME 2 Sensor Banned		
10500	23	863		SDME 3 Sensor Banned		
10500	31	881		ROT Gyro 1 Sensor Banned		
10500	32	882		ROT Gyro 2 Sensor Banned		
10500	33	883		ROT Gyro 3 Sensor Banned		
10510	1	900	No Filter Source of Sensor Data	No Filter Source of Position	Warning/B	Repeated warning
10510	2	901		No Filter Source of COG/SOG		
10510	3	902		No Filter Source of CTW/STW		
10510	4	903		No Filter Source of Heading		
10510	5	904		No Filter Source of ROT		
10520	-	689	Drift comp error	Drift comp error	Warning/B	Repeated warning
10540	1	539	AIS Message Alert	AIS Message Received	Caution/B	-
10540	2	541		AIS Message Transmit Error		
10540	3	542		AIS Transmitting		
10560	-	560	Association	Association	Caution/B	-
10601	1	272	Sensor Data Not Available	UTC Time Not Available	Caution/B	Repeated warning
10601	2	277		Wind Speed/Direction Not Available		
10601	3	279		COG/SOG Not Available		
10601	4	284		SOG Not Available		
10601	5	450		Heading Sensor Not Available		
10601	6	453		SDME Sensor Not Available		
10602	1	472	Sensor Source Change	Position Source Change	Caution/B	-
10602	2	473		Heading Source Change		
10602	3	474		COG/SOG Source Change		
10602	4	475		CTW/STW Source Change		

20. ALERTS

ALF		ALR	Aggregated Alert name	Alert name	Priority/Category	Escalation
No.	Inst.*	No.				
10602	5	470	Sensor Data Not Available	Datum Change	Caution/B	-
10603	1	273		Depth(Bow) Not Available		
10603	2	274		Depth(Midship) Not Available		
10603	3	275		Depth(Stern) Not Available		
10603	4	278		STW Not Available		
10603	5	285		Heading Magnetic Not Available		
10718	-	728	Radar Sensor SW Version Error	Radar Sensor SW Version Error	Warning/B	Repeated warning
10740	1	730	EXT Radar Error	EXT Radar STBY	Warning/B	Repeated warning
10740	2	740		EXT Radar No Signal		
10740	3	750		EXT Radar COM Error		
10760	-	760	Datum Mismatch	Datum Mismatch	Caution/B	-
10800	1	691	RM Stop	RM Stop - Exceed Max XTD	Alarm/A	-
10800	2	692		RM Stop - Sensor lost		
10800	3	693		RM Stop - Internal Error		
10801	-	485	Depth Limit	Depth Limit	Alarm/A	Repeated warning
10802	-	495	Anchor Watch	Anchor Watch	Warning/A	Escalated to alarm
10803	-	640	Chartalign: Over 30 min	Chartalign: Over 30 min	Caution/B	Repeated warning
10807	-	820	NAVTEX Message Received	NAVTEX Message Received	Caution/B	Repeated warning
10850	-	652	End of track	End of track	Warning/A	Repeated warning
10999	-	999	Alert setting file read error	Alert setting file read error	Warning/B	Repeated warning

*: "Inst." denotes the instance for each alert, where applicable. "-" denotes that there is no instance number for the alert.

21. PARAMETERS

21.1 Ship and Route Parameters

The purpose of the ship and route parameters is set the basic parameters for the ship. These parameters are relative to ship steering and they are very important to get correct function of the integrated navigation system. They must be maintained carefully. Modification requires a good knowledge of the parameters' importance.

Open the menu and select [Ship & Route Parameters] from the [General] menu to show the [Ship & Route] page. Set each item referring to the description below.

Ship Parameters	
MAX Speed:	22.1 kn
MAX Height:	16.1 m
MAX Draught:	20.0 m

Route Parameters	
MAX ROT:	60.0 °/min
WPT Approach:	30 s
WPT Prewarning:	180 s
Default Line Radius:	0.80 NM
Default XTD Limit:	185 m
Default Safety Margin:	40 m

Ship parameters description

[MAX Speed]: Maximum speed the ship can do.

[MAX Height]: Max. height of ship above sea level.

[MAX Draught]: Max. draught of ship.

Route parameters description

[MAX R.O.T]*: The maximum rate of turn of the ship. Set at installation.

[WPT Approach]*: The alert time before reaching the wheel over point.

[WPT Prewarning]*: The alert time before reaching the wheel over point.

[Default Line Radius]: Define the default value of radius between waypoints during automatic route steering.

[Default XTD Limit]: Define the default value of XTD limit.

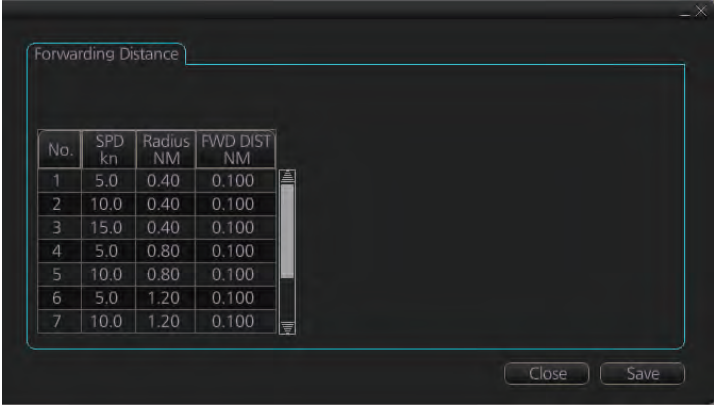
[Default Safety Margin]: Define the default value of extension for channel limits to be checked against selected alerts.

* Set at installation and cannot be changed by the operator.

21.2 Forwarding Distances

The forwarding distances are the distances the ship travels straight after the steering command is given to the autopilot. These distances change according to the radius of turn.

The forwarding distances are entered at installation and cannot be changed by the operator. However, the operator can view the forwarding distances settings on the [Forwarding Distance] display ([MENU]→[General]→[Navigation Parameter]).



The screenshot shows a software window titled "Forwarding Distance". Inside the window is a table with four columns: "No.", "SPD kn", "Radius NM", and "FWD DIST NM". The table contains seven rows of data. To the right of the table is a vertical scrollbar. At the bottom right of the window are two buttons: "Close" and "Save".

No.	SPD kn	Radius NM	FWD DIST NM
1	5.0	0.40	0.100
2	10.0	0.40	0.100
3	15.0	0.40	0.100
4	5.0	0.80	0.100
5	10.0	0.80	0.100
6	5.0	1.20	0.100
7	10.0	1.20	0.100

Note: These are the port side values. Starboard side values can also be shown. Contact a FURUNO dealer for details.

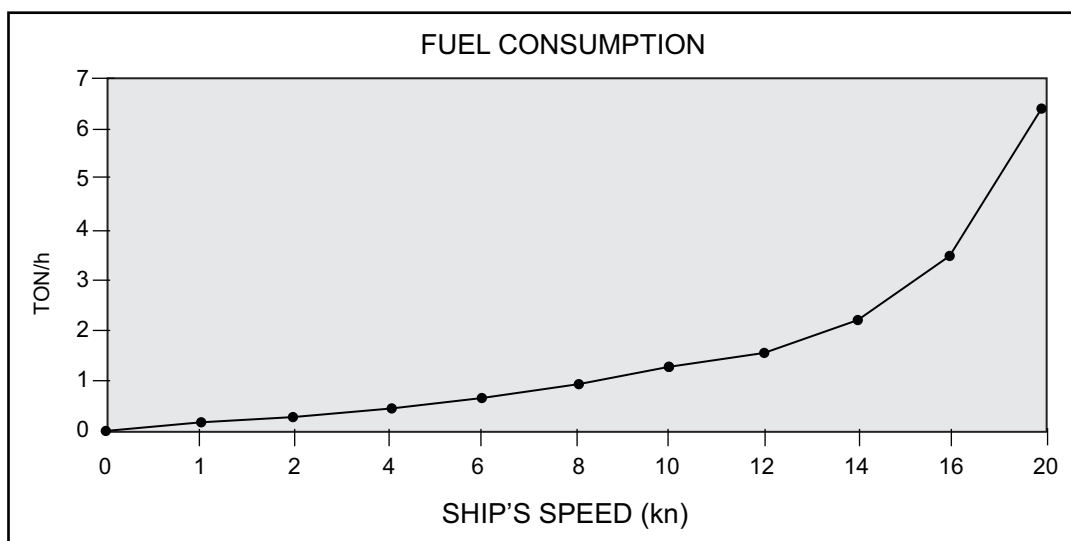
21.3 Cost Parameters

The cost parameters are used in the optimization calculation. Therefore define these parameters before doing the calculation.

Open the menu and select [Cost Parameters] from the [General] menu to show the [Cost Parameters] page. Set each item according to ship's plan, etc.

Speed kn	Heavy Fuel Oil ton/hr	Diesel Oil ton/hr
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000
0.0	0.000	0.000

At the [Cost] window, enter the cost/hour and cost/ton for heavy fuel oil and diesel oil. At the [Fuel Consumption] window, define the fuel consumption figures for up to 12 different speeds. Before entering the data, plot the data on a graph, like the one shown below. Use a second graph if, for example, diesel oil consumption is different from that of heavy fuel oil. Reset the power to effect the settings.



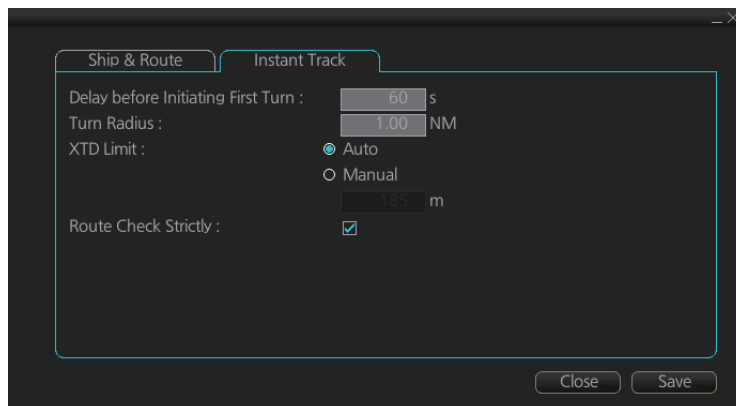
21.4 Instant Track Parameters

The instant track feature can create, in route monitoring, a simple route in the following situations:

- Return to the monitored route when the vessel goes outside the channel limits.
- Temporarily deviate from the monitored route (avoid collision, etc.).

How to set instant track parameters

Set the parameters for the instant track ([MENU] → [General] → [Ship & Route Parameters] → [Instant Track] tab).



[Delay before Initiating First Turn]: Set the number of seconds (30 - 600 seconds) to wait before initiating the first turn in the simple route.

[Turn Radius]: Set the turning radius (0.02 - 3.00 NM) to use between waypoints (four waypoints) in the simple route.

[XTD Limit]: Set the channel limit (10 - 3704 m) for the instant track, automatically or manually. The [Auto] setting uses the channel limit set for the monitored route.

[Route Check Strictly]: Check to prevent monitoring of instant track when a chart alert (alarm or warning) is found through the route check. Uncheck to monitor instant track in spite of chart alert found through the route check.

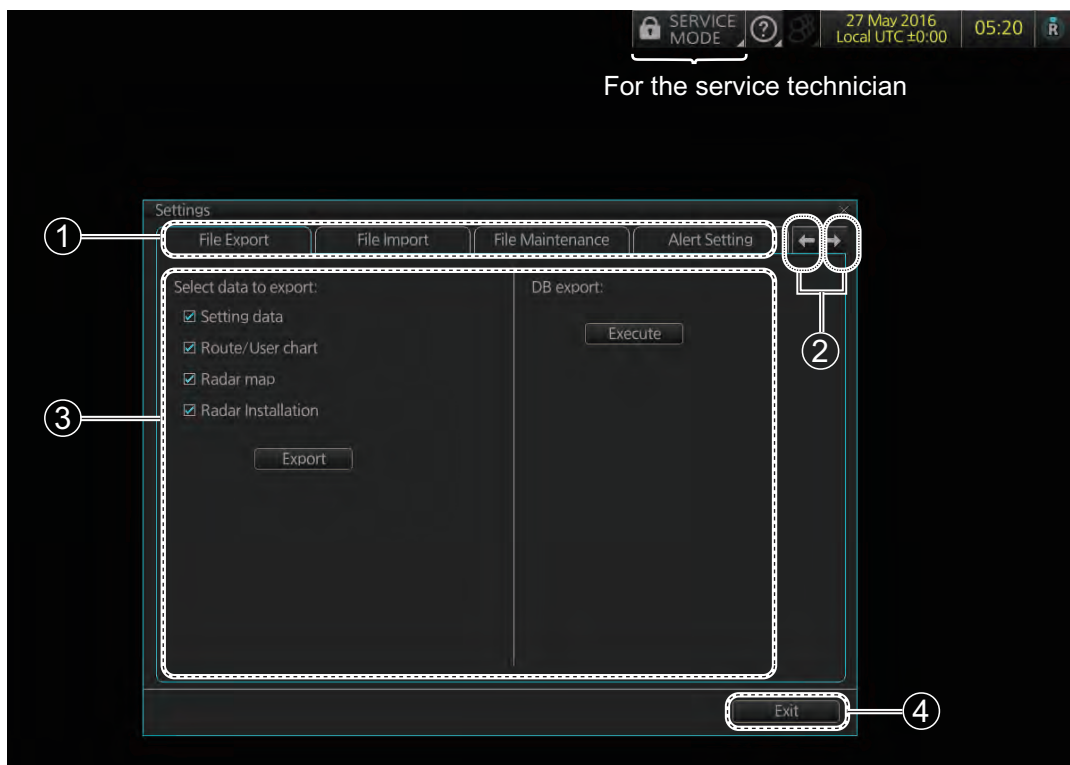
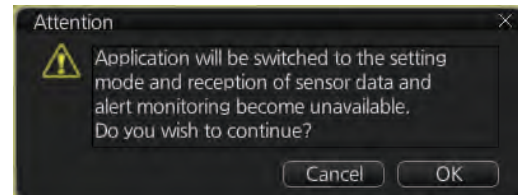
22. SETTINGS MENU

The [Settings] menu provides file import, export and maintenance, alert settings, testing facilities (display, keyboard, self test), data sharing, customizing, screenshot processing, and CCRP selection.

22.1 How to Access the Settings Menu

Click the Settings button () on the Status bar then select [Settings]. The right message appears.

Click the [OK] button to show the [Settings] menu.

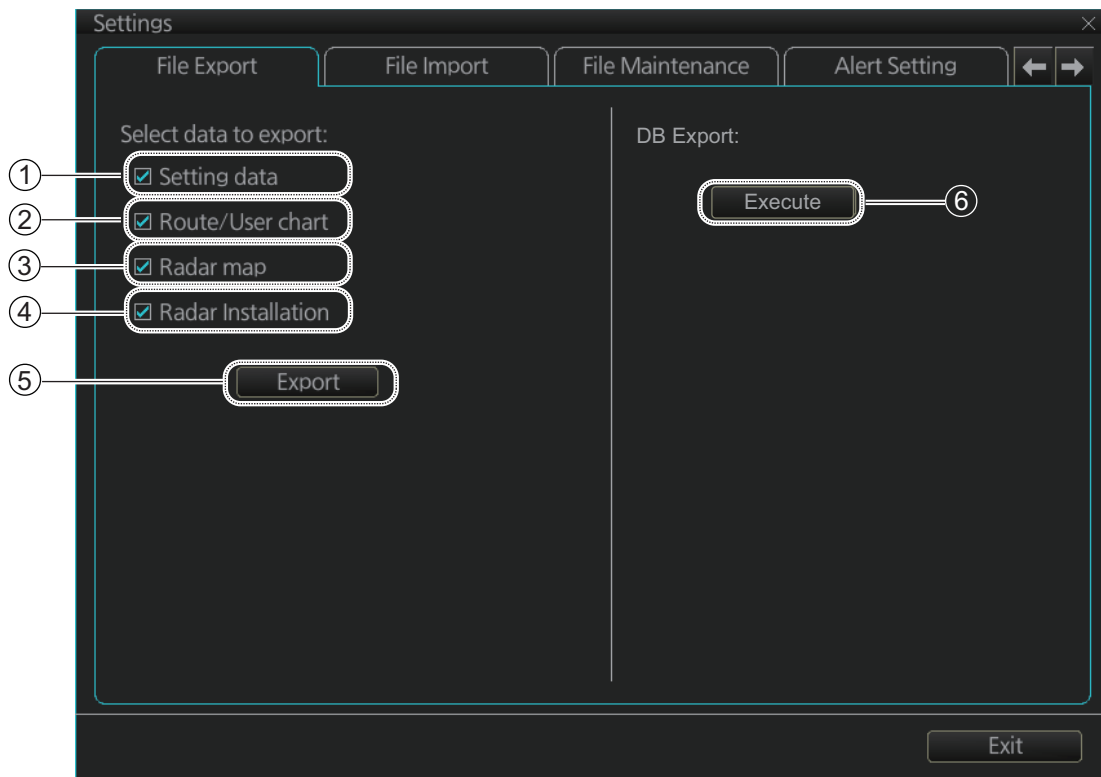


No.	Name	Description
1	Pages (menus)	Twelve menus.
2	Page selection buttons	Scroll the [Settings] menu.
3	Menu area	The menu for the selected page appears here.
4	[Exit] button	Click to close [Setting] menu.

To open a page, use the page selection buttons to select a page then click the tab of the page required. The color of the border of the page selected is light blue.

22.2 File Export

The [File Export] page lets you export setting data, routes, user charts, radar maps and radar installation to a USB flash memory, in .zip file format, to share with other like units.



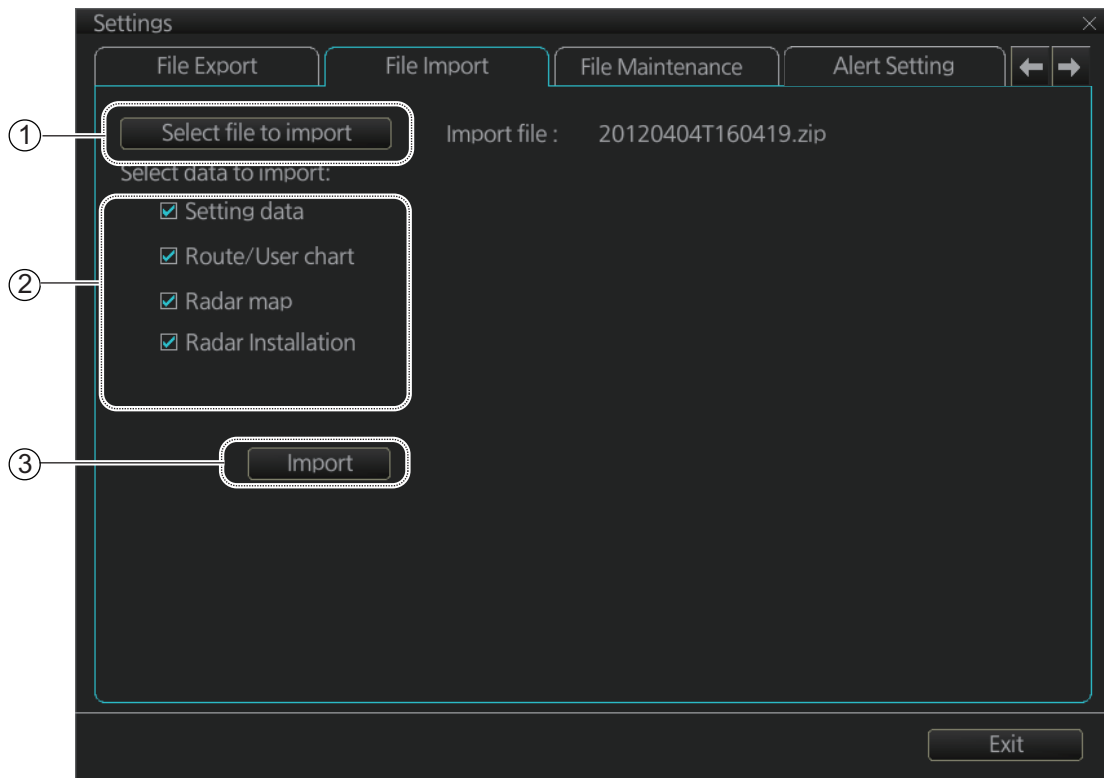
No.	Name	Description
1	[Setting data]	Check to export setting data (radar, chart, conning, common, performance monitor data) and ten user profile data.
2	[Route/User chart]	Check to export all routes and user charts.
3	[Radar map]	Check to export all radar maps.
4	[Radar Installation]	Check to export all setting of the [RADAR INSTALLATION] menu. The [RADAR INSTALLATION] menu is for service man only.
5	[Export] button	Click the button to open the [SAVE FILE] dialog box. Select the destination to save then click the [Save] button to export all selected objects.
6	[Execute] button	Save the inside check data to SSD. Only service technician can extract the check data.

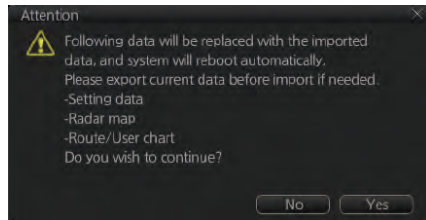
Note 1: Item 5 does not appear until a object is selected.

Note 2: The message "Now processing" appears during the exporting. The message "File export finished." appears upon completion of the exporting. Click the [OK] button.

22.3 File Import

The [File Import] page lets you import setting data, routes, user charts, radar maps and radar installation from an external media (USB flash memory, etc.).



No.	Name	Description
1	[Select file to import] button	Click to show the [OPEN FILE] dialog box, where you can select the file to import.
2	[Select data to import]	Check the data to import, among [Setting data], [Route/User chart] and [Radar map]. Note 1: Do not use the [Playback data]. Note 2: [Radar Installation] available in Service mode only.
3	[Import] button	Click to import the objects selected. The following message appears on the display. 

Note 1: The system automatically restarts after setting data is imported.

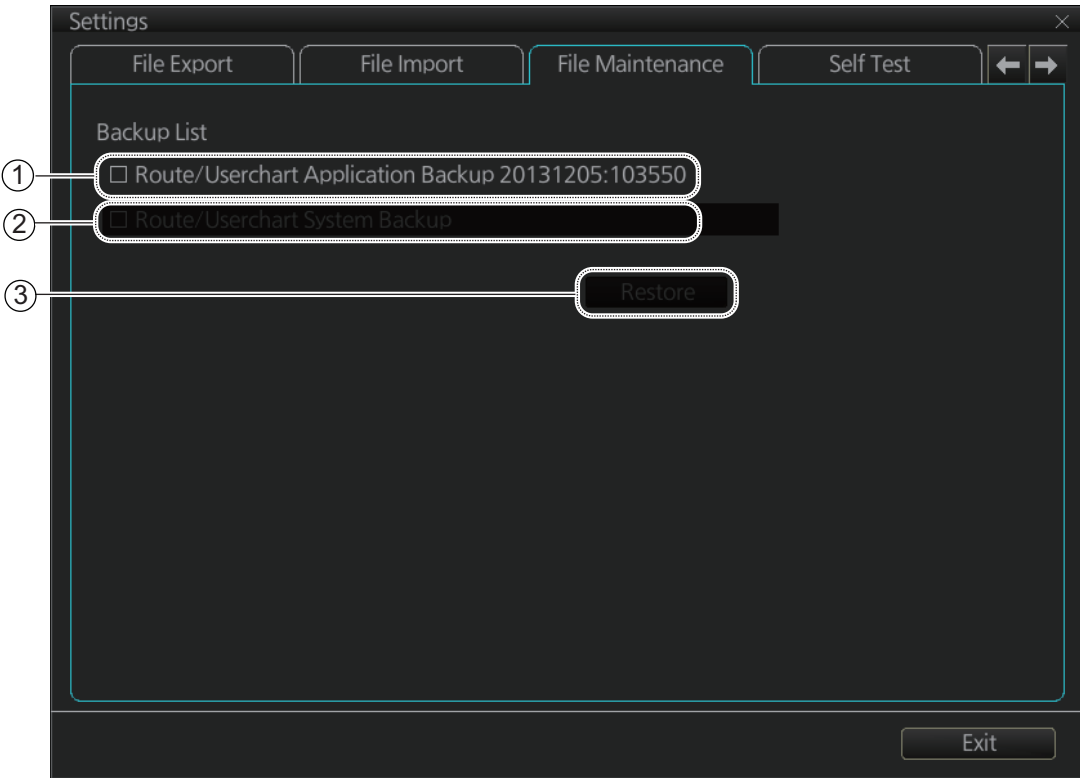
Note 2: If importing could not be completed, first check if the USB flash memory is properly inserted. If inserted properly, try importing again.

Note 3: The [Select data to import] menu does not appear until after a file is selected. The [Import] button appears after the data to import is selected.

Note 4: The message "Now processing" appears during the importing. The message "File import finished." appears upon completion of the importing. Click the [OK] button.

22.4 File Maintenance

The [File Maintenance] page lets you restore the last-saved route/user chart application and route/user chart system.

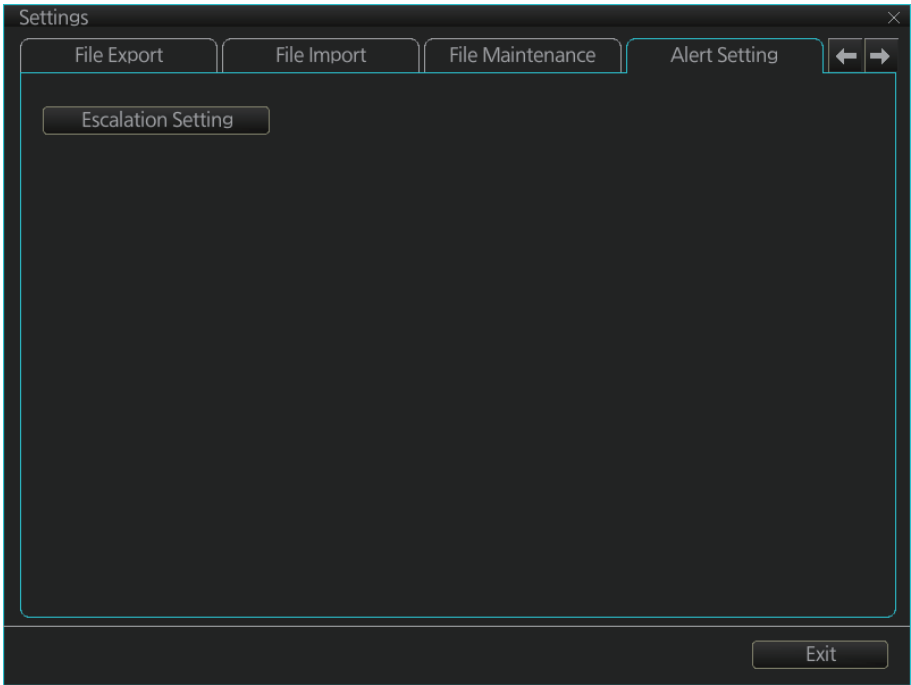


No.	Name	Description
1	[Route/Userchart Application Back-up]	Click to restore last-saved route/userchart application.
2	[Route/Userchart System Backup]	Click to restore last-saved route/userchart system.
3	[Restore] button	Click to restore item selected.

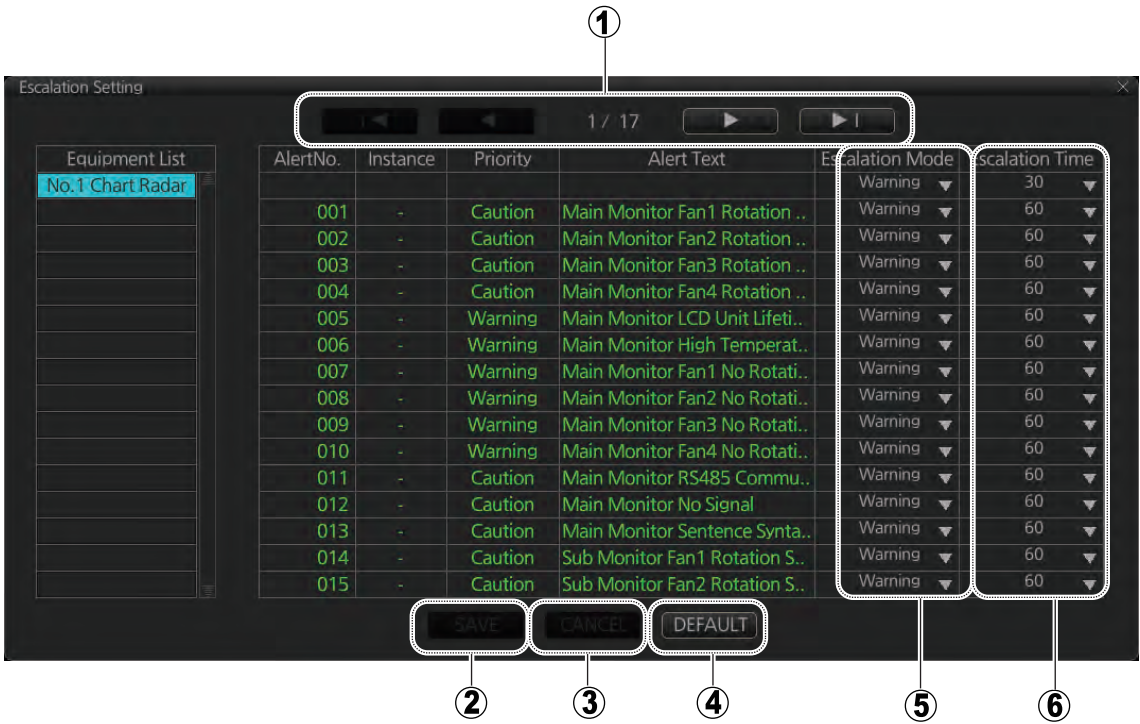
Note: To restore the route data from the backup data, first check all route data then do the restore from the latest data.

22.5 Alert Setting

The [Alert Setting] page sets how long to wait before the priority of an alert is raised to Warning or Alarm, when the alert goes unacknowledged. Click the [Escalation Setting] button to show the escalation settings. Alerts can be escalated to alarm level or repeated as a warning.



A grayed out [Escalation Mode] or [Escalation Time] value means that the value cannot be changed.

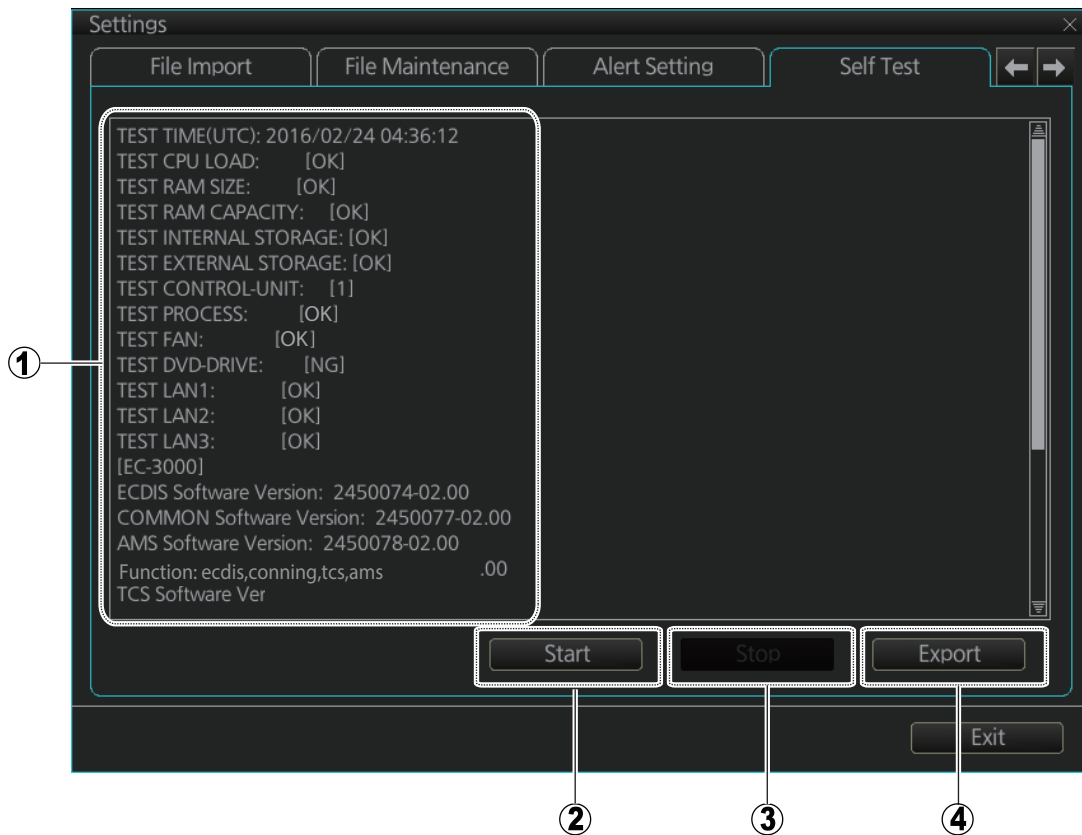


No.	Name	Description
1	Page selection buttons	Select alert page. ◀: Go to first page; ◀: Go to previous page ▶: Go to last page; ▶: Go to next page
2	[Save] button *	Save settings.
3	[CANCEL] button *	Cancel settings and restore all previous settings.
4	[DEFAULT] button	Restore factory settings.
5	Escalation Mode	Set the escalation mode. Warning: Warning is repeated when the [Escalation Time] elapses. Alarm: The alert priority is changed if the alert is not acknowledged before the [Escalation Time] elapses. To globally assign escalation mode on the displayed page; change the setting below the item. 
6	Escalation Time	Set the escalation time, the time to wait before escalation occurs. The settings are (in seconds) 30, 670, 90 120, 150, 180, 210, 240, 270 and 300. To globally assign escalation time on the displayed page; change the setting below the item. 

* These buttons appear when the settings of Escalation Mode or Escalation Time is changed.

22.6 Self Test

The [Self Test] page is mainly used to check the equipment. The chart radar is inoperative during the test.



No.	Name	Description
1	Test results, program numbers, S.M.A.R.T. information, dongle information	The time of and results of the self test, the program numbers. (xx=version number), S.M.A.R.T. information and dongle information.
2	[Start] button	Start the self test.
3	[Stop] button	Stop the self test. (Shown during test.)
4	[Export] button	Save the results to external device (ex.: USB flash memory). Available after the results are shown on the display.

Self test results display

The normal results of the boards are shown as follows.

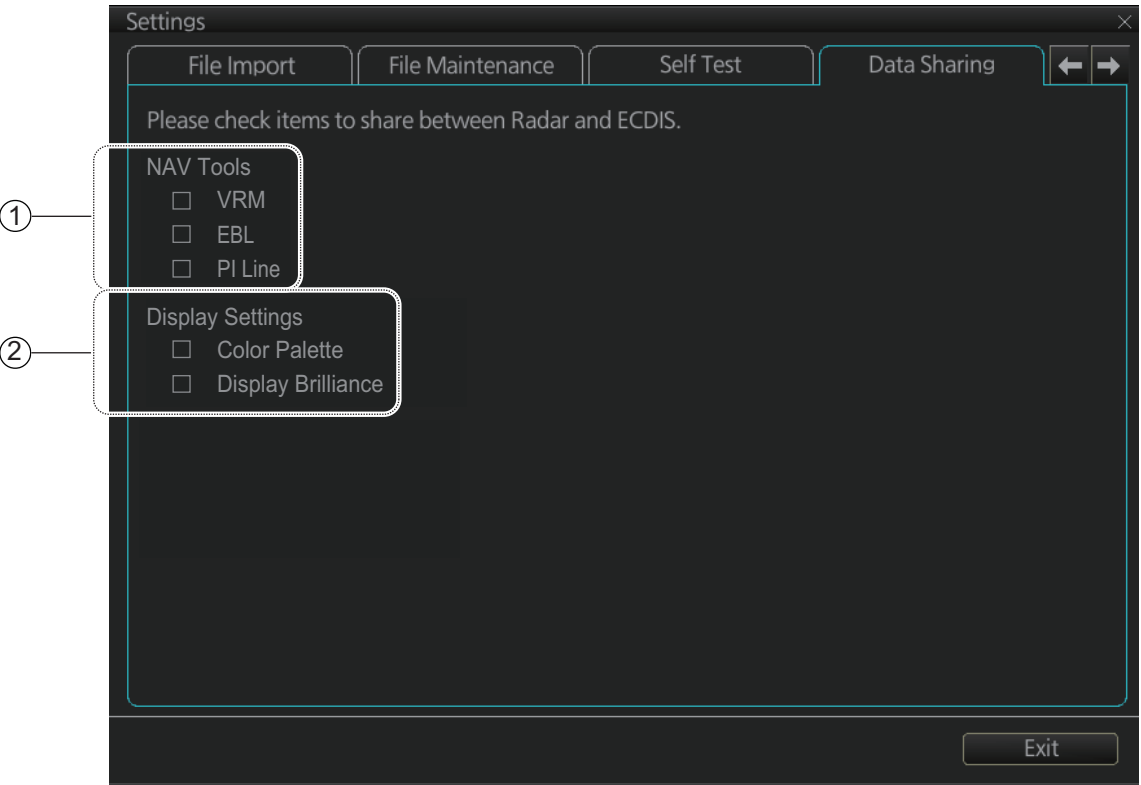
Item	Normal indication
SPU Status	
0.9V_1 Power Supply (V)	0.86 - 0.94
0.9V_2 Power Supply (V)	0.86 - 0.94
1.8V_A Power Supply (V)	1.71 - 1.89
HV (V)	not connect
IF 5V Voltage (V)	not connect
IF -10V Voltage (V)	not connect
MD 12V Voltage (V)	not connect

Item	Normal indication
Antenna Speed (rpm)	- Antenna rotation 24 rpm: 22 - 26 - Antenna rotation 42 rpm: 39 - 44
Trigger Frequency (Hz)	- STBY: 0 [2ND ECHO REJ]=[OFF], TT range*= 24NM: S1: 2640-3360, S2: 2640-3360, M1: 1320-1680, M2: 1060-1340, M3: 880-1120, L: 530-670 [2ND ECHO REJ]=[OFF], TT range*= 32NM: S1: 1940-2460, S2: 1940-2460, M1: 1320-1680, M2: 1060-1340, M3: 880-1120, L: 530-670 [2ND ECHO REJ]=[ON]: S1: 2640-3360, S2: 2640-3360, M1: 440-560, M2: 440-560, M3: 440-560, L: 440-560 *: TT range ([MAX RANGE]) is set at the installation.
LNA Monitor Voltage (V)	not connect
Tune Indicator (V)	not connect
Tune Initialize Indicator (V)	not connect
IF Frequency (MHz)	not connect
FAN1 Rotation Speed (rpm)	not connect
FAN2 Rotation Speed (rpm)	not connect
Board Temperature (degC)	-
V TRIG Voltage (V)	not connect
ROM Check	OK
RAM Check	OK
DIP Switch (SW7-SW0)	Displays the DIP switch settings on the SPU board
Board Revision Number	Displays the version of the SPU board
MD Board Revision Number	Displays the version of the MD board
TX Type	S-Solid
IP Address	Displays IP address of the SPU board
SPU Error Status	ffff
MTR-DRV Status	
Board Temperature (degC)	Ambient temperature: below +20°C
12V Power Supply (V)	9 - 15
Motor Current (A)	24rpm: 1.3 42rpm: 2
Motor Voltage (V)	43 - 53 (33 - 53*) *: For antenna unit installed on the foremast.
Motor Rotation Speed (rpm)	0 (STBY)/24/36/42
Board Revision Number	Displays the version of the MTR-DRV board.
ROM Check	OK
RAM Check	OK
PM Status	
12V Power Supply (V)	9 - 15
PLL Status	- PM is activated: LOCK - PM is deactivated: UNLOCK
Board Revision Number	Displays the version of the PM board.
ROM Check	OK
RAM Check	OK
RF-Converter Status	

Item	Normal indication
HPA Board Temperature (degC)	-40 - 100
6V Power Supply (V)	4.9 - 8
48V Power Supply (V)	40 - 53
IF PLL Status	LOCK
RF PLL Status	LOCK
Antenna Output Power (dBm)	48 - 55 (After a restart, requires at least one transmission before the result is shown.)
Board Revision Number	Displays the version of the RF-CONV board.
ROM Check	OK
RAM Check	OK
Error Status	not connect
PSU-Control Status	
Board Temperature (degC)	40- 100
FAN1 Rotation Speed (rpm)	3700- 5700
FAN2 Rotation Speed (rpm)	3700- 5700
FAN3 Rotation Speed (rpm)	0
3.3V Power Supply (V)	3.0 - 3.6
12V_LAN Power Supply (V)	10.8 - 13.2
12V Power Supply (V)	10.0 - 13.2
48V Voltage (V)	45.1 - 51.3
48V Current (A)	0 - 7.5
Motor1 Voltage (V)	45.1 - 51.3
Motor2 Voltage (V)	100
HV (V)	499.6 - 565.5
Board Revision Number	Displays the version of the PSU CTRL board.
ROM Check	OK
RAM Check	OK
48V Status	OK
HV Status	OK
Motor1 Status	OK
Motor2 Status	OK

22.7 Data Sharing

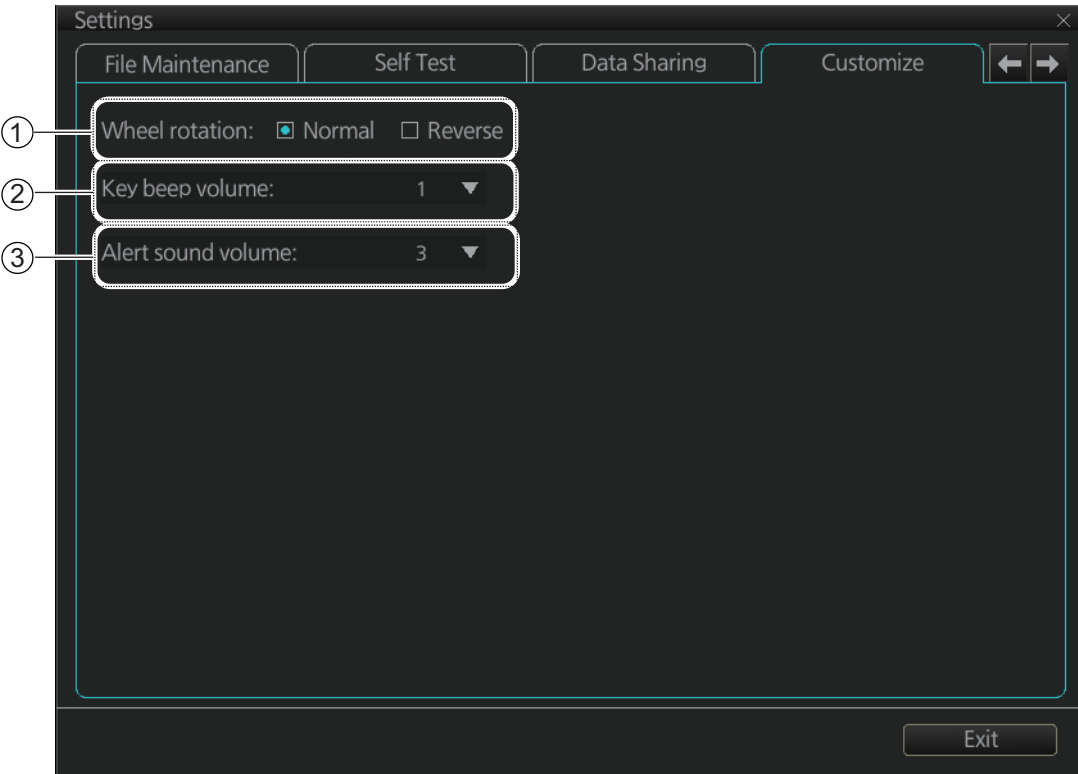
The [Data Sharing] page selects the items to share between the radar and the chart radar.



No.	Name	Description
1	[NAV Tools]	Check the NAV tools items to share them between the chart and the radar.
2	[Display Settings]	Check the display setting items to share between the chart and the radar.

22.8 Customize

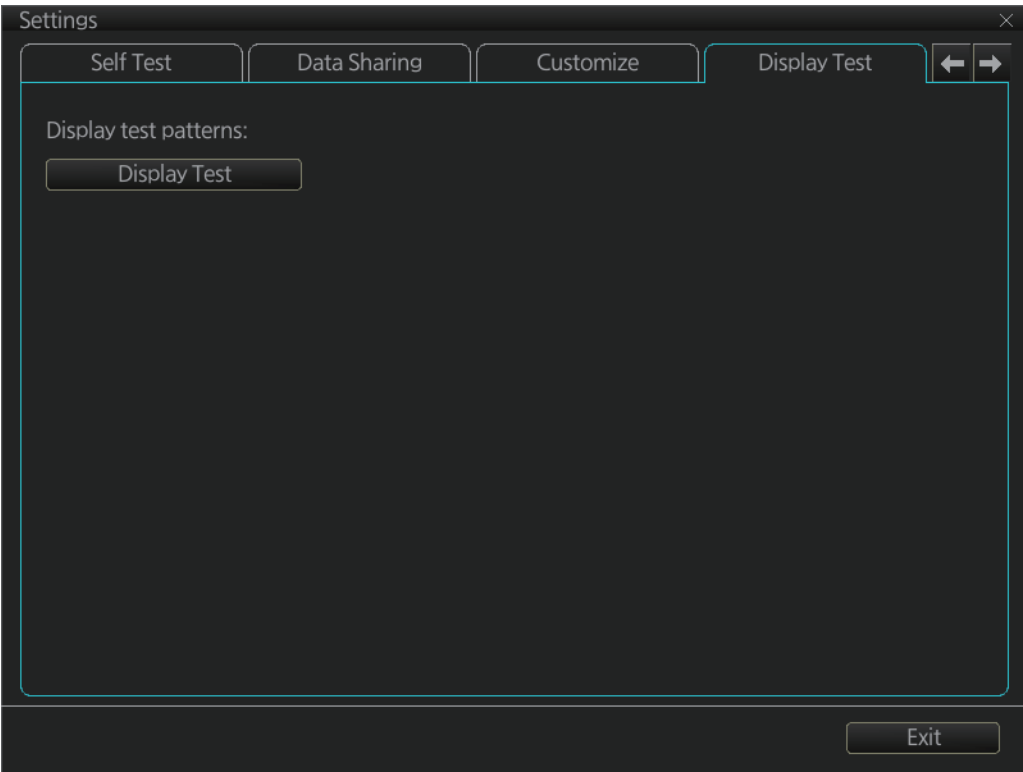
The [Customize] page lets you set buzzer volume, key beep volume, and scrollwheel rotation direction.



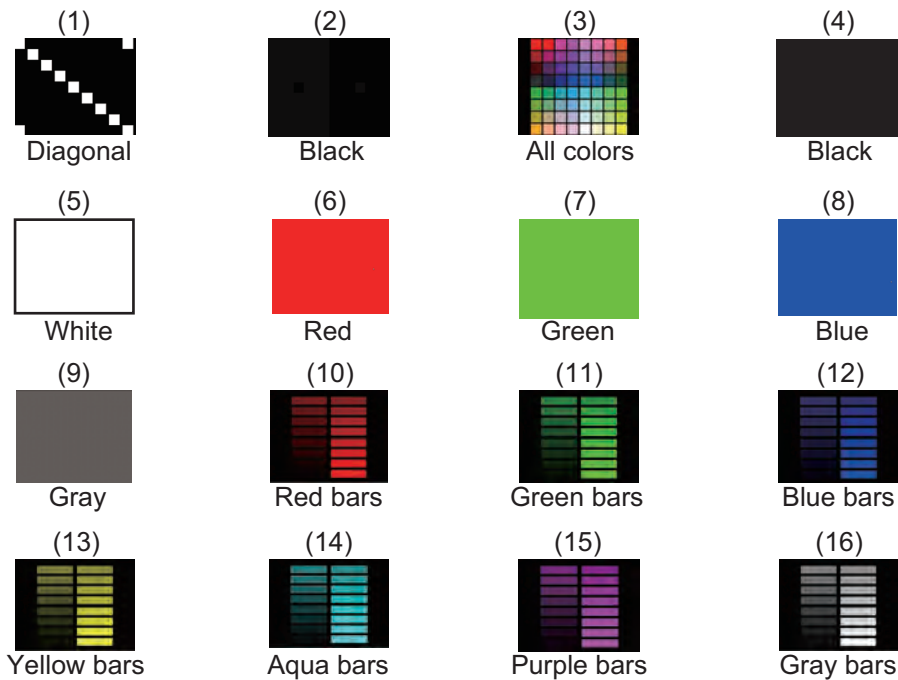
No.	Name	Description
1	[Wheel rotation]	Set the direction of scrollwheel rotation direction. [Normal]: Downward to increase value, upward to decrease value. [Reverse]: Reverse of [Normal].
2	[Key beep volume]	Set the loudness of the key beep that sounds for correct key or mouse button operation. 0: No beep, 1: LOW, 2: MID, 3: HIGH
3	[Alert sound volume]	Set the loudness of the alert buzzer. 1: LOW, 2: MID, 3: HIGH

22.9 Display Test

The [Display Test] page displays various test patterns to check the monitor for proper display of colors. Click the [Display Test] button to start the test. The buzzer sounds when the display test starts.



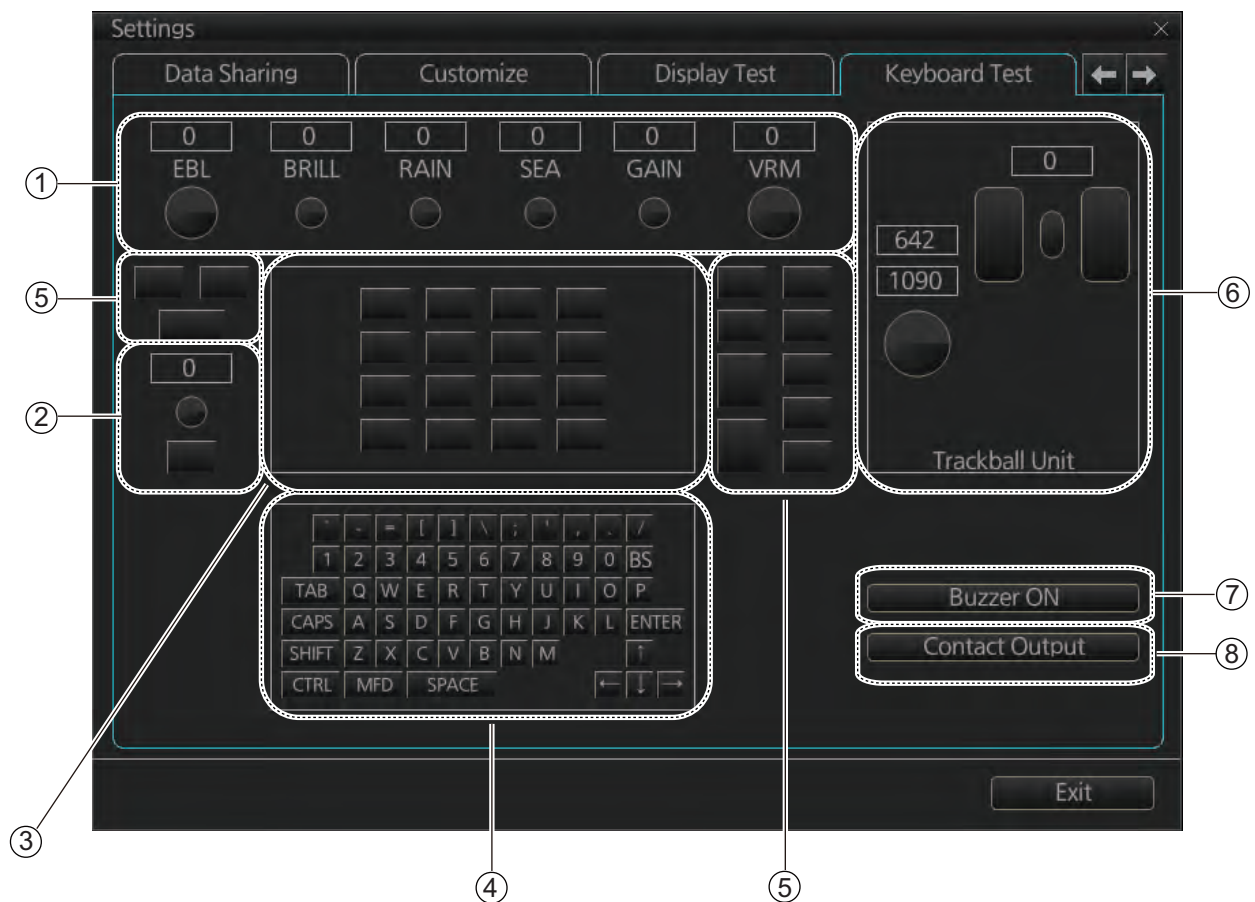
Left-click to proceed in the numerical order shown below; right-click to proceed in reverse order.



To quit the display test at any time, press the **ESC** key on the applicable Control Unit.

22.10 Keyboard Test

The [Keyboard Test] page checks the controls, keys and trackball on the Radar Control Unit and the trackball on the Trackball Control Unit.



No.	Name	Description
1	Common controls	Operate the corresponding controls on the Radar Control Unit and chart radar Control Unit. Rotate a control and the window above the control shows the setting value. Push a control and the corresponding location on screen lights in light blue. (The EBL and VRM controls do not have a push function.)
2	InstantAccess knob/key	Check the InstantAccess knob and key. 1) Rotate the knob and the setting value appears in the window. 2) Push the knob and the knob lights in light blue. 3) Push the key and the key lights in blue.
3	Keys of the Radar Control Unit	Operate each key. The key pressed lights in light blue.
4	Keyboard of the chart radar Control Unit	Operate each key. The key pressed lights in light blue.

22. SETTINGS MENU

No.	Name	Description
5	Keys of both the Radar Control Unit and chart radar Control Unit	Operate each key. The pressed key lights in light blue.
6	Trackball module	Check the trackball module of a Control Unit: 1) Spin the scrollwheel and rotate the trackball. The indication above the operated control shows the setting value. 2) Push each button. The window above a pushed button lights in light blue. 3) Push the scrollwheel. The window above the wheel lights in light blue.
7	[Buzzer ON] button	Click the [Buzzer ON] button to sound the buzzer. The buzzer sounds and the button flashes (in red). Click the button again to cancel.
8	[Contact Output] button	Click the [Contact Output] button to output the Alarm output contact signal from the Processor Unit. Click the button again to cancel.

22.11 Screenshots

The [Screenshot] page handles the exporting (to a USB flash memory) and deleting of screenshots from the SSD.



No.	Name	Description
1	List	List of screenshots taken. Screenshots are automatically assigned a file name consisting of the time and date the screenshot was taken.
2	Check boxes	Put a checkmark in the box of the screenshot to process.
3	[Preview]	Preview of the screenshot selected.
4	[Delete] button	Delete the screenshot(s) selected.
5	[Export] button	Export selected screenshot(s) to a USB flash memory.
6	[Print] button	Print the screenshot selected.
7	[Apply] button	Save comment.
8	[Comment] box	Enter comment for screenshot. Put a check in appropriate checkbox then enter comment.

22.11.1 How to export screenshots

You can export screenshots to a USB flash memory as follows:

1. Insert a USB flash memory in the USB port on the Control Unit.
2. Open the [Screenshot] page.
3. Put a checkmark in the checkbox of the screenshot(s) to export.
4. Click the [Export] button.



5. Select the USB flash memory.
6. Click the [OK] button to export the screenshots selected.
7. If the exporting was successful, a window showing the number of files exported appears. Click the [OK] button to finish.

22.11.2 How to delete screenshots

You can delete the screenshots saved in the SSD inside the EC-3000.

1. Select the [Screenshot] page.
2. Put a checkmark in the checkbox of the screenshot(s) to delete. To select all screenshots, right-click the box to the left of the [Date] column then select [Select all]. To clear all check marks, select [Clear all].
3. Click the [Delete] button. The confirmation message "Attention: Selected files will be deleted. Do you wish to continue?" appears.
4. Click the [Yes] button to delete the screenshots selected. The message "File deletion succeeded" appears.
5. Click the [OK] button.

22.11.3 How to print screenshots

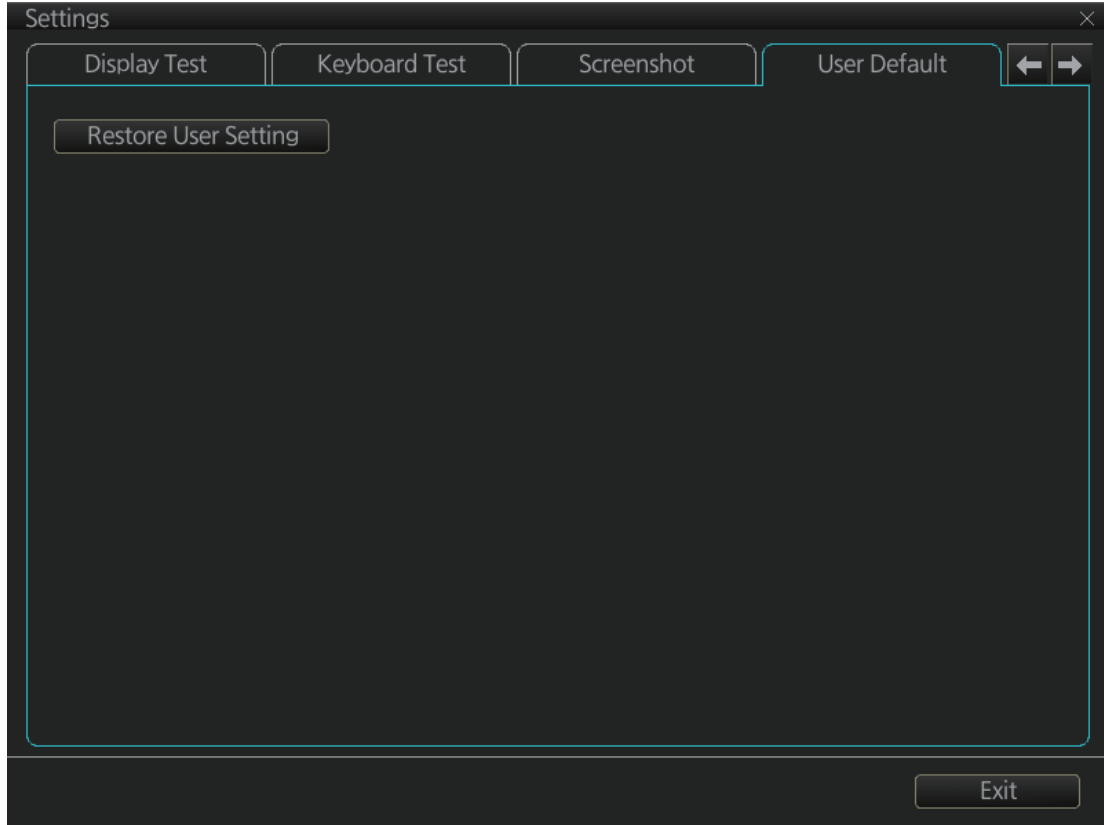
With connection of a printer you can print the screenshots stored in the SSD of the processor unit.

1. Select the [Screenshot] page.
2. Select the screenshot to print. Note that multiple screenshots cannot be printed at the same time.
3. Click the [Print] button.
4. Click the [OK] button to finish.

22.12 User Default

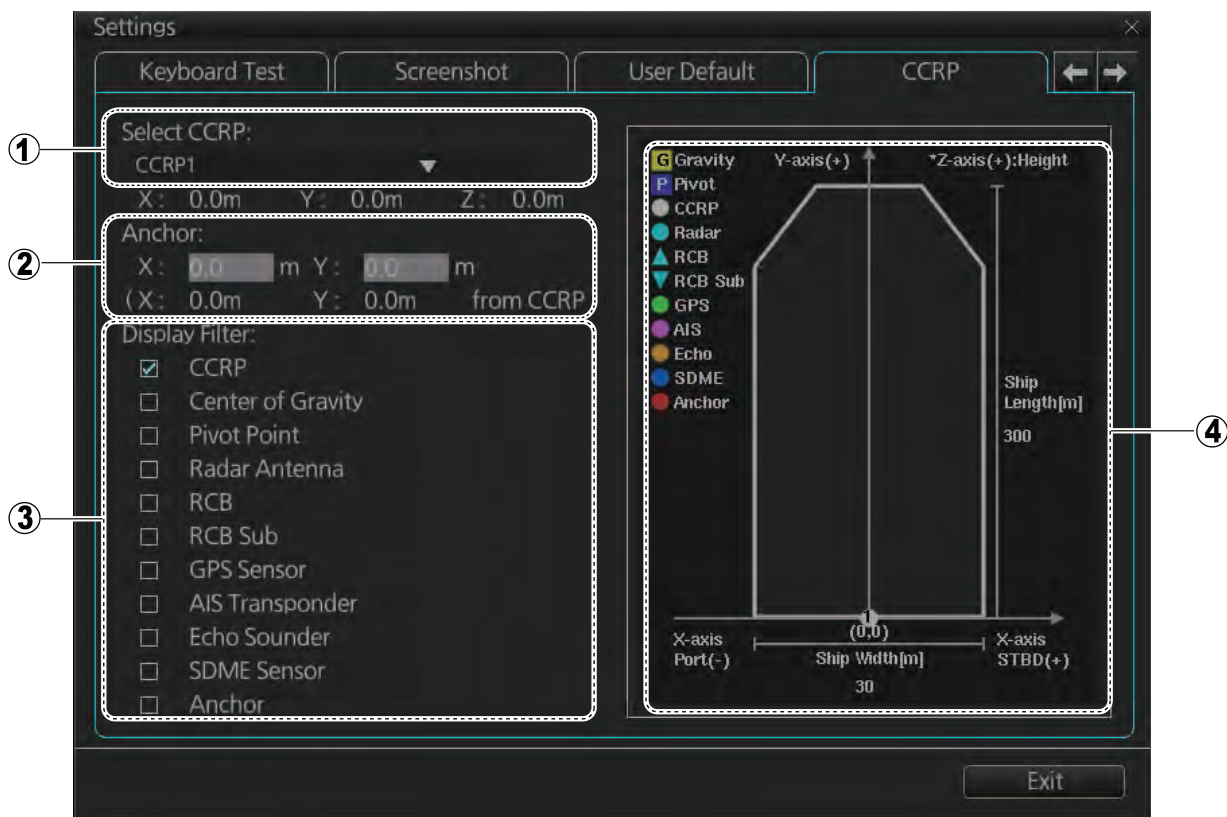
The [User Default] page restores all default settings for [Radar menu], [Chart menu], [User profile] and [Setting menu]. Click the [Restore User Setting] button. The message "All setting data will be restored to the default. Do you wish to continue?" appears. Click the [Yes] button to restore default settings and reset the power.

If you require the setting data, copy it to a USB flash memory (using the file export feature), BEFORE restoring user defaults.



22.13 CCRP

The [CCRP] page provides for selection of CCRP (Consistent Common Reference Point) and shows the location of various sensors.



No.	Name	Description
1	CCRP	Select the CCRP to use in the case of multiple CCRPs.
2	Anchor	Enter anchor installation position (X and Y values from CCRP). The setting ranges are X, -15.0 to 15 m; Y, 0.0 to 300.0 m.
3	Display Filter	Check the items to show on the ship's graphic.
4	Ship's graphic	Shows the location of the sensors selected at the [Display Filter].

23. COMMON REFERENCE SYSTEM

23.1 Installation of the System

Special attention of following topics is required to maintain the "Common Reference System." The origin of the common reference system is the conning position on vessel.

- The values of the center and conning positions depend on the size and geometry of the ship.
- Offsets from the antenna position to the conning position of position sensors depend on the location of the antennas of the position sensor.
- Offsets from the antenna position to the conning position of the radars depend on the location of the radar antennas.

23.2 Accuracy of the System

Accuracy depends on the following conditions:

- Gyro error referenced to chart orientation
- Accuracy of EPFS
- Accuracy of radar performance and display (see the specifications at the back of this manual).
- Accuracy of setting of CCRP (see section 2.30)

The following items must be properly adjusted to meet the above conditions:

- Timing (Tx timing of radar echo). Timing is adjusted from the [RADAR INSTALLATION] menu, accessible by the service technician. Contact a FURUNO dealer for details.
- Heading (Adjustment of radar echo heading). Heading is adjusted from the [RADAR INSTALLATION] menu, accessible by the service technician. Contact a FURUNO dealer for details.
- Radar ANT position (Center of radar image is the radar antenna position). Radar antenna position is set on the [Common Installation Settings] menu, accessible by the service technician. Contact a FURUNO dealer for details.
- Conning position:
 - The chart radar uses position data fed from a GPS navigator to calculate the latitude and longitude position of the conning position.
 - GPS antenna position and conning position are entered during the installation. GPS antenna and conning positions are set on the [Common Installation Settings] menu, accessible by the service technician. Contact a FURUNO dealer for details.
 - The latitude and longitude position displayed at the top-right position on the screen is the latitude and longitude position of the conning position.
 - The chart datum used by the chart radar is recorded in geodetic datum WGS-84; therefore, the geodetic datum setting on the GPS navigator must be WGS-84.

23. COMMON REFERENCE SYSTEM

- Gyro data:
 - Serial format gyro data is fed directly from a gyrocompass, thus adjustment of the heading indication on the chart radar is not necessary.
 - If synchro or stepper gyro data is fed to the chart radar, the heading indication on the chart radar must be adjusted to match that of the gyro. For the adjustment procedure, see section 1.17.
- Speed data:
 - Speed may be input from SDME or GPS.
 - SDME may be single-axis water speed or dual-axis ground speed.
 - GPS may be used to input COG/SOG.
 - Ground speed may also be taken from TT reference target.
 - Speed is entered from the [Setting] menu. For details, see section 1.16.

24. CONNING DISPLAYS

24.1 Main Conning Display

The main conning display provides relevant sensor information data (including engine data) from external equipment, on one display to facilitate safe and efficient monitoring. The ECDIS accepts sensor information data in analog, serial and contact signal formats.

Six sets of conning displays are available, and they are arranged at installation. Consult with the installer of the equipment to decide the content and layout of each display.

To show the conning display, click the Operating Mode button on the Status bar to select [CONNING for RADAR].

Note: Analog data is shown in the lowest value of the setting range when the data is not input.

Conning display Status bar (see next page)



Conning display Status bar

No.	Button	Description
1	Operating mode	Selects the operating mode, [RADAR], [CHART for RADAR] or [CONNING].
2	Conning display sheet	Selects the conning display sheet to use, Sheet.1 - Sheet.6. (Sheet name is decided at installation. "Sheet x" (x=sheet number) is the default sheet name.)
3	[SILENT]	Goes to the [SILENT] mode. See section 6.7.
4	[TOOL]	Shows, hides the software keyboard; adjusts the volume of the key beep and audio alert. Shows, hides software keyboard Adjusts volume of key beep, audio alert TOOL ON OFF Key 2 Alert 2 Volume setting Key 100 To adjust a volume, put cursor in applicable box. Click up arrow to raise volume; down arrow to lower volume.
5		Selects a display palette. See section 1.5.
6		Adjusts the brilliance of a the monitor. See section 1.6.
7		Takes a screenshot. See section 1.21.
8		Displays AMS and conning software version and system information. The information shown in the figure may differ from your own. For System and System 2 see section 1.24. Display example
9	Date	See section 1.20.
10	Time	See section 1.20.

No.	Button	Description
11	Status Indicator 	- Rotates clockwise if the system is working properly. If it is not spinning the system is not working. Shortly after the working indicator stops spinning the buzzer sounds and the status LED turns red. Reset the power to restore normal operation. - If the primary display mode is specified during installation, the first letter of the primary mode name appears at the center of the working indicator as follows: C: Conning, E: ECDIS, R: Radar. The letter can be clicked to return to the primary display mode.

24.2 Conning Display Examples

Six conning display sheets are available, and the content, layout and name of each sheet can be customized, by the service technician. Below are some examples conning display sheets.

Example 1 (General navigation)

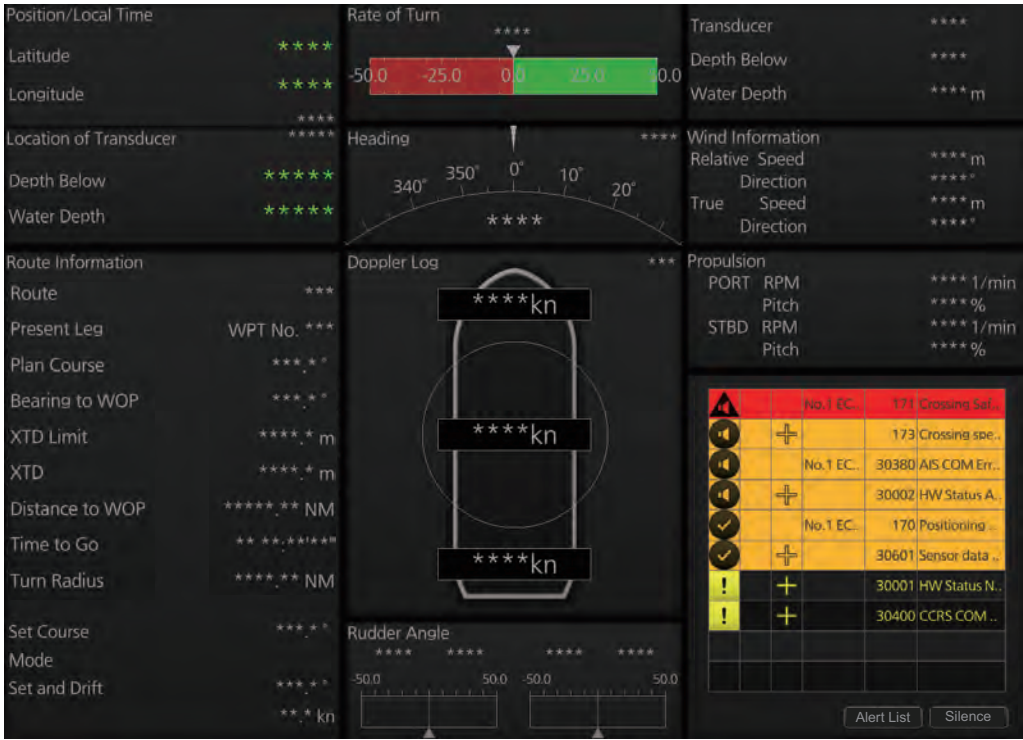


Example 2 (General navigation)**Example 3 (General navigation)**

Example 4 (General navigation)



Example 5 (All waters. navigation)



24. CONNING DISPLAYS

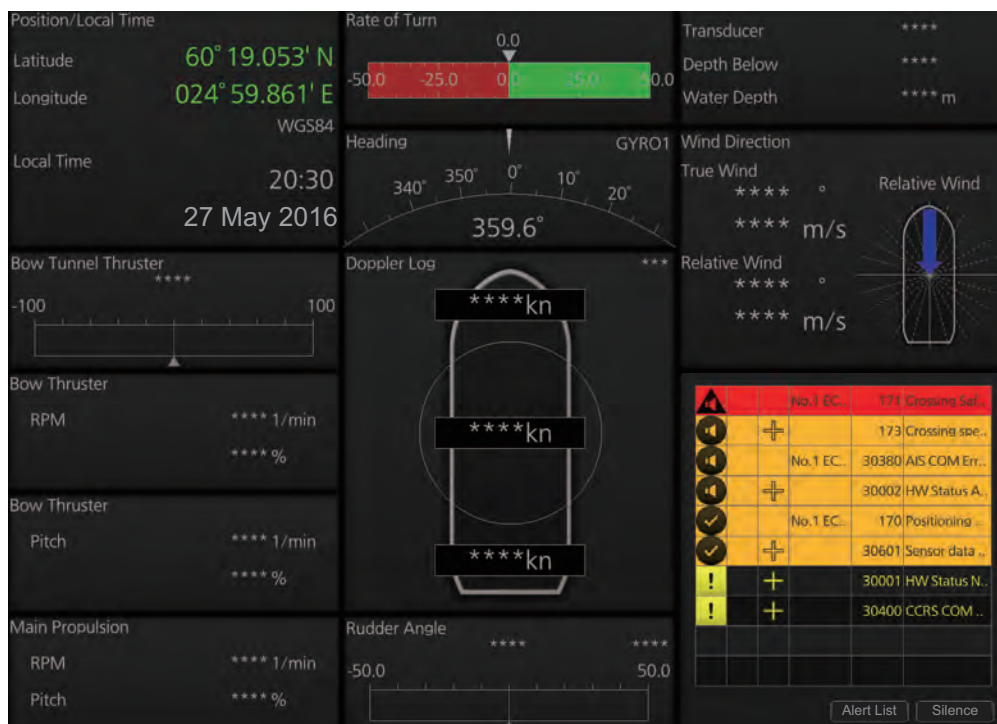
Example 6 (All waters, harbor)



Example 7 (Ocean, navigation)



Example 8 (Ocean, harbor)



Example 9 (Ocean, harbor)

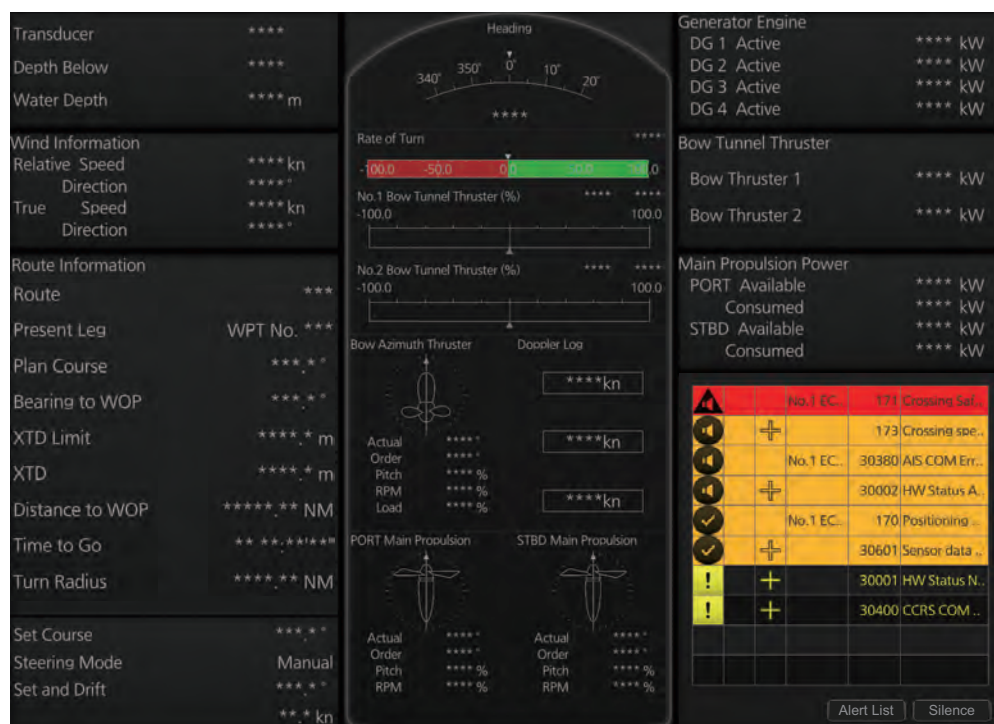


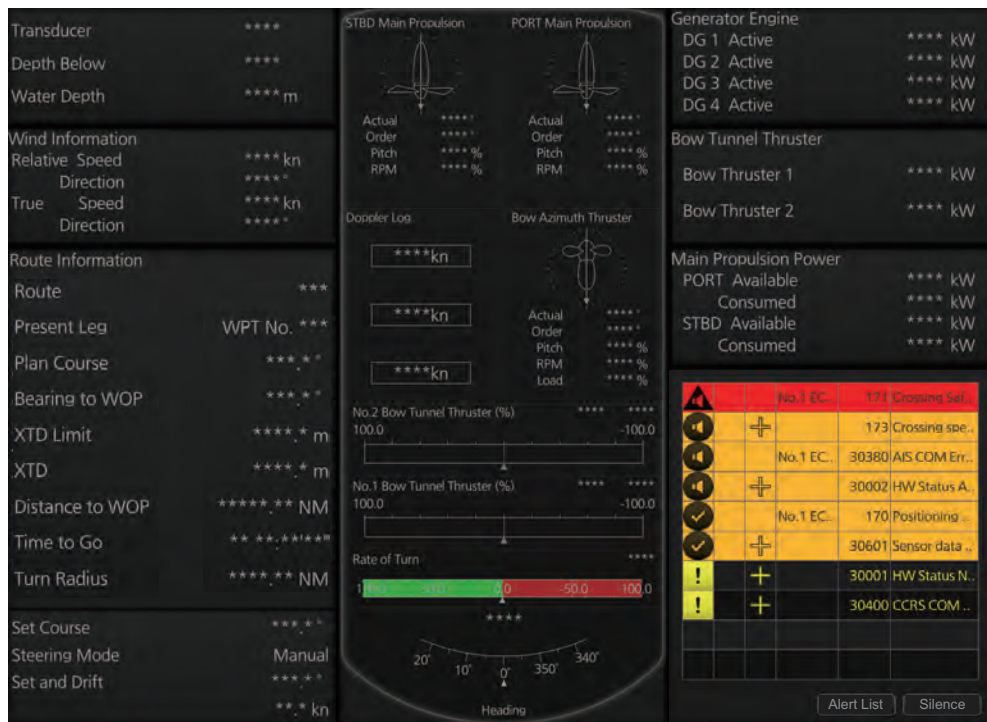
24. CONNING DISPLAYS

Example 10 (Ocean. harbor)

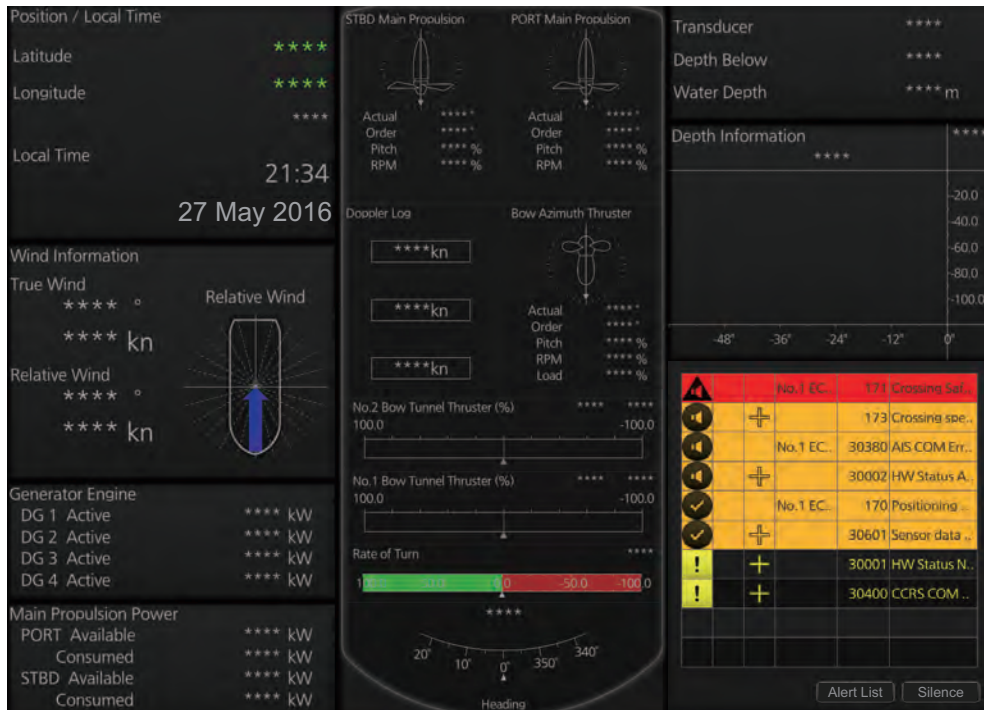


Example 11 (Offshore Service Vessel. Fore 1)



Example 12 (Offshore Service Vessel, Fore 2)**Example 13 (Offshore Service Vessel, Aft 1)**

Example 14 (Offshore Service Vessel, Aft 2)



24.3 Mini Conning Display

The mini conning display, available in the Voyage navigation mode, provides various navigation information and is set during the installation. The display example below shows heading, doppler log speed and rudder angle. To show or hide the mini conning display, click the [Mini Conning] button on the InstantAccess bar™.

To shift the mini conning display, right-click the mini conning display to show the context-sensitive menu. Click an option: [Left Top], [Left Middle], [Left Bottom], [Right Top], [Right Middle] or [Right Bottom].



24.4 Side Conning Display (landscape monitor only)

With the landscape monitor, the side conning display can be shown in the information area, in the radar mode. The presence or absence of the display is determined during the installation.

Four side conning sheets are preset during the installation according to expected usage, possible navigation conditions, etc. (The operator cannot modify the sheets.) You can select a sheet by clicking the current sheet name at the top right corner on the display.

