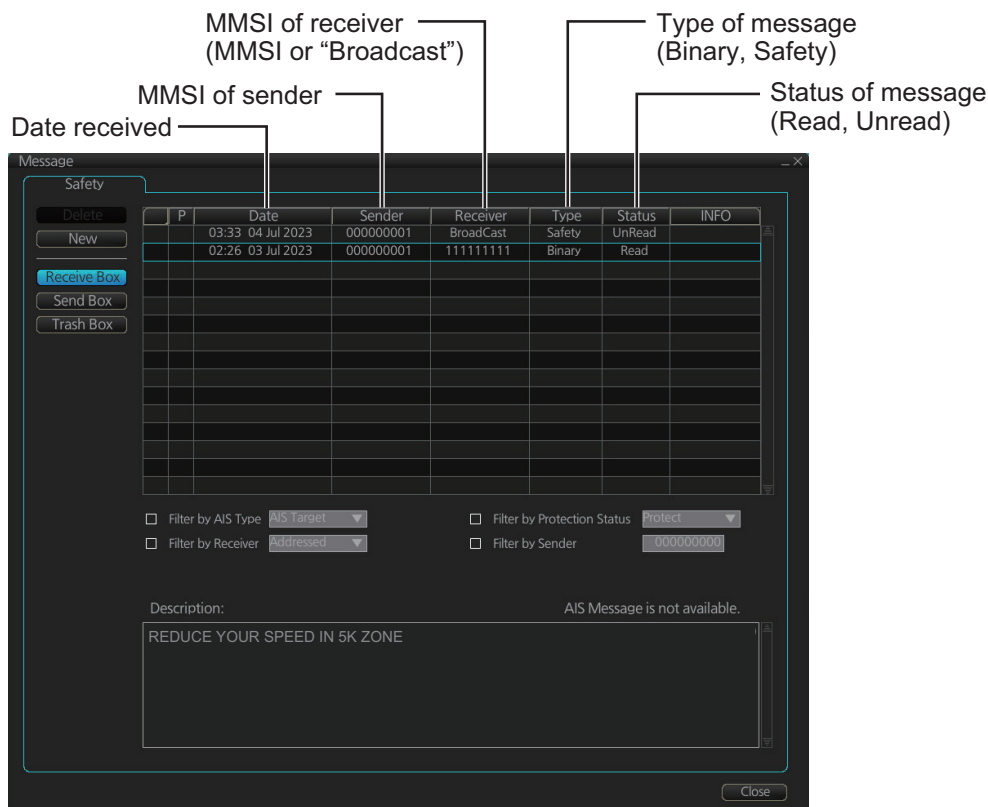
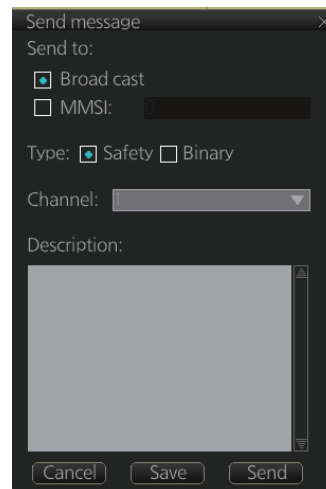


17. AIS SAFETY, NAVTEX MESSAGES

1. In the Voyage navigation mode, click the [MSG] and [Safety MSG] buttons on the InstantAccess bar™ to show the [Message] dialog box.



2. Click the [New] button.
3. At [Send to], select where to send the message. Select [Broadcast] to send the message to all AIS-equipped ships within communication range, or select [MMSI] and enter the MMSI of the ship where to send the message.
4. At [Type], select the type of message, [Safety] or [Binary] (routine).
5. At [Channel], select the channel to use to send the message.
6. At [Description], enter the text of your message. The no. of characters available depends on the type of message.



Safety message broadcast: 90 characters
 Binary message broadcast: 86 characters
 Safety message addressed to MMSI: 85 characters
 Binary message addressed to MMSI: 80 characters

7. Click the [Send] button to send the message.

Note 1: If an AIS transponder is not connected and you try to send an AIS message, the Alert "AIS MSG Send ERR" appears. Check the connection with the AIS transponder and retry sending the message.

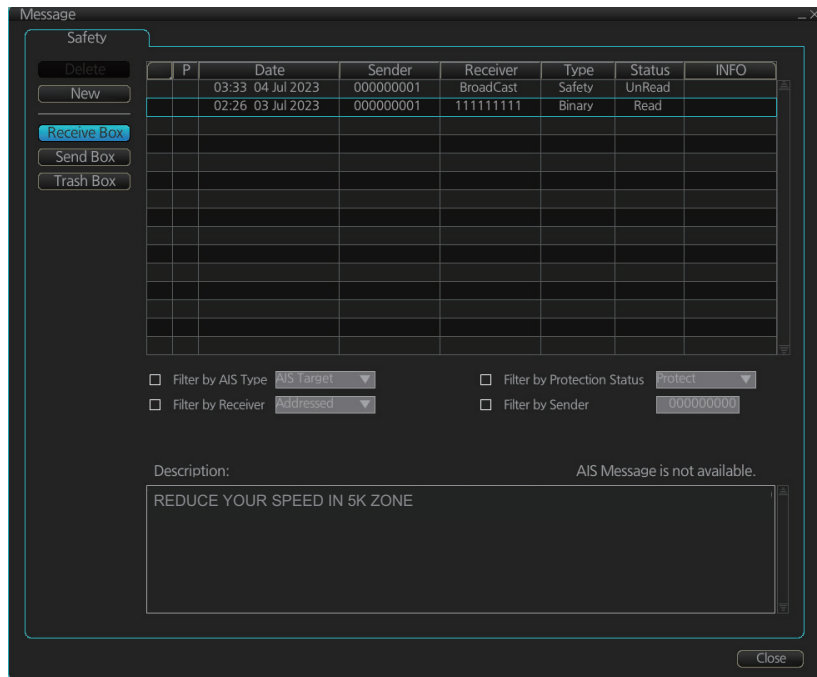
Note 2: If you enter an MMSI for an AIS whose DTE (Data Terminal Equipment) is unavailable at step 3, the following message appears and the message cannot be sent.

"AIS messages cannot be sent because the addressed AIS has no DTE."

17.1.2 How to display received and sent AIS safety messages

When an AIS message is received, the Alert "AIS MSG Received" appears. Do the following to view the message.

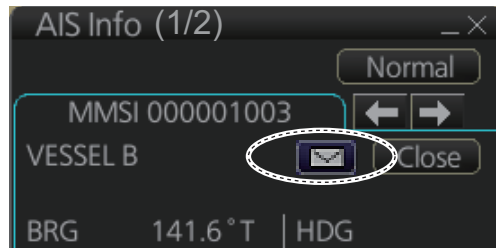
1. In Voyage navigation mode, click the [MSG] and [Safety MSG] buttons on the InstantAccess bar™.
2. Click the [Receive Box] or [Send Box] button as appropriate.
3. Click a message to view its contents.



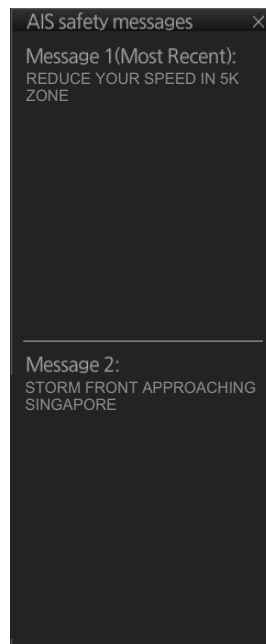
Note: If the ZDA sentence is not input to this system, the date and time appear in yellow color.

17.1.3 How to display a AIS safety message from the AIS info window

1. Open the [AIS Info] display, referring to "Expanded data" on page 18-9.
2. Click the mail icon (✉) at the top of the window.



3. The most recent and 2nd most recent AIS safety messages are displayed.



17.1.4 How to protect received AIS safety messages

You can protect important AIS safety messages received during your voyage from accidental deletion. Up to 20 each of addressed and broadcasted messages can be protected. Protected messages cannot be deleted until they are unprotected.

To protect a AIS safety message, do as shown below.

1. Put the cursor over the message you want to protect in the message list.
2. Right-click to display the context menu, then select the protection item.
3. If the protection is correctly applied, the padlock icon appears in the "P" column. Multiple selection is disabled when the lock icon is displayed.

Note: When 20 messages have already been protected and the type of AIS safety message is AtoN or SART, the protected item will be grayed out and cannot be selected.

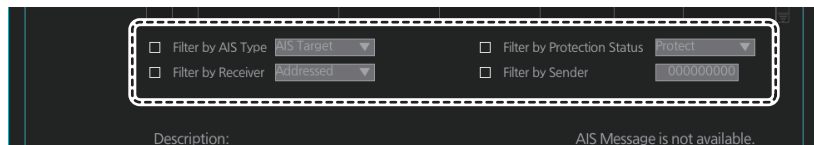
17.1.5 How to unprotect received AIS safety messages

1. In the "P" column in the AIS safety message list, put the cursor on the padlock icon of the message you want to unprotect.
2. Right-click to display the context menu, then select [Unprotect].
3. If the unprotection is correctly applied, the padlock icon disappears.

17.1.6 How to filter received AIS safety messages

You can filter AIS safety messages four ways: AIS type, RX message category, message protection status, and MMSI number.

In the AIS safety message list, use the drop down list boxes to select the filter type and filtering method.



- **[Filter by AIS Type]:** Select [AIS AtoN], [AIS Target], [AIS SART], or [AIS AtoN] from the list to display the messages received from the type selected.
- **[Filter by Receiver]:** Select [Addressed] or [BroadCast] to display the corresponding AIS safety messages.
- **[Filter by Protection Status]:** Select [Protected] or [Unprotected] to display the corresponding AIS safety messages.
- **[Filter by Sender]:** Enter the MMSI number to show the messages received from that MMSI.

17.1.7 How to delete received and sent AIS safety messages

Note: A large amount of messages may take some time to delete.

How to delete a received or sent message

1. Click the [Receive Box] or [Send Box] as appropriate.
2. Click the box that is before the date to show a check mark. (All messages can be checked or unchecked with the context-sensitive menu. Right-click the box to the left of "Date" then select [Check All] or [Uncheck All] as applicable.)
3. Click the [Delete] button.

How to delete received or sent messages permanently

1. Click the [Trash Box] button.
2. Click the box that is before the date to show a check mark. (All messages can be checked or unchecked with the context-sensitive menu. Right-click the box to the left of "Date" then select [Check All] or [Uncheck All] as applicable.)
3. Click the [Delete] button.

17.2 Navtex Messages

Navtex (Navigational Telex) is an international automated medium frequency direct-printing service for delivery of navigational and meteorological warnings and forecasts, as well as urgent marine safety information to ships.

Navtex messages can be received and read.

The [Receive Box] can store up to 500 messages. When the [Receive Box] is full and a new message is received, the system automatically deletes messages, in order, from the oldest message.

Note: If the message "Database access failure occurred. NAVTEX messages cannot be received." appears, your Navtex database may be corrupted. Consult your dealer for advice.

17.2.1 How to receive Navtex messages

To display a received NAVTEX message, do the following:

1. In Voyage navigation mode, click the [MSG] and [NAVTEX MSG] buttons on the InstantAccess bar™.
2. Click the message to view. The text of the message appears in the [Description] box.

Message protection status:
P = Protected
Blank = Un-protected

Date received

Frequency/
Message ID

Type of message

Message status:
Read or Unread

Where coordinates are included in the message, the latitude and longitude are displayed here. The chart is also appropriately marked with the MSI marker.

Where the selected message has a date range, the dates are displayed here.

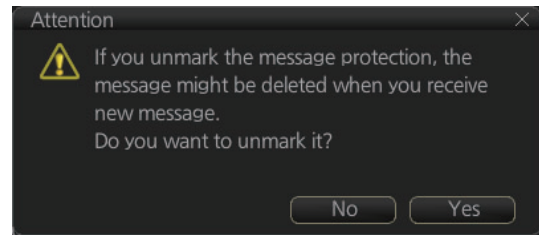
Date	Code	MessageType	Status
17:01 28 Jun 2016	518kHz/GA50	Navigational warning	Read
17:00 28 Jun 2016	518kHz/GA53	Navigational warning	Read
15:07 28 Jun 2016	518kHz/GB88	Meteorological warning	Read
15:04 28 Jun 2016	518kHz/HB73	Meteorological warning	Read
17:27 27 Jun 2016	518kHz/IA77	Navigational warning	Read
17:25 27 Jun 2016	518kHz/IA88	Navigational warning	Read
17:12 27 Jun 2016	518kHz/HA37	Navigational warning	Read
17:05 27 Jun 2016	518kHz/GA47	Navigational warning	Read

Latitude	Longitude
34 ° 32 .000 ' N	135 ° 05 .000 ' E

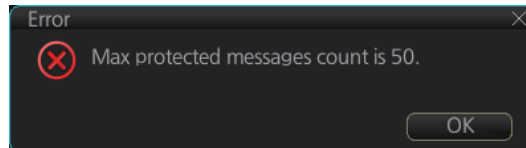
281700 UTC JUN 16
JAPAN NAVTEX N.W. NR 1357/16
OKINAWA SHIMA, EAST SOUTHEASTWARD,
GUNNERY, 2100Z TO 0900Z COMMENCING DAILY

- You can filter the displayed messages.
To filter by date: Enter the date range for displayed messages in the [Date Range(UTC)] input area. To clear the filter, click the [Clear] button. Check the Filter by Date box to activate the filter.
To filter by distance: Check the [Filter by Distance] box to activate the [Distance from Own Ship] input area. Enter the appropriate distance (setting range: 1 to 100 NM).

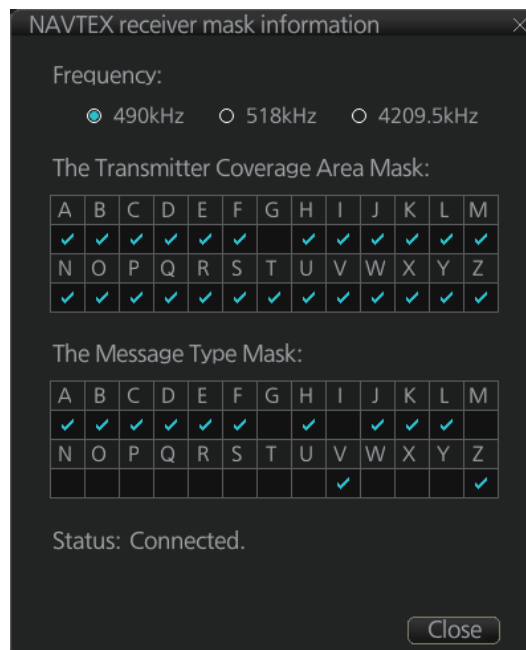
- To protect a message, or remove the protection, click the protection status column for the message. When removing protection, the confirmation window shown below appears. Select [Yes] or [No] as appropriate.



Note: You can protect up to 50 messages. When you try to protect more than 50 messages, the message shown below appears.



- You can check the settings for the Navtex receiver (if connected). Click the [Receiver] button to show the settings.



17.2.2 How to delete received Navtex messages

Note: A large amount of messages may take some time to delete.

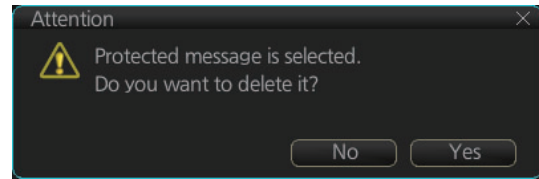
How to delete received Navtex messages

- Click the [MSG] and [NAVTEX MSG] buttons on the InstantAccess bar™.
- Click the [Receive Box] button.
- Click the selection column (indicated in the figure at section 17.2.1) to show a checkmark in the box. (All messages can be checked or unchecked with the context-sensitive menu. Right-click the box to the left of "P" then select [Select All] or [Deselect All] as applicable.)

17. AIS SAFETY, NAVTEX MESSAGES

4. Click the [Delete] button. The selected message is sent to the [Trash Box]. The [Trash Box] can hold up to 200 messages.

Note: If a protected message is selected for deletion, the confirmation message shown to the right appears. Click [Yes] to delete the protected message or [No] to cancel deletion.



How to deleted received Navtex messages permanently

1. Click the [MSG] and [NAVTEX MSG] buttons on the InstantAccess bar™.
2. Click the [Trash Box] button.
3. Click the selection column (indicated in the figure at section 17.2.1) to show a checkmark in the box. (All messages can be checked or unchecked with the context-sensitive menu. Right-click the box to the left of "P" then select [Select All] or [Deselect All] as applicable.)
4. Click the [Delete] button.

18. TT AND AIS DISPLAYS

Tracked targets and AIS objects can be overlaid on the chart. Only the differences between the radar and chart TT and AIS displays are described here.

The data of received radar-tracked targets must have reference to ground. If the data does not meet that criteria, target vectors are not shown and the indications COG and SOG in the TT info data box show [missing].

18.1 TT Display

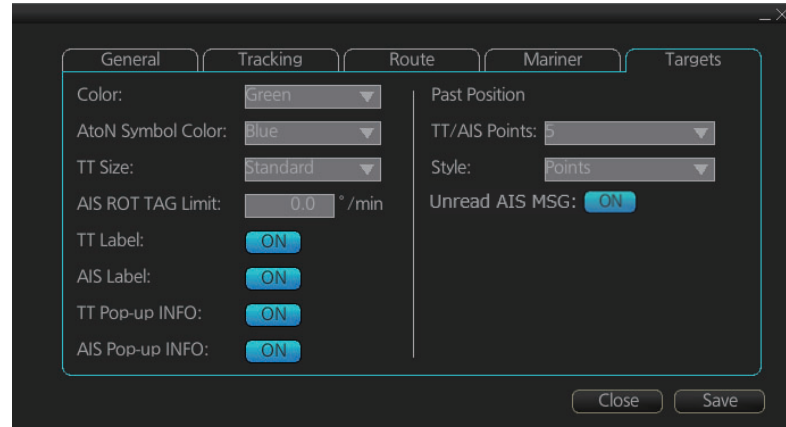
18.1.1 TT symbols

Refer to subsection 3.7.1.

18.1.2 TT symbol color and size

Do the following to select TT symbol color and size. Note that the color of the AIS symbol is also changed.

1. Click the [DISP], [SET] and [Symbol DISP] buttons on the InstantAccess bar™ to show the [Symbol Display] menu.
2. Click the [Targets] tab.

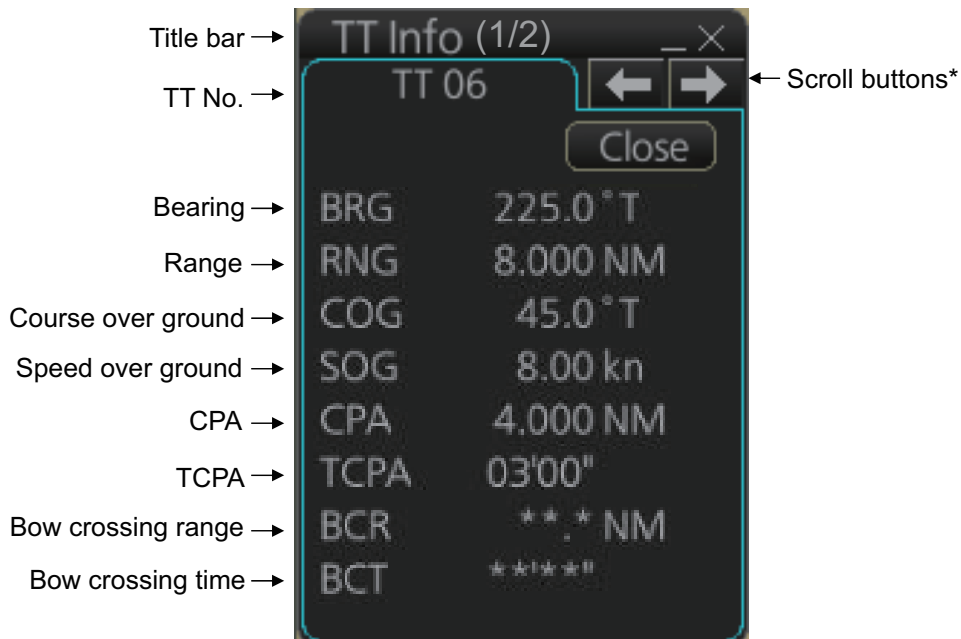


3. Select the color among, green, blue, black, magenta and brown, with the [Color] pull-down list.
4. Select the size from standard or small, with the [TT Size] pull-down list.

18.1.3 How to display tracked target data

Control Unit: Put the cursor on a target then push the **TARGET DATA** key.

Trackball module: Click the target for which you want to show its data.



*: Scroll buttons appear only when there is more than one TT target's data displayed.

To erase data from a data box, click the close (×) button.

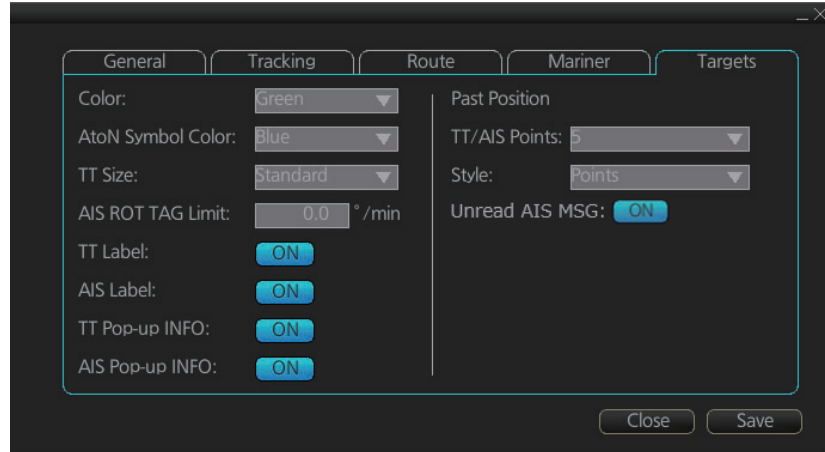
The basic target data display for a TT consists of the following information:

- Target's number. Target numbering starts from "01". When a target is erased the number will not be reused until the power is re-set or more than 200 targets are acquired.
- Bearing (BRG) and distance (RNG) of the target from own ship
- True speed (SOG) and true course (COG) of the target
- CPA and TCPA. A negative TCPA value means that you have already passed the closest point and the TT is going away from own ship.
- Bow Crossing Range (BCR) and Bow Crossing Time (BCT)

18.1.4 Past position point attributes

You can define past position point attributes for tracked targets by points and style.

1. Click the [DISP], [SET] and [Symbol DISP] buttons on the InstantAccess bar™ to show the [Symbol Display] menu.
2. Click the [Targets] tab.

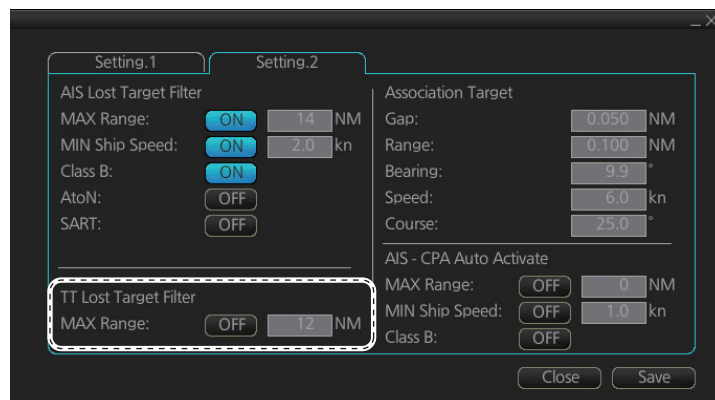


3. At [TT/AIS Points], select the number of points to show, 5 or 10.
4. At [Style], select the style for the past position points. The choices are [Points] and [Points and Dots].
5. Click [Save], then [Close] to apply the settings and close the menu.

18.1.5 How to set the TT lost filter

If you are in a congested area the lost alert may sound against many TT. In this case, you can prevent the alarm from sounding against TT that are beyond a certain range and/or smaller than a specific length.

1. Open the MENU and select [TT/AIS] and [Setting] then click the [Setting.2] tab.



2. In the [TT Lost Target Filter] window, set the maximum range to track a target. [MAX Range]: The maximum range at which to track a lost target. A tracked target not within this range is not tracked.
3. Click the [ON/OFF] button to show ON or OFF as appropriate.

18.1.6 TT recording functions

Tracked target information is saved to the [Danger Targets] log. See section 19.5.

18.2 AIS Display

18.2.1 AIS symbols

Refer to section 4.3.

18.2.2 Voyage data

Before you embark on a voyage, set your navigation status, ETA, destination, draught and the number of persons onboard, on the [Voyage Data] page in the [NAV Status] menu. The data entered here is reflected to the AIS transponder.

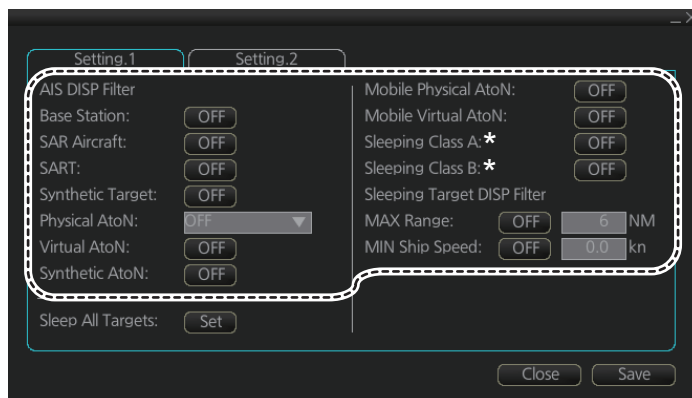
1. Open the MENU then click both [NAV Status] in the [TT/AIS] menu and the [Voyage Data] tab.

Display according to connected AIS transponder

2. Click the [Navigational Status] drop-down list then select your navigational status, from the list below.
 - Underway using engine
 - At anchor
 - Not under command
 - Restricted maneuverability
 - Constrained by her draught
 - Moored
 - Aground
 - Engaged in fishing
 - Under way sailing
 - Reserved for high speed craft
 - Reserved for wing in ground
 - Power driven vessel towing astern (regional use)
 - Power driven vessel pushing ahead or towing alongside (regional use)
 - Reserved for future use
 - AIS-SART (active)
 - Not defined
3. Enter the number of persons onboard (0-8191) at [Persons].
4. Enter ship's draught (0.0 - 25.5 (m)) at [MAX Draught].
5. Enter your ETA at [ETA].
[Day]: two digits; [Month]: Three-character abbreviation; [Year]: Four digits
6. Enter your destination at [Destination], using a maximum of 20 characters.
7. Use the [Cargo Type] pull-down menu to specify the type of cargo your vessel is carrying.
 - All ships of this type
 - Carrying DG, HS, or MP, IMO hazard or pollutant category X
 - Carrying DG, HS, or MP, IMO hazard or pollutant category Y
 - Carrying DG, HS, or MP, IMO hazard or pollutant category Z
 - Carrying DG, HS, or MP, IMO hazard or pollutant category OS
 - Reserved for future use (x4)
 - No additional information
8. Click the [Save] button to save the settings.

18.2.3 How to filter AIS objects

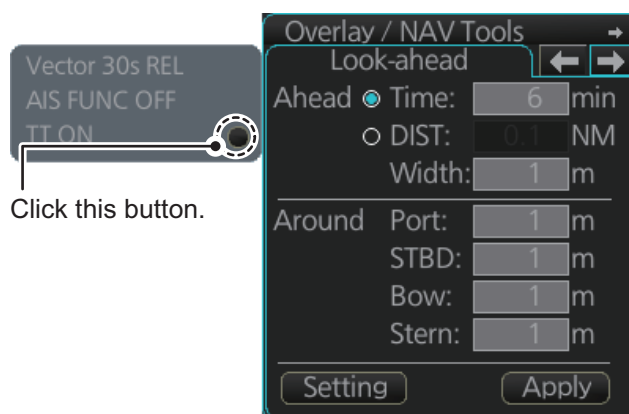
1. Right-click [AIS] on the [TT/AIS] page in the [NAV Tools/Overlay box], select [Setting] and open the [Setting.1] page.



* Not shown on IMO- or A-type specification.

Note: You can also access the [Setting.1] page with one of the following methods:

- From the main menu, select [TT/AIS], [Settings] and [Setting.1].
- Click the TT/AIS settings radio button (indicated in the figure below) from the Overlay/NAV Tools box. (The radio button is not available when the TT/AIS page is displayed.)



2. In the [AIS DISP Filter] window, set each item referring to the description below.
 - Click the button of [Base Station] to show [OFF] or [ON] to hide or show AIS base stations.
 - Click the button of [SAR Aircraft] to show [OFF] or [ON] to hide or show SAR aircraft.
 - Click the button of [SART] to show [OFF] or [ON] to hide or show AIS-SART.
 - Click the button of [Synthetic Target] to show [OFF] or [ON] to hide or show synthetic targets.
 - Select [OFF], [ON] or [UNHEALTHY] from the Physical AtoN. When [UNHEALTHY] is selected, only physical AtoN symbols with an error ("Off Posn", "Unlit", "Racon err", "Error" or "Missing") are displayed.
 - Click the button of [Virtual AtoN] to show [OFF] or [ON] to hide or show Virtual AtoN symbols.
 - Click the button of [Synthetic AtoN] to show [OFF] or [ON] to hide or show synthetic AtoN symbols.

18. TT AND AIS DISPLAYS

- Click the button of [Mobile Physical AtoN] to show [OFF] or [ON] to hide or show mobile physical AtoN symbols.
 - Click the button of [Mobile Virtual AtoN] to show [OFF] or [ON] to hide or show mobile virtual AtoN symbols.
 - Click the buttons of [Sleeping Class A] and [Sleeping Class B] to show [OFF] or [ON] to hide or show those targets.
 - Set the maximum range with [MAX Range]. A sleeping AIS target not within the range set here is not displayed.
 - Set the ship speed for AIS objects, with [MIN Ship Speed]. Any sleeping AIS target whose speed is slower than that set here will not be displayed.
3. Click the [Save] button to save settings. Click the [Close] button to close the dialog box.

Note: AIS object and tracked target viewing limitations are as follows:

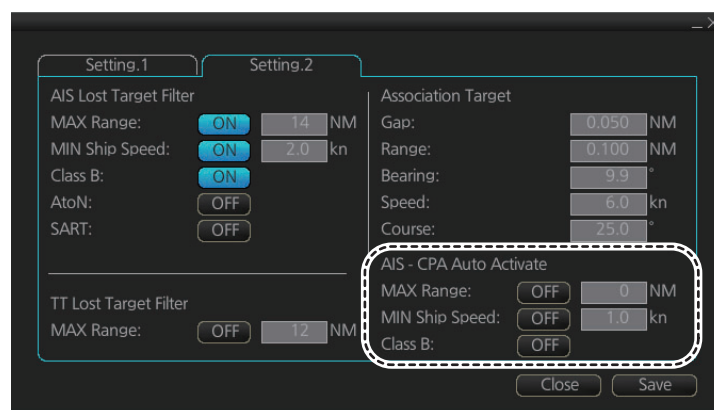
AIS objects and tracked targets are displayed on top of chart 1:1,000,001 for S57 charts.

18.2.4 How to set conditions for automatic activation of sleeping targets

The AIS target automatic activation feature is turned on or off from the [TT/AIS] page in the [Overlay/NAV Tools] box. Set the conditions for automatic activation as shown below. The CPA/TCPA alarm must be active to get automatic activation of AIS targets.

Right-click [AIS] on the [TT/AIS] page in the [NAV Tools/Overlay box], select [Setting] and open the [Setting.2] page.

Note: Only AIS targets (class A and B AIS targets and SAR vessels) are activated.



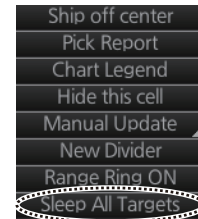
18.2.5 How to sleep all activated targets

You can sleep all activated targets by two methods, from the menu, and directly on the chart.

Note: You can sleep only AIS targets (class A and B AIS targets and SAR vessels).

Sleep all activated targets from the chart display

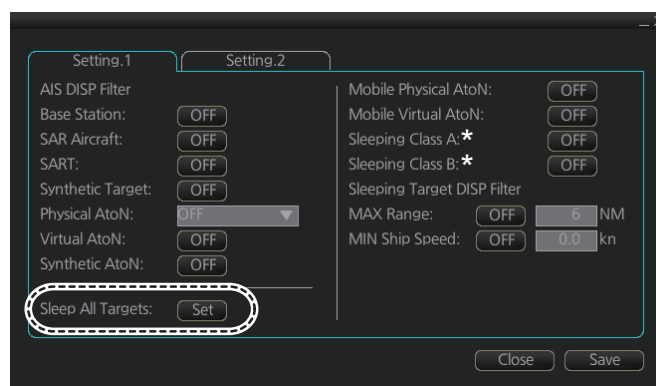
Right click the chart display to show the pop-up menu, then click the [Sleep All targets] button.



Context-sensitive menu
(Voyage navigation mode)

Sleep all activated targets from the menu

1. Open the [Overlay/NAV Tools] box, then right click [AIS].

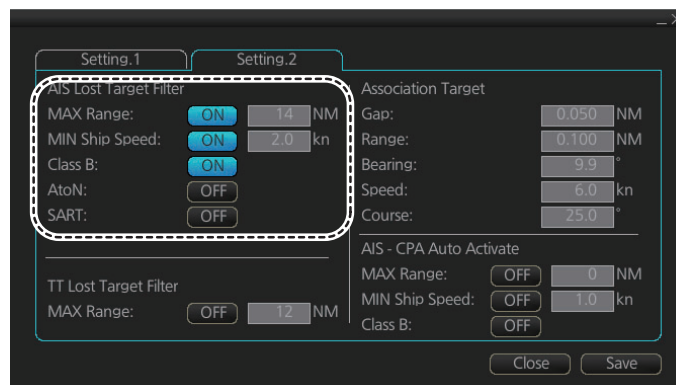


* Not shown on IMO- or A-type specification.

2. Click the [Set] button of [Sleep All Targets].
3. Click the [Save] button to save settings. Click the [Close] button to close the dialog box.

18.2.6 How to set the AIS lost filter

You can select what AIS objects to exclude from the AIS lost alert, on the [Setting.2] page in the [TT/AIS] menu.



[MAX Range]: Set the max. range at which AIS objects must be to be declared a lost alert.

[MIN Ship Speed]: AIS objects whose speed are slower than set here does not trigger the lost alert.

[Class B]: Select [ON] to exclude class B AIS targets from the lost alert.

[AtoN]: Select [ON] to exclude AIS AtoN from the lost alert.

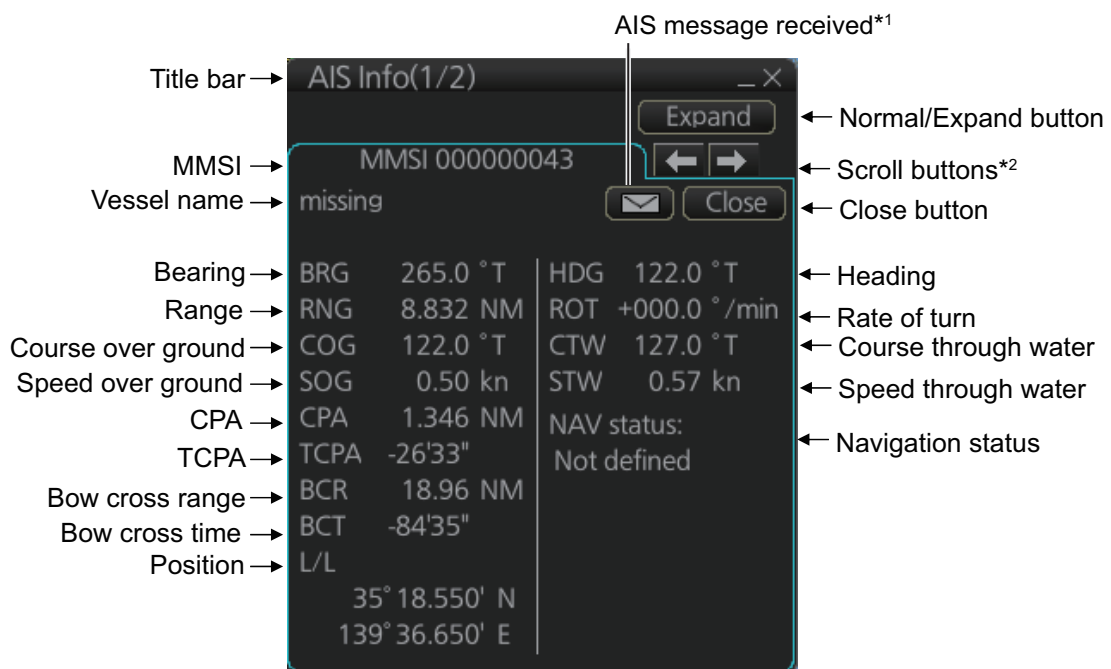
[SART]: Select [ON] to exclude AIS-SART from the lost alert.

Note: If some menu item on the [AIS Lost Target Filter] or [TT Lost Target Filter] is set to [ON] or [MAX Range] for [TT lost Target Filter] is set to [ON], the message "Some lost warning function is disabled." appears in the permanent warning box.

18.2.7 How to display AIS data

Normal data

Put the cursor on a desired AIS symbol then push the left button. The following figure is an display example for an AIS target. The data changes according to the AIS object type. See "AIS object type and available AIS data" on page 18-10.

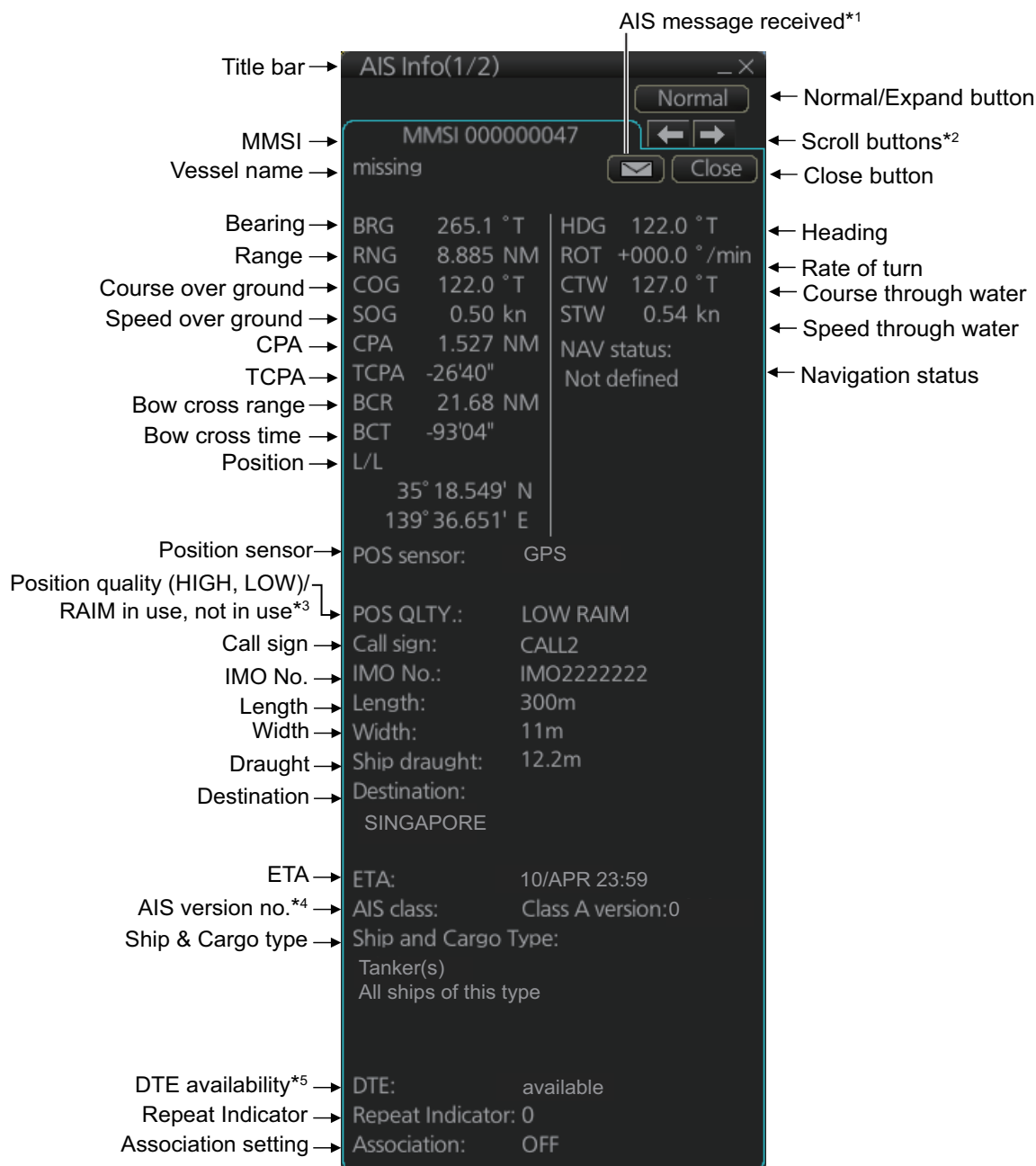


*1: The icon appears when an AIS message is received from an AIS object. Click the icon to show the AIS message(s). A maximum of the two latest messages is displayed.

*2: Scroll buttons appear only when there is more than one AIS object data displayed.

Expanded data

Put the cursor on a desired AIS symbol then push the left button. Click the [Expand] button (level of detail) on the [AIS Info] box to show expanded AIS data. The following figure is an display example for an AIS target. The data changes according to the AIS object type. See "AIS object type and available AIS data" on page 18-10.



*1: The icon appears when an AIS message is received from an AIS object. Click the icon to show the AIS message(s). A maximum of the two latest messages is displayed.

*2: Scroll buttons appear only when there is more than one AIS object data displayed.

*3: "RAIM" (Receiver Autonomous Integrity Monitoring) appears after position quality indication when RAIM is in use.

*4: Version of AIS transponder is shown only for the class A AIS targets.

*5: Message sent to AIS object when DTE (Data Terminal Equipment) cannot be used.

AIS object type and available AIS data

The AIS data available depends on the AIS object type. The table below shows the data available for each AIS object type.

Display item	Class A	Class B	Base station	SAR aircraft	AtoN	SART	Synthetic (DISTRESS)	Synthetic (VTS)
Name	✓	✓	✓	✓	✓	✓	✓	✓
Call	✓	✓	—	✓	—	—	—	✓ ^{*1}
L/L	✓	✓	✓	✓	✓	✓	✓	✓
POS sensor	✓	✓	✓	✓	✓	—	—	—
POS QLTY.	✓	✓	✓	✓	✓	✓	—	—
POS indicator	—	—	—	—	✓	✓	—	—
COG	✓	✓	—	✓	—	✓	—	✓
SOG	✓	✓	—	✓	—	✓	—	✓
NAV status	✓	—	—	— ^{*2}	✓ ^{*3}	✓	—	—
MMSI No.	✓	✓	✓	✓	✓	✓	—	✓ ^{*4}
IMO No.	✓	—	—	—	—	—	—	✓ ^{*5}
Length	✓	✓	—	✓	✓	—	—	✓
Width	✓	✓	—	✓	✓	—	—	—
Ship draught	✓	—	—	—	—	—	—	—
DEST.	✓	—	—	—	✓	—	—	—
ETA	✓	—	—	—	—	—	—	—
Start date	—	—	—	—	—	—	✓	—
End date	—	—	—	—	—	—	✓	—
AIS class	✓	✓	—	—	—	—	—	—
Association	✓	✓	—	—	—	—	—	—
Ship and Cargo Type	✓	✓	—	—	✓	—	—	—
Repeat Indicator	✓	✓	✓	✓	✓	✓	✓	✓
DTE	✓	✓	—	—	—	—	—	—

^{*1}: Displayed when Call Sign is enabled during VTS.

^{*2}: Where the selected AIS object is an aircraft, the aircraft's altitude appears.

^{*3}: Mobile, RACON/Light (at AtoN) are used as AtoN status.

^{*4}: Displayed when MMSI No. is enabled during VTS.

^{*5}: Displayed when IMO No. is active during VTS.

18.2.8 How to display own ship data

You can see own ship's data on the [Own Ship] page in the [NAV Status] menu. Open the menu then click both [NAV Status] in the [TT/AIS] menu and the [Own Ship] tab.

Own Ship		Voyage Data	
MMSI:	457804356	Length(LOA):	223.2 m
Name:	FURUNO Voyager	Width:	31.8 m
Call Sign:	JZ5890312	Ref Bow:	3.3 m
Type:	0	Ref Port:	2.8 m
Description:	All ships of this type		

18.3 Association

An AIS-equipped ship is usually displayed by two symbols on the chart for radar display. This is because the AIS ship position is measured by a GPS navigator (L/L) whereas the radar detects the same ship by PPI principle (range and bearing relative to own ship radar antenna).

To avoid the presentation of two target symbols for the same physical target, use the “association” function. If target data from both AIS and TT are available and if the association criteria are fulfilled, either the AIS or TT symbol is presented according to the association method selected.

Association will not happen between AIS and TT if the AIS target is sleeping or the AIS target is lost.

All association settings, including ON/OFF, can also be controlled from the radar mode, with the [TT/AIS] setting box (see section 4.14). All settings are mutually shared.

Note: Only activated class A and B AIS targets are subject to the association function.

18.3.1 How to select association method

Click the location circled below to show "<" to select AIS symbol for associated target, or ">" to select TT symbol for associated target. This setting overrides the corresponding item on the [TT/AIS] menu. To turn off association, click the location to remove the arrow.

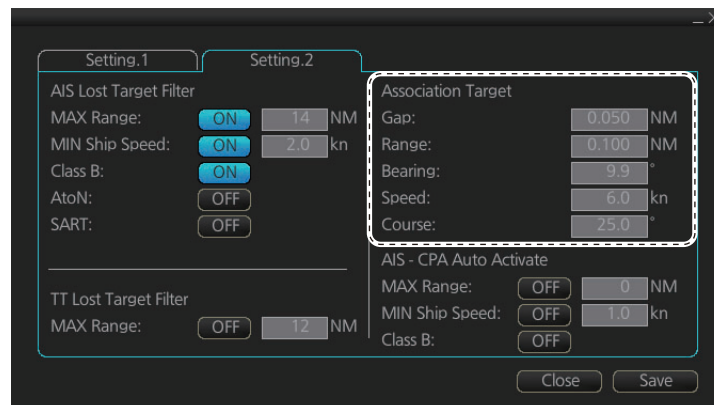


Note: You can also select the method by right-clicking the location. Click desired association method.

Association: OFF
Association: TT
Association: AIS

18.3.2 How to set the conditions for association

To set the criteria for association, right-click [AIS] on the [TT/AIS] page in the [NAV Tools/Overlay] box, select [Setting] and open the [Setting.2] page. For setting details, see subsection 4.14.2.



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 7.12).
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:

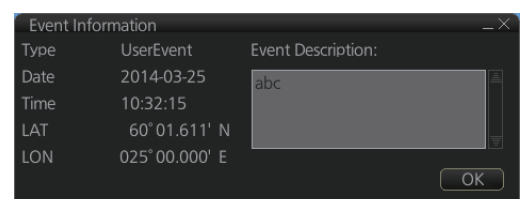
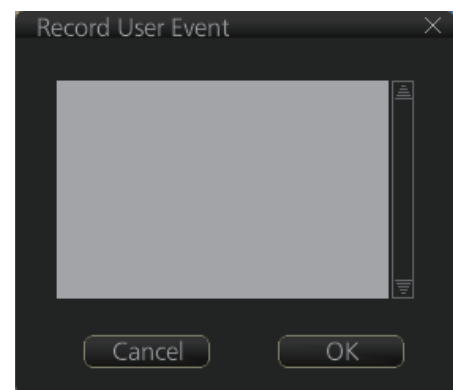
1. Get into the Navigational or Voyage planning mode then click the [Log], [Event Log] and [User Event] buttons on the InstantAccess bar™ to show the [Record User Event] window.
2. Enter a comment. Click the [OK] button to finish and close the text box.

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.

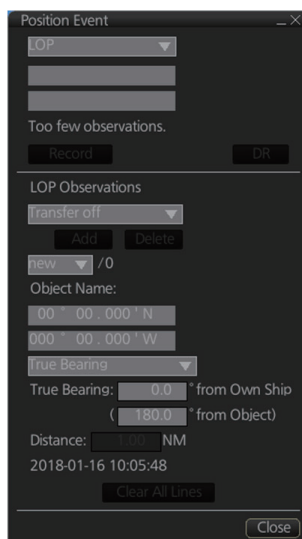


19.1.2 Position events

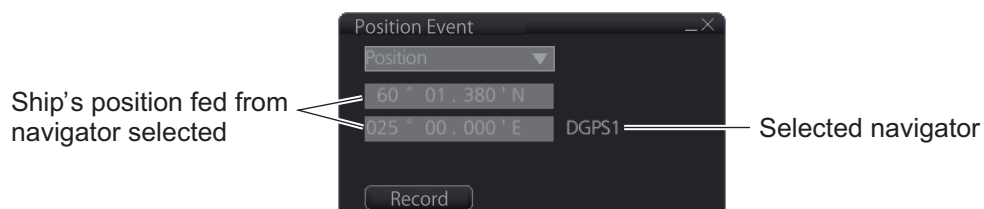
The operator may manually save positions to the [Event] log by position or LOP (Line of Position):

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.



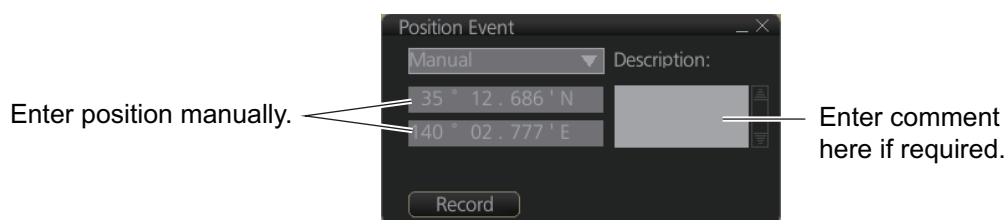
2. At the list box at the top of the dialog box, select position type.
 [Manual]: Manual input of ship's position. Go to step 4.
 [LOP]: Latitude and longitude position of a fixed object at ship's position. Go to step 5.
 [Position]: Ship's position fed from navigator selected. Go to step 3.
3. For [Position],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



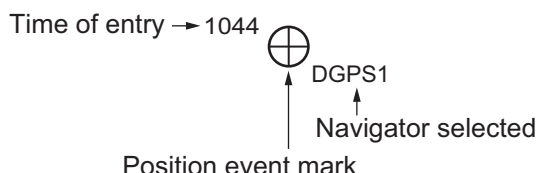
The position event mark appears at the ship's position. The position is recorded to the [Voyage] log.



- 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).

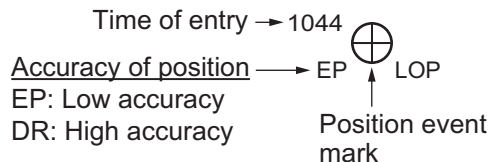
Time transfer: If the observations are not simultaneous, they should be transferred to a common time. Transferring is based on dead reckoning of ship movement. If a position line (or ring) is transferred, the letters TPL are shown beside its timestamp on the chart. The method of transfer may be selected 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.

Event Information

Type	POSNEvent	Event Description:
Date	2014-04-17	Dead Reckoning
Time	10:39:06	
LAT	34° 44.071' N	
LON	135° 40.040' E	
DataSource	Dead Reckoning	OK

Position event: Position

Event Information

Type	POSNEvent	Event Description:
Date	2014-04-17	abc
Time	10:39:49	
LAT	34° 44.255' N	
LON	135° 40.144' E	
		OK

Position event: Manual

Event Information

Type	POSNEvent	Event Description:
Date	2014-04-17	LOP EP / 1:34° 45.589'N 135° 40.934'E 000.0° /2:34° 45.250'N 135° 40.555'E
Time	10:44:35	
LAT	34° 45.657' N	
LON	135° 40.934' E	
		OK

No.	Lat	Lon	Type
1	34° 45.488' N	135° 40.877' E	Bearing
2	34° 45.250' N	135° 40.555' E	Bearing

Position event: LOP

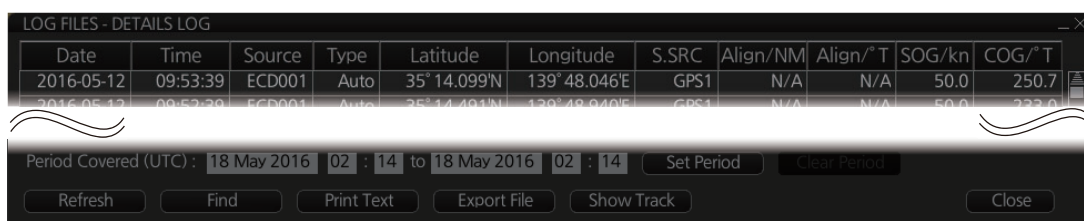
19.2 Details Log

The [Details] Log records the voyage information for the last 24 hours. Information is recorded every minute.

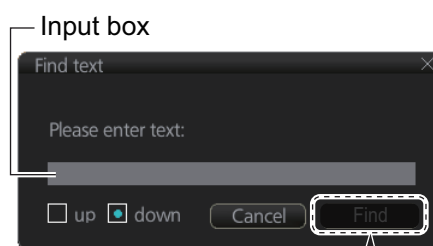
- Date of entry
- Time of entry
- Source: No. of unit which generated log
- Type: Type of position data
 - Auto: Automatic input of position
- Latitude, Longitude, S.SRC: Position as output by selected sensor and sensor used as the data source.
- Align/NM, Align/°T: Range, bearing offset, if used
- SOG/kn,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

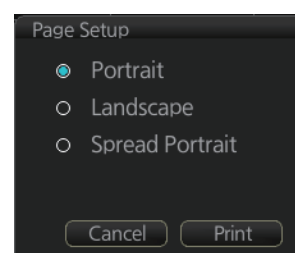
Click the [Log], [NAV Log] and [Detail] buttons on the InstantAccess bar™.



- **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

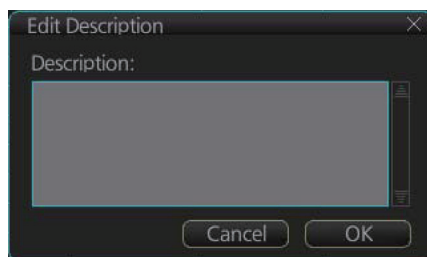
The [Voyage] log records all voyage-related data of the past three months. Recorded events are:

- 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
--

- 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: Gyro correction value, 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

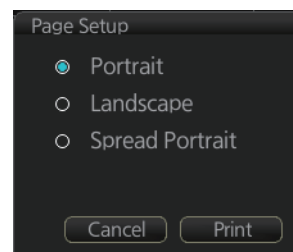
To open the Voyage log, click the [Log], [NAV Log] and [Voyage] buttons on the InstantAccess bar™.

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

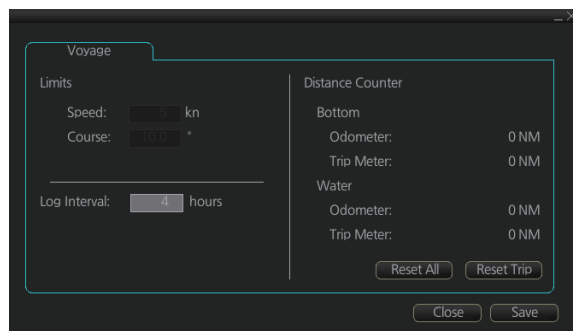
The operator can set the conditions for automatic voyage logging (logging interval only). When the following conditions are met, data is stored into the Voyage log.

- 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

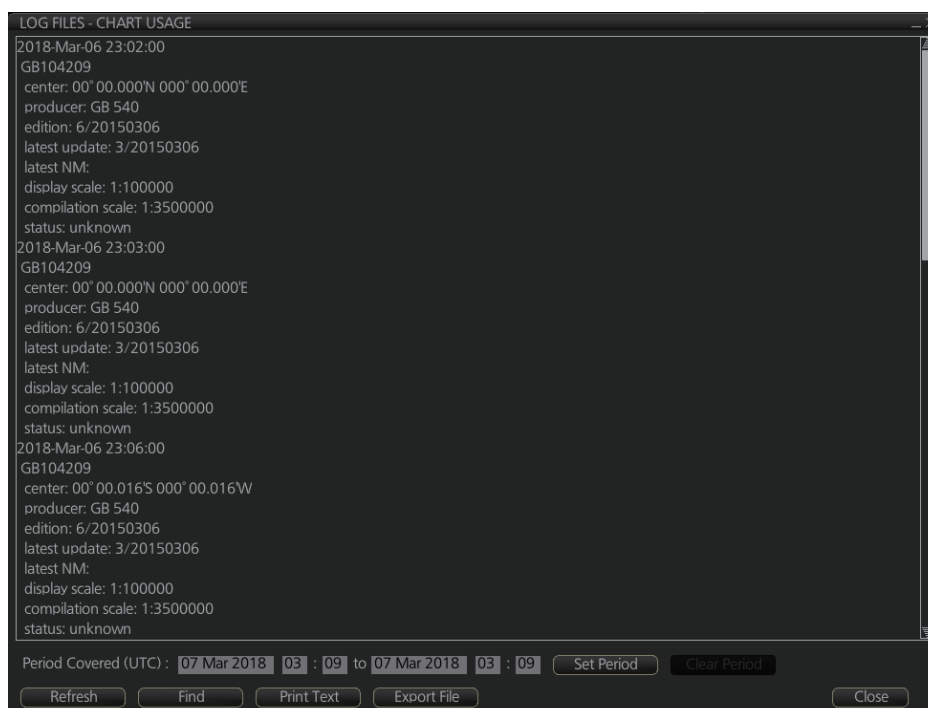
When your speed or course changes by the amount set here, an entry is made in the [Voyage] log, at the interval selected.



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 export the log**, click the [Export File] button. The file is named ChartUsageLogYYYYMMDDhhmmss.txt.
- **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:

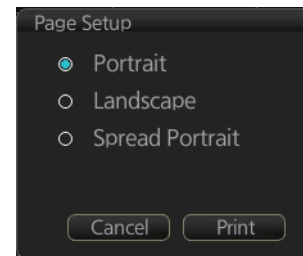
- Date: Date of entry
- Time: Time of entry
- Source: Unit which generated log
- Type: Type of dangerous target
- Target ID: When [Type] is [TT] - Dangerous target's number.
When [Type] is [AIS] - MMSI number
- Latitude and Longitude: Latitude and longitude position of dangerous target
- SPD/kn: Speed 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™.

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

- **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.

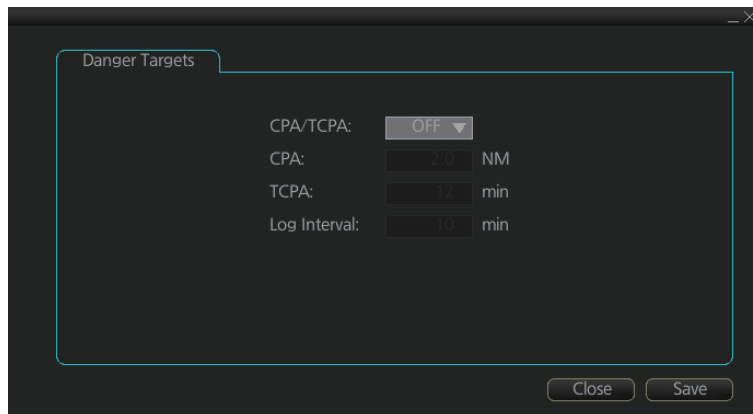


19.5.1 How to filter the danger targets log

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.

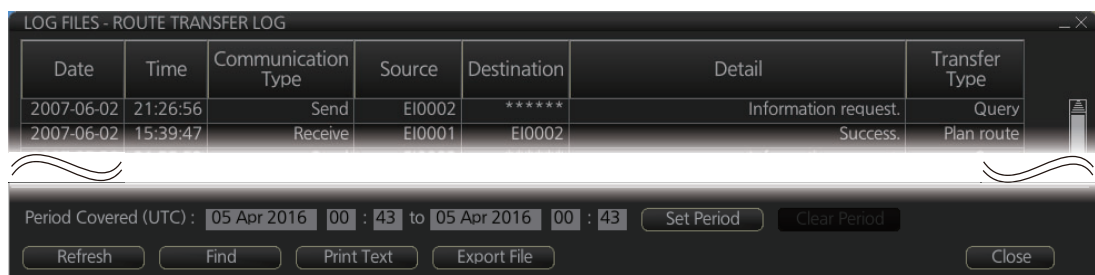
- RRT sentence is sent from this system.
- RRT sentence is received by this system.
- A sent RRT sentence is not acknowledged by an external device.

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 namedRouteTransferLogYYYYMMDDhhmmss.csv.

20. ALERTS

This chapter describes how the internal alert system works. For a complete list of alerts, See "ALERT LIST" on page AP-24.

Note 1: This equipment does not provide the functional alert group function.

Note 2: The reserved cluster identifier for this equipment, which is defined in IEC62923-2, is "Nav".

Note 3: Do not connect/disconnect the LAN cable while turning the power on.

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 five alert priorities: emergency*, alarm, warning, caution, and indication.

* 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.** The navigation equipment does not generate emergency alerts.

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.

Indication: Display of regular information and conditions, not part of alert management. Indication alerts are handled the same as a Caution.

Alert category

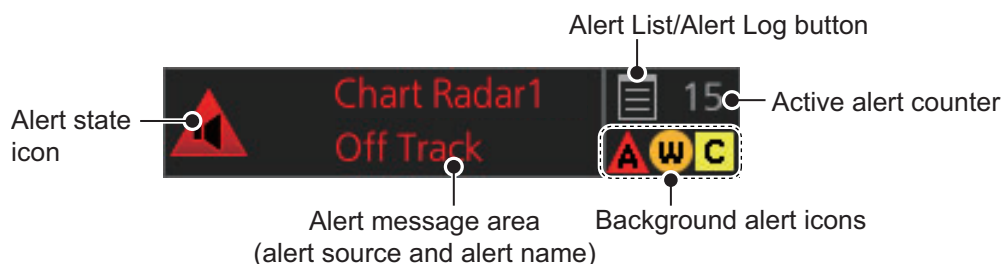
An alert is further classified by category, A, B or C, according to its degree of severity or source.

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	Alerts for other than navigation equipment (ex: 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. When no active alert and indication occurs, "No Active Alerts" appears in the [Alert] box.

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



Alert state icon: The state of an alert is shown with an icon. See page 20-3.

Alert message area: The alert message area shows the name of the active alert with the highest priority, together with the alert source. 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:

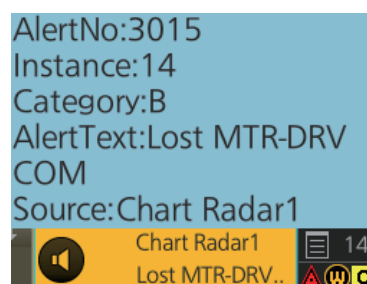
- Radar mode: Click to open the alert list bar (see section 2.38.2). Right-click and select [Alert List/Log Window] to open the [Alert List/Log] window. See section 20.5 and section 20.6 for a description of the list and log respectively.
- Chart mode: Click to open the [Alert List/Log] window. Right-click to select [Alert List] or [Alert Log]. The background color of the button is light blue when the [Alert List/Log] window is open. See section 20.5 and section 20.6 for a description of the list and log respectively.

Background alert icon: Shows the alert priority icon (A: alarm, W: warning, C: caution) of alerts, other than the alert currently displayed in the alert box. Background alert icons are shown only when two or more alerts are active. The icons are disappeared when alerts are acknowledged and rectified, and one or less alert is active.

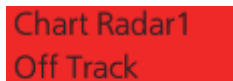
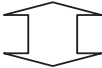
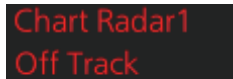
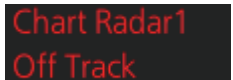
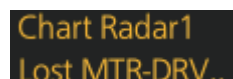
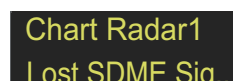
Active alert counter: The active alert counter shows the number of active alerts, excluding the alert whose priority is Indication. This counter shows when two or more active alerts are generated.

How to find details about an alert

Place the cursor on the alert message area to show details about an alert.



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.
	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, Indication	Not rectified.	Yellow characters on gray background.
	Alarm, Warning	Acknowledged/Rectified.	No display.
	Emergency, Caution, Indication	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. Flashing icons flash every other second.

Icon	Alert state	Visual Indication	Audible alert	
Alert priority: Emergency				
1		Not acknowledged/ Not rectified	Red, flashing	Silent
Alert priority: Alarm				
2		Not acknowledged/ Not rectified	Red, flashing	3 short, audible alerts repeated every 7 seconds.
3		Not acknowledged/ Not rectified, Buzzer temporarily silenced	Red, flashing	Silent
4		Acknowledged/ Not rectified	Red	Silent

Icon	Alert state	Visual Indication	Audible alert
5 	Active - responsibility transferred alarm	Red	Silent
6 	Not acknowledged/ Rectified	Red, flashing	Silent
Alert priority: Warning			
7 	Not acknowledged/ Not rectified	Yellow-orange, flashing	2 short, audible alerts repeated every 60 seconds.
8 	Not acknowledged/ Not rectified, Buzzer temporarily silenced	Yellow-orange, flashing	Silent
9 	Acknowledged/ Not rectified	Yellow-orange	Silent
10 	Active - responsibility transferred warning	Yellow-orange	Silent
11 	Not acknowledged/ Rectified	Yellow-orange, flashing	Silent
Alert priority: Caution			
12 	Caution	Yellow	Silent
Alert priority: Indication			
13 	Indication	Yellow	Silent
Other icons			
14 	Acknowledge not allowed for alarm	Red triangle. Presented together with icon numbers 2, 3 and 6.	Silent
15 	Acknowledge not allowed for warning	Yellow-orange. Presented together with icon numbers 7, 8 and 11.	Silent

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

When the buzzer for an alarm or warning sounds, you can temporarily silence it. Click the [Silence] button in the [Alert List] to temporarily silence the buzzer.

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 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	Not acknowledged/Not rectified
		2	Warning	Not acknowledged/Not rectified
		3	Alarm	Not acknowledged/Rectified
		4	Warning	Not acknowledged/Rectified
		5	Alarm	Acknowledged/Not rectified
Low		6	Warning	Acknowledged/Not rectified
		7	Caution, Indication	Not rectified

Note: Some category A alerts must be acknowledged from the display mode (radar or chart for radar mode) that generated the alert. These alerts are indicated with the alert icons shown the following table.

Alert icon	Alert state and meaning
	Acknowledge not allowed for alarm. This alert is generated from a different display mode and must be acknowledged at the mode in which it was generated.
	Acknowledge not allowed for warning. This alert is generated from a different display mode and must be acknowledged at the mode in which it was generated.

Category A alerts that can be acknowledged are listed in a table at "Alert state icons" on page 20-3, along with their respective icons and alert buzzer pattern.

Category of alert and place of alert acknowledgement

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

Category	Where alert notification occurs	Place of alert acknowledgement
A	Equipment that generated the alert and AMS* (Alert Management System).	Equipment that generated the alert.
B	Equipment that generated the alert and AMS	Equipment that generated the alert or AMS.
C	IAS (Integrated Automation System) generated alert for other than navigation equipment (ex: engine-related alert).	—

* A category A alert does not sound at the AMS.

20.5 Alert List

The [Alert List] displays all active alerts, with unacknowledged alerts at the top, in priority order.

Note 1: The [Alert List] cannot be opened while the radar is transmitting.

Note 2: A full list of alerts, along with their meaning and action required (if any) is supplied at the back of this manual.

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 unacknowledge alerts

To show the alert list, do the following operation.

- Radar mode: Right-click the [Alert List/Alert Log] button in the Alert box, select [Alert List/Log Window], then open the [Alert List] tab.
- Chart mode:
 - Click the [Alert List/Alert Log] button in the Alert box, then open the [Alert List] tab.
 - Right-click the [Alert List/Alert Log] button in the Alert box, then select [Alert List].

ACK ALL button Silence buzzer button

Decision Support (Information Icon Click on Each Alert) :

Remedy for the alert

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

No. of unacknowledged alerts
If there are no unacknowledged alerts, "0" is shown.

AlertNo	Instance	Description	Source	Occur	ACK
3024		Off Track	Chart Radar1	02:14:14	
3015	14	Lost MTR-DRV COM	Chart Radar1	00:31:47	
3015	9	Lost SPU	Chart Radar1	00:31:47	
10801	-	Depth Limit	Chart Radar1	01:04:30	
10645	-	Actual UKC Limit	Chart Radar1	01:04:30	
3015	27	Lost SDME Signal	Chart Radar1	00:31:47	
3015	24	Lost COG/SOG SIG	Chart Radar1	00:31:47	
3015	23	Lost Wind Signal	Chart Radar1	00:31:47	
3015	22	Lost UTC Signal	Chart Radar1	00:31:47	
3015	21	Lost Position	Chart Radar1	00:31:47	
3015	26	Lost Heading SIG	Chart Radar1	00:31:47	
3016	30	Lost AIS COM	Chart Radar1	00:33:47	-
10403	121	Lost TEMP COM	Chart Radar1	00:32:17	-
10403	111	Lost CURRENT COM	Chart Radar1	00:31:47	-
10403	11	Lost ROT Gyro1	Chart Radar1	00:31:47	-
10001	15	Main Monitor COM TL	Chart Radar1	00:34:23	-
10001	24	Processor Unit Fan2 R.	Chart Radar1	00:31:47	-
10002	15	Processor Unit Fan2 F.	Chart Radar1	00:31:47	-
10001	23	Processor Unit Fan1 R.	Chart Radar1	00:31:47	-
10002	14	Processor Unit Fan1 F.	Chart Radar1	00:31:47	-

Alert state icon Alert no./ Instance Alert name Alert source Time of alert Time of acknowledgement Information icon

The background color changes according alert state as follows.

Unacknowledged alert (flashing display): Emergency, Alarm, red; Warning, yellow-orange

Acknowledged alert (steady display): Alarm, red; Warning, Yellow-orange; Caution, Indication yellow

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

- Left column: Emergency, Alarm, Warning, Caution, Indication icons (numbers 1 to 13 in the table at "Alert state icons" on page 20-3).
- Right column: Alert icon for Alarm, Warning is shown (numbers 14 to 15 in the table at "Alert state icons" on page 20-3).

To find detailed information about an alert, place the cursor on the [Description] or [Source] field of the applicable alert.

To check the remedy for the alert, click the information icon of the applicable alert, the [Decision Support] box at the top of the window shows how to handle the alert.

The [ACK] button acknowledges the alert at the top of the Alert list. Alarm, and Warning categories can be acknowledged by clicking them in the list.

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 (Alarm)	2 (Alarm) 8 (Emergency)
2		Not acknowledged/Rectified	9 (Warning)	—
3	Warning	Not acknowledged/Not rectified	6	4
4		Not acknowledged/Rectified	10	—
5	Alarm	Acknowledged/Not rectified	—	9
6	Warning	Acknowledged/Not rectified	—	10
7	Caution, Indication	Not rectified	—	11
8	Emergency	Rectified	—	—
9	Alarm	Acknowledged/Rectified	—	—
10	Warning	Acknowledged/Rectified	—	—
11	Caution, Indication	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, Indication)
- Category of alert (A, B or C)
- Alert no., alert instance
- Alert name
- Source of alert
- Time (UTC) alert occurred
- Time (UTC) alert was acknowledged
- Time (UTC) alert was rectified
- Time (UTC) alert was silenced
- Time (UTC) alert was transferred to AMS
- Details for selected alert

To show the alert log, do the following operation.

- Radar mode: Right-click the [Alert List/Alert Log] button in the Alert box, select [Alert List/Log Window], then open the [Alert Log] tab.
- Chart mode:
 - Click the [Alert List/Alert Log] button in the Alert box, then open the [Alert Log] tab.
 - Right-click the [Alert List/Alert Log] button in the Alert box, then select [Alert Log].

The screenshot shows the 'Alert Log' window. At the top, there are filters for 'Priority' (Emergency, Alarm, Warning, Caution, IND) and 'Category' (A, B, C). Below these is a 'Log Search' box with 'Export Log', 'Reset', and 'Find' buttons. A pagination bar shows '1 / 26' with navigation arrows. The main table has columns: Priority, Cat, AlertNo, Instance, Description, Source, and Occurred Time(UTC). A detailed view of a selected alert is shown at the bottom, with labels for 'Priority', 'Alert no./ Instance', 'Alert name', and 'Alert source'. To the right of the table, there are 'Page selection buttons' (Show next page, Jump to last page, Show previous page, Jump to first page) and a 'Time alert occurred' label. Below the detailed view, there are 'Scroll right to view:' options: Time acknowledged, Time rectified, Time silenced, and Time of transfer of authority to AMS.

Priority	Cat	AlertNo	Instance	Description	Source	Occurred Time(UTC)
Warn	A	3024	1	Off Track	Chart Radar	02:14:14 15 Jun 2021
Warning	A	10645	-	Actual UKC Limit	Chart Radar	01:04:30 15 Jun 2021
Warn	A	10801	-	Depth Limit	Chart Radar	01:04:30 15 Jun 2021
IND	B	10001	15	Main Monitor COM Timeou	Chart Radar	00:34:23 15 Jun 2021
Caution	B	3016	30	Post AIS COM	Chart Radar	00:33:47 15 Jun 2021
Caution	B	10403	101	Post WIND1 COM	Chart Radar	00:32:17 15 Jun 2021
Caution	B	10403	121	Post TEMP COM	Chart Radar	00:32:17 15 Jun 2021
Warning	B	3015	27	Post SDME Signal	Chart Radar	00:31:47 15 Jun 2021
Caution	B	3016	28	Post LOG(WT) SIG	Chart Radar	00:31:47 15 Jun 2021
Caution	B	3016	25	Post LOG(BT) SIG	Chart Radar	00:31:47 15 Jun 2021
Warning	B	3015	24	Post COG/SOG SIG	Chart Radar	00:31:47 15 Jun 2021
Warning	B	3015	23	Post Wind Signal	Chart Radar	00:31:47 15 Jun 2021
Caution	B	10603	1	Post Bow Depth	Chart Radar	00:31:47 15 Jun 2021
Warning	B	3015	22	Post UTC Signal	Chart Radar	00:31:47 15 Jun 2021
Warning	B	3015	21	Post Position	Chart Radar	00:31:47 15 Jun 2021
Warning	B	3015	26	Post Heading SIG	Chart Radar	00:31:47 15 Jun 2021
IND	B	10001	24	Processor Unit Fan2 Rotation	Chart Radar	00:31:47 15 Jun 2021
IND	B	10002	15	Processor Unit Fan2 Fan No	Chart Radar	00:31:47 15 Jun 2021
IND	B	10001	23	Processor Unit Fan1 Rotation	Chart Radar	00:31:47 15 Jun 2021

You can select what priority and category of alerts to display with the [Priority] and [Category] filters at the top of the list. The log can be sorted by [Priority], [Cat.], [Description] or [Occurred Time]. Click the corresponding column title to sort accordingly.

To find detailed information about an alert, place the cursor on the [Description] or [Source] field of the applicable alert.

To search the log, enter text in the [Log Search] box then click the [Find] button. You can erase the contents of the [Log Search] box by clicking the [Reset] 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

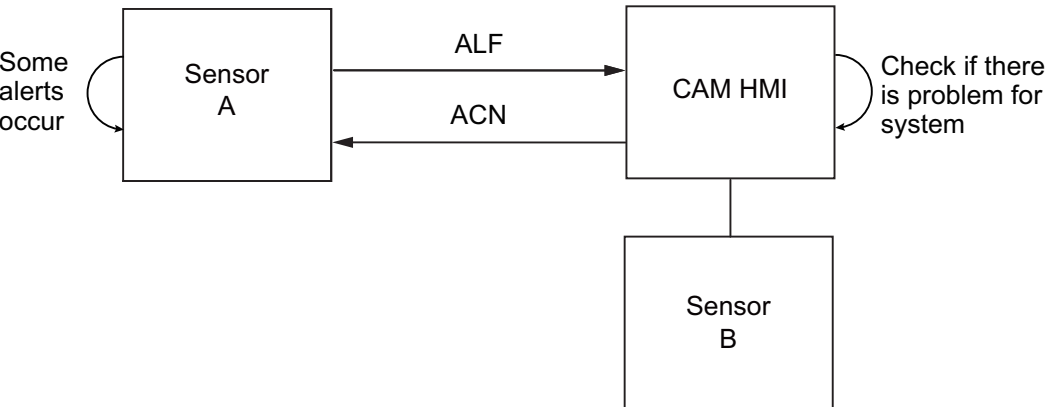
An “ALF receive and ACN transmit” communication is available for every serial line input. The ALF message from the sensor includes information about alerts from the sensor, and is presented though the normal alert system. When you acknowledge an alert, an ACN message is sent to the sensor to do remote acknowledge.

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

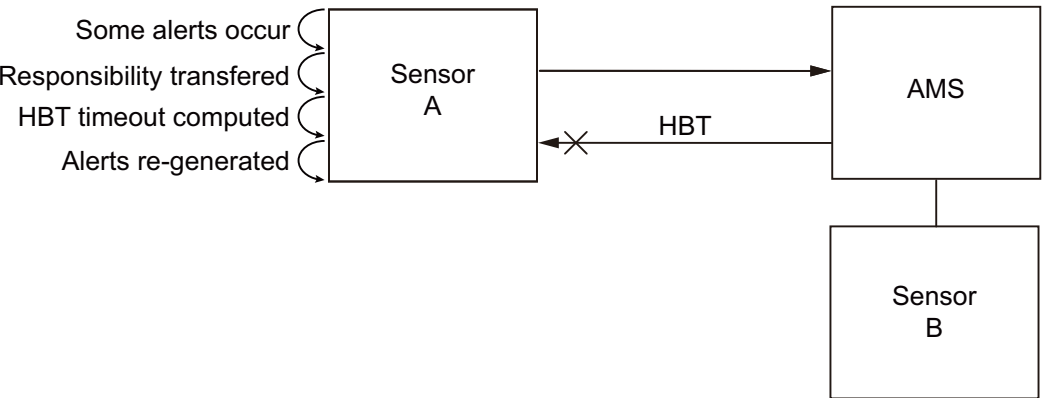
20.8 Responsibility Transfer Alert

MSC302(87) requires the use of the “responsibility transfer alert” which functions in the multiple sensor, multiple equipment installation. When one sensor or one equipment fails but does not disturb the system operation (other sensor or equipment is normal), the AMS automatically sends the “responsibility transfer alert” (ACN sentence) to the sensor or equipment that generated the alert.

If the sensor or equipment refuses the responsibility transfer, normal operation is restored.



If the HBT sentence is not received from the AMS within the prescribed time interval, the alert processed as responsibility transfer alert is made active.



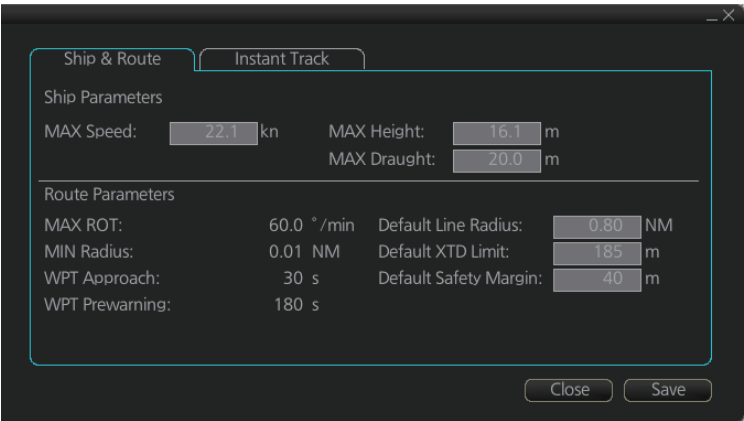
This page is intentionally left blank.

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 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 ROT]*: The maximum rate of turn of the ship. Set at installation.

[MIN Radius]*: The minimum radius of turn. 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.

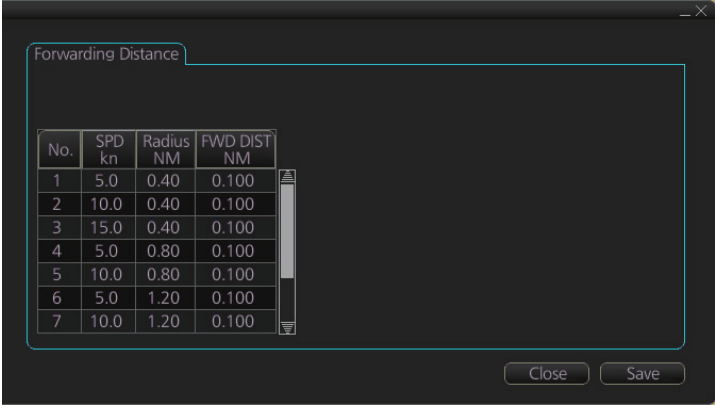
[Default Safety Margin]: Define the default value of extension for channel limits to be checked against selected alerts.

* 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 window titled "Forwarding Distance" with a table of settings. The table has four columns: No., SPD kn, Radius NM, and FWD DIST NM. There are 7 rows of data. At the bottom right of the window are "Close" and "Save" buttons.

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

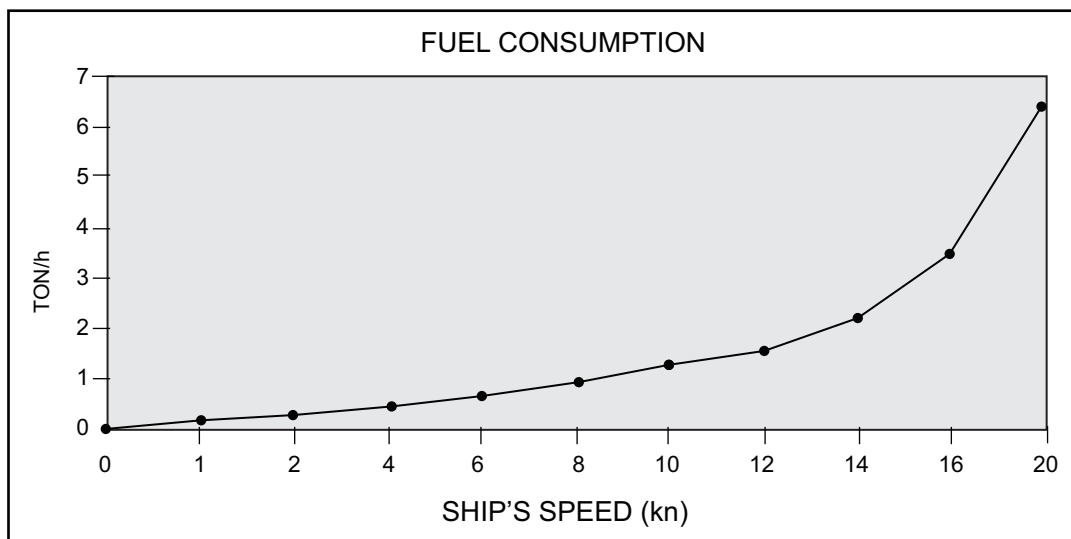
The cost parameters are used in the optimization calculation. Therefore define these parameters before doing the calculation.

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.

21

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.



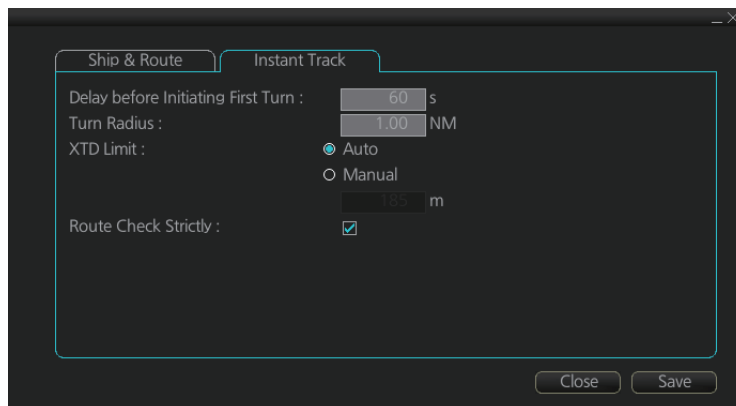
21.4 Instant Track Parameters

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.

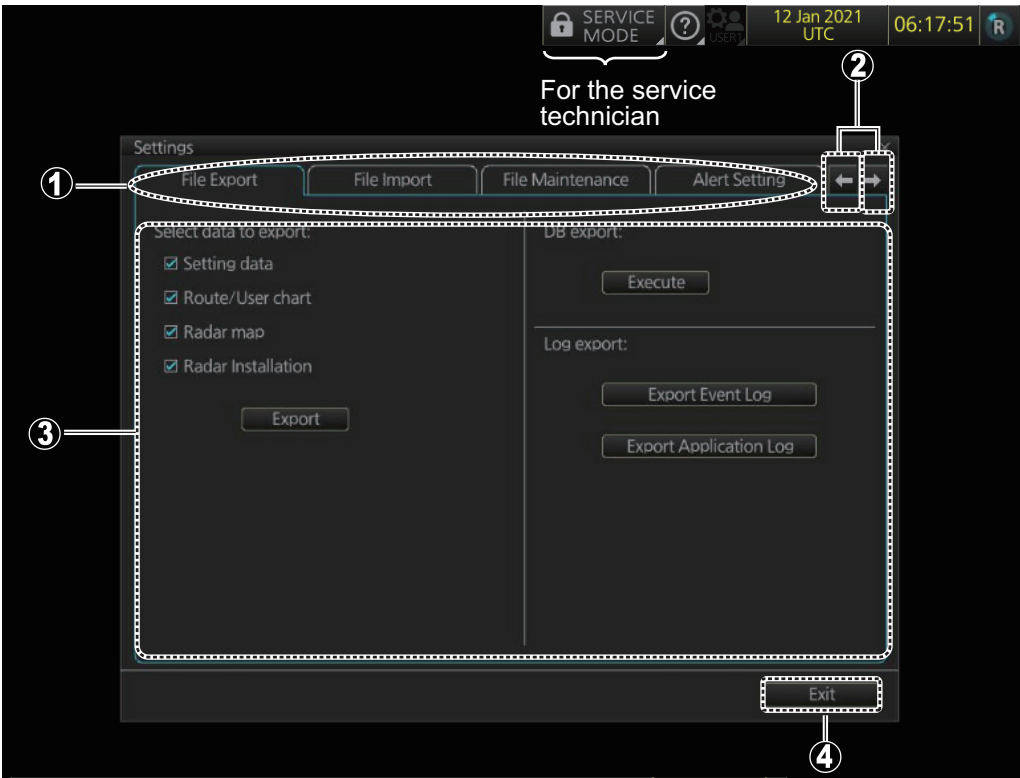
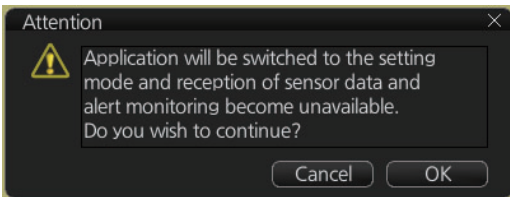
22. SETTINGS MENU

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

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.

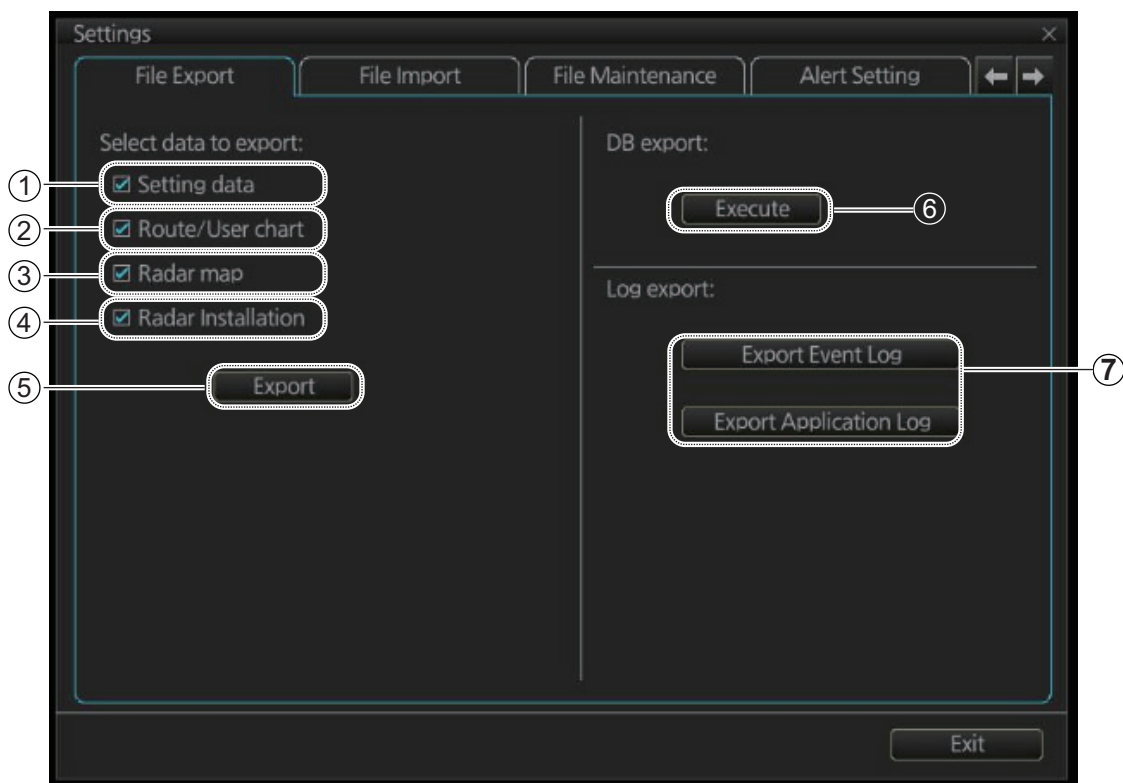


No.	Name	Description
1	Pages (menus)	Thirteen menus.
2	Page selection buttons	Scroll the [Settings] menu.
3	Menu area	The menu for the selected page appears here.
4	[Exit] button	Click to close [Setting] menu.

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, radar installation, and logs (event, application) to a USB flash memory, in .zip file format, to share with other like units.



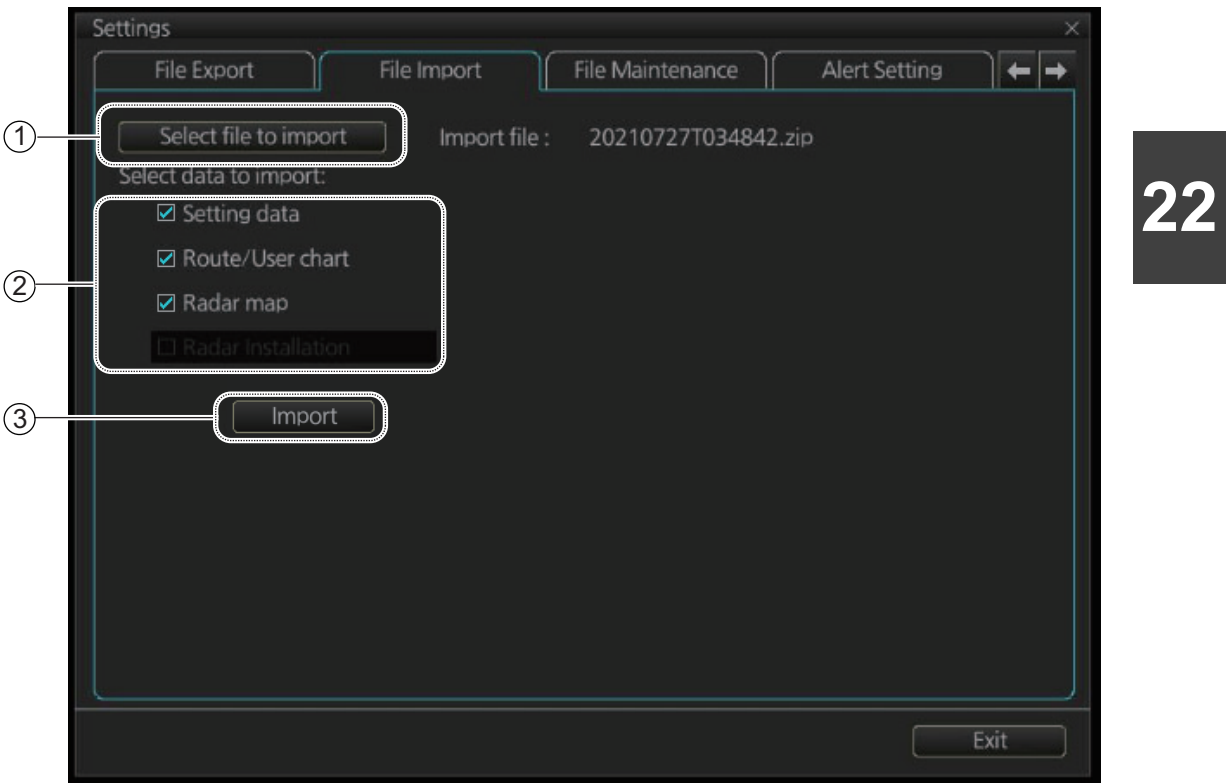
No.	Name	Description
1	[Setting data]	Check to export setting data (radar, chart, conning, common, performance monitor data) and ten user profile data.
2	[Route/User chart]	Check to export all routes and user charts.
3	[Radar map]	Check to export all radar maps.
4	[Radar Installation]	Check to export 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.
7	[Export Event Log] button, [Export Application Log] button	Export the (encoded) event log and application log, respectively. The exported file can be sent to an agent or dealer to assist in troubleshooting.

Note 1: The [Export] button 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.).

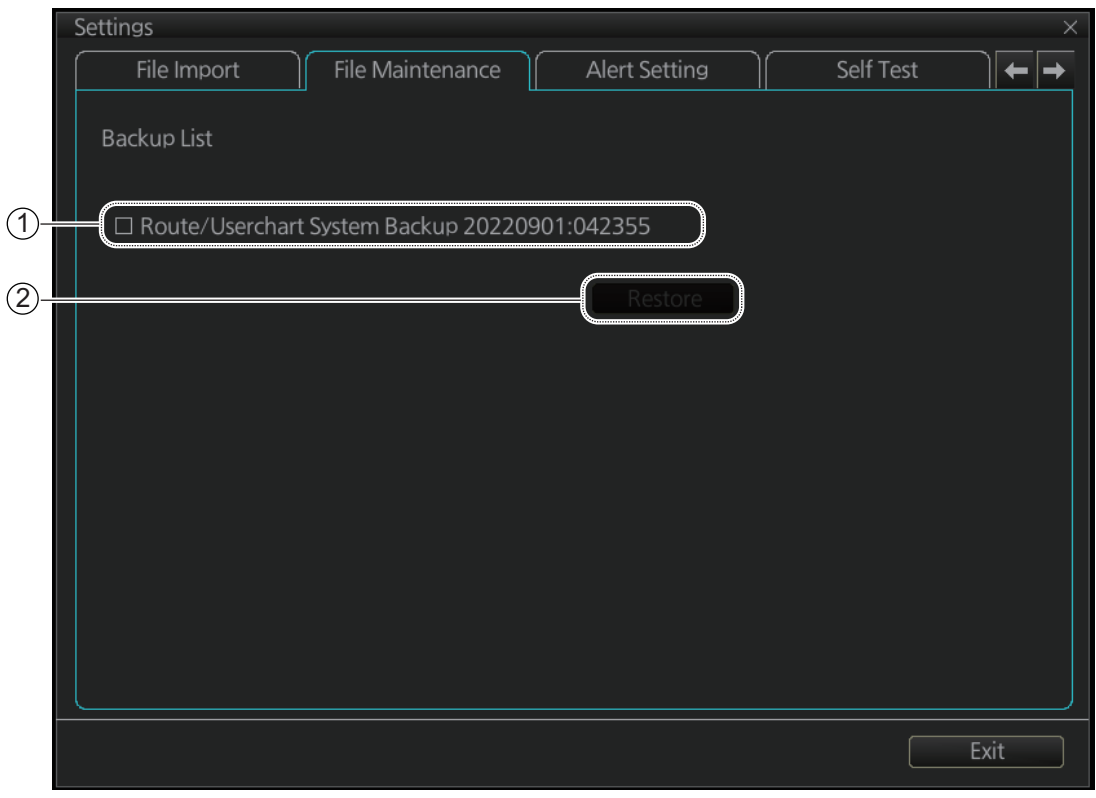


No.	Name	Description
1	[Select file to import] button	Click to show the [OPEN FILE] dialog box, where you can select the file to import.
2	[Select data to import]	Check the data to import, among [Setting data], [Route/User chart] and [Radar map]. Note: [Radar Installation] available in Service mode only.
3	[Import] button	Click to import the objects selected. The following message appears on the display. Attention Following data will be replaced with the imported data, and system will reboot automatically. Please export current data before import if needed. -Setting data -Radar map -Route/User chart Do you wish to continue? NoYes

- 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 system.

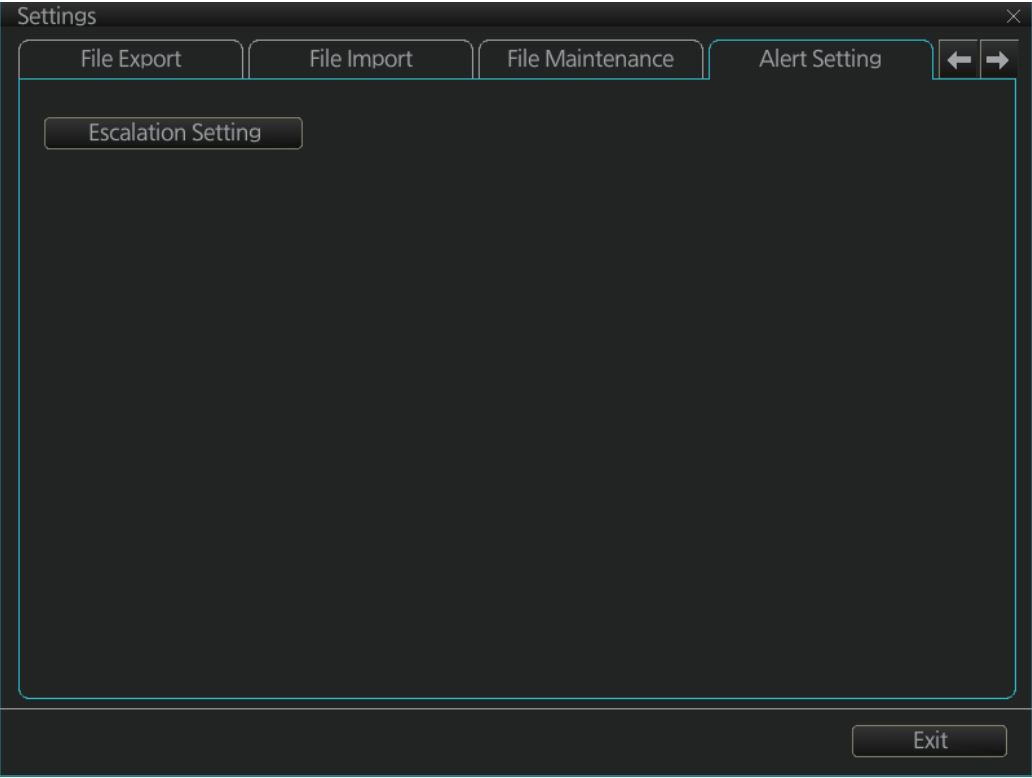


No.	Name	Description
1	[Route/Userchart System Backup]	Click to restore last-saved route/userchart system.
2	[Restore] button	Click to restore item selected.

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	The value cannot be changed.
6	Escalation Time	Set the escalation time, the time to wait before escalation occurs. The settings are (in seconds) 30, 60, 90, 120, 150, 180, 210, 240, 270 and 300. The default escalation time is as follows: • IEC62923-2 standard alert: 270 s (fixed) • Other than IEC62923-2 standard alert: 60 s (adjustable) • "Anchor Watch": 120 s (fixed) The escalation time for "Anchor Watch" is based on IEC61174 and time limit cannot be changed. To globally assign escalation time on the displayed page, change the setting below the item. 

* These buttons appear when the setting of [Escalation Mode] or [Escalation Time] is changed.

Note: After changing alert settings, some alerts will change to “not generated” state. To restore the previous state, restart the system.