JAN-7202/9202

Bridge Alert Management System (BAMS)

Instruction Manual

JRC Japan Radio Co., Ltd.

Contents

Section 1 System Overview

1.1 Functions

BAMS (Bridge Alert Management System), which enables quick understanding of the status in the bridge by intensively displaying alerts that occurred in bridge based on the concept of BAM, supports the improvement of the safe transportation and work efficiency.

BAMS has the following functions

- Display the list of status of alerts that occurred in bridge, notify occurrence of alerts by sound, and approve alerts
- Display alert occurrence status of each equipment in the bridge
- Save and display alert history

*This function is additional function of CONNING:

1.2 Features

This functions has the following features:

- Display alerts that occurred with icon added according to the degree of risk, enabling the confirming of degree of risk easily.
- Display list of occurring alerts ,specify items and change sort order, enabling the grasping of priority of alerts that are corresponded easily.
- Grasp the degree of danger without watching at the screen by emitting sound responding to the degree of danger.
- Display alert management window at a part of CONNING screen.
- Compose more than two BAMS in the system. Therefore, the system does not lose the function when one unit fails.
- Display alert information and operate in the same way at each BAMS.

1.3 Components

A list of system components is shown below.

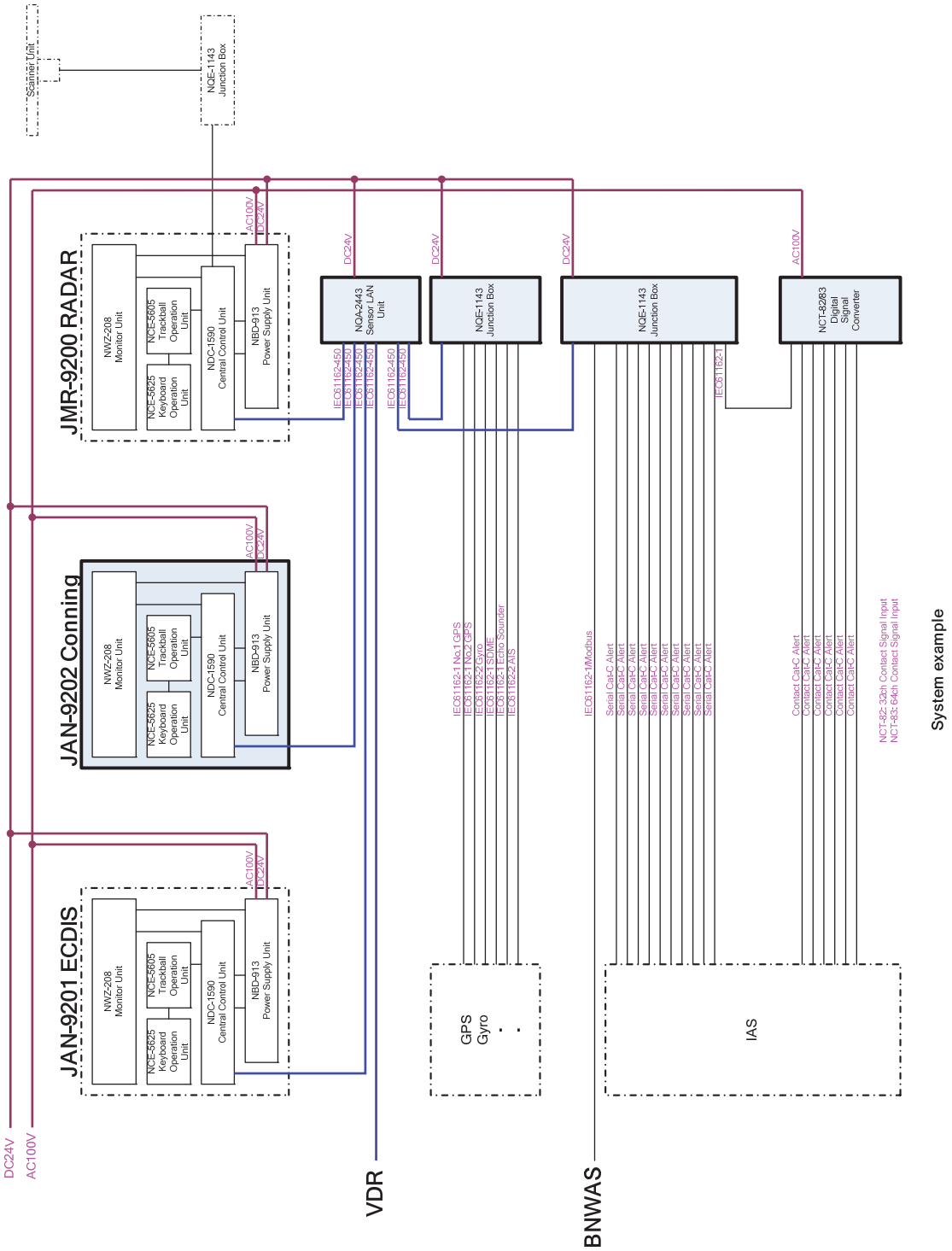
Name			Model	Q'ty	Remarks
Conning (Main unit)			JAN-7202/JAN-9202		
	Display	(JAN-7202)	NWZ-207 or NWZ-214	1	
		(JAN-9202)	NWZ-208		
	Trackball operation unit		NCE-5605	1	
	Keyboard operation unit		NCE-5625	1	
	Central control unit		NDC-1590/A	1	
	Power supply unit		NBD-913	1	
Junction Box			NQE-1143	2 *1	SLC, ALC
Sensor LAN Switch			NQA-2443/A	1 *1	
Digital Signal Converter			NCT-82/83	1 *1	NCT-82: 32ch NCT-83: 64ch

*1 The quantity changes according to the contents of equipment.

A list of components of managing unit is shown below.

Name	Model	Q'ty	Remarks
RADAR	JMR-7200/JMR-9200 series		
ECDIS	JAN-7201/JAN-9201		
BNWAS	-		
IAS	-		
Sensors (GPS, Gyro, SDME, Echo Sounder, AIS, …)	-		

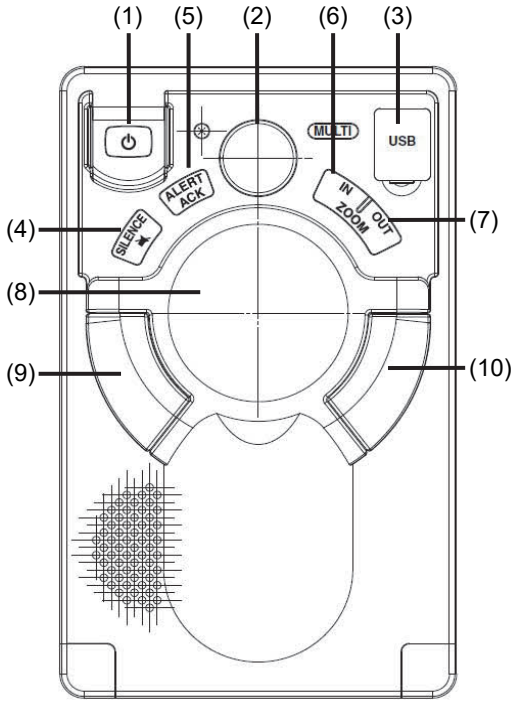
1.4 General System Diagrams (Example)



Section 2 Name and Function of Each Unit

2.1 Name and Main Function of the Operation Unit

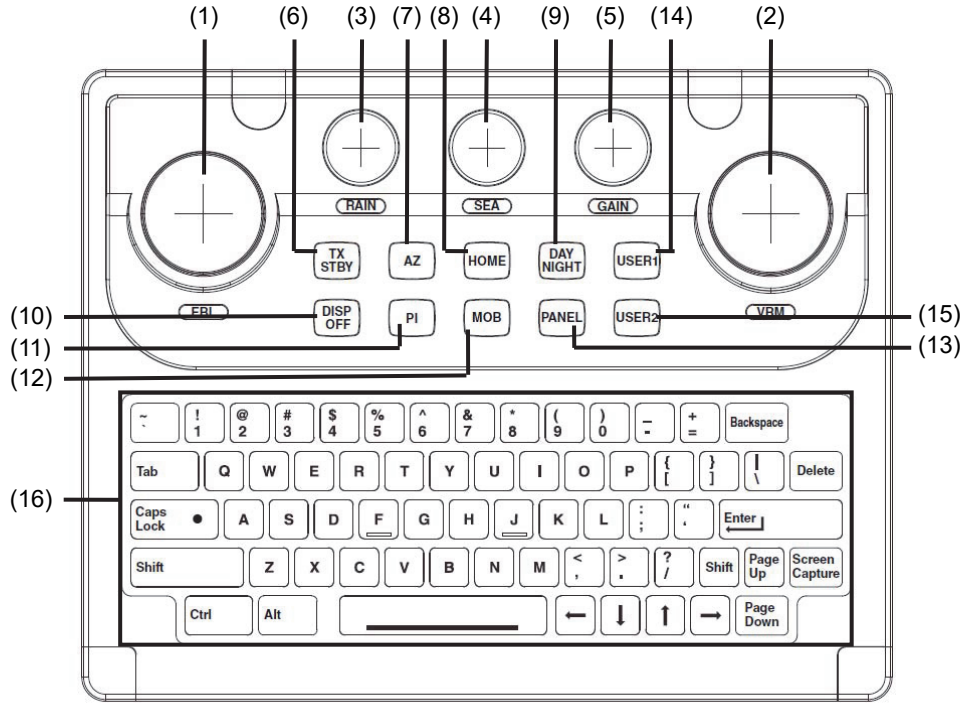
2.1.1 Trackball operation unit



⚠WARNING	
	When turning off the power supply, do not press the Power button on the operation unit for an extended period of time. If the button is pressed for an extended period of time, the equipment may not be terminated normally, causing a failure.

No	Name	Function outline
1	Power button	Use this button to turn on and off this equipment.
2	[MULTI] dial	- Turn this dial to operate the function that is assigned to the [MULTI] dial, such as the Display Brightness function. - If the [MULTI] dial is held down, the Display Brightness function is assigned to the [MULTI] dial forcibly.
3	USB terminal	Connects a USB flash memory.
4	[SILENCE] key	Stops the alert buzzer.
5	[ALERT ACK] key	Acknowledges the alert.
6	[ZOOM IN] key	No use.
7	[ZOOM OUT] key	No use.
8	Trackball	Moves the cursor on the screen. Use the trackball to specify a position or to perform various settings.
9	Left button	- Use this button to select a function or determine the operation that is set. - Clicking the left button once is referred to as "click" in this manual. - Clicking the left button twice consecutively is referred to as "double click" in this manual.
10	Right button	No use.

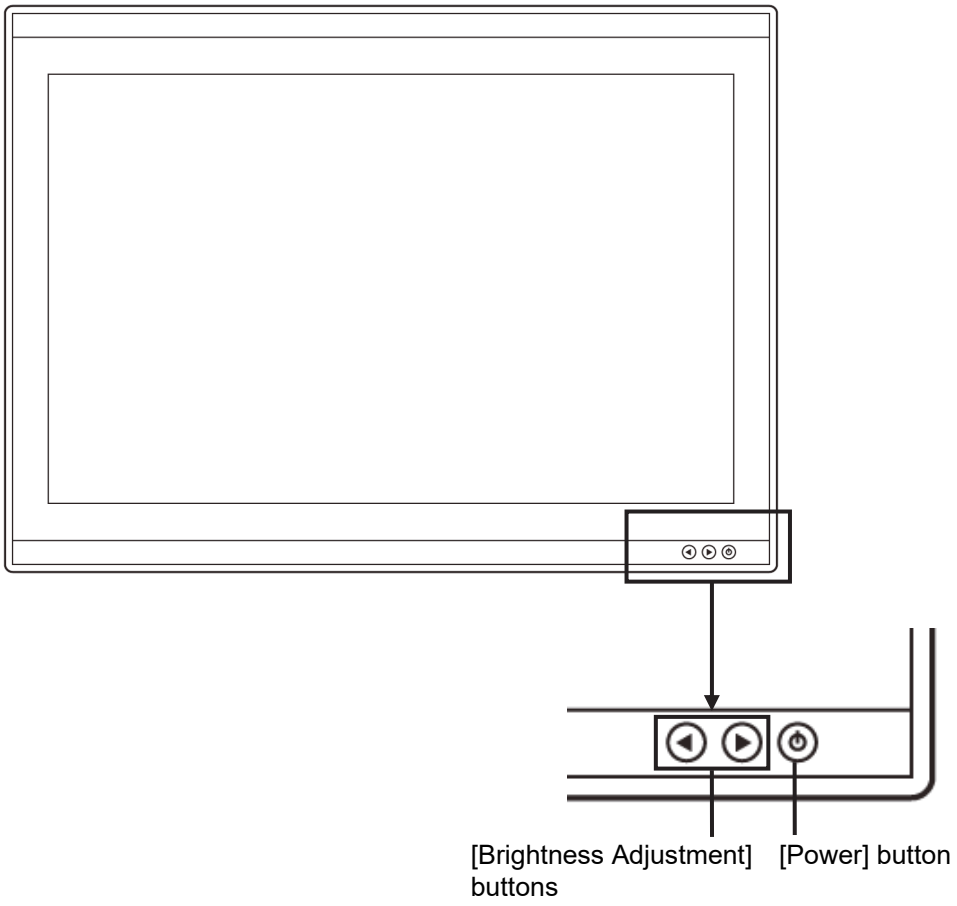
2.1.2 Keyboard operation unit (Option)



No.	Name	Function outline
1	[EBL] dial	No use.
2	[VRM] dial	No use.
3	[RAIN] dial	No use.
4	[SEA] dial	No use.
5	[GAIN] dial	No use.
6	[TX STBY] key	No use.
7	[AZ] key	No use.
8	[HOME] key	No use.
9	[DAY NIGHT] key	Switches the display color on the screen over 5 levels according to the brightness on the bridge.
10	[DISP OFF] key	No use.
11	[PI] key	No use.
12	[MOB] key	- When the Conning Display is displayed, the "Marker" dialog box (which shows monitoring information for preventing loss of sight of the position of the person who fell overboard) appears based on the latitude and longitude information of the own ship's position. - Hold down the key to close the "Marker" dialog box.
13	[PANEL] key	Whenever this key is pressed, the brightness of the panel on the operation unit is switched.
14	[USER1] key	- Executes the function that is assigned to the key. - When this key is held down, the setting dialog box of the function that is assigned to the [USER1] key appears.

No.	Name	Function outline
15	[USER2] key	- Executes the function that is assigned to the key. - When this key is held down, the setting dialog box of the function that is assigned to the [USER2] key appears.
16	Keyboard	The keyboard is used for the input of numeric values and characters at operation of this equipment.

2.1.3 Display unit



[Power] button

When the Power button is pressed while the power of the display unit is turned off, the power is turned on.

To turn off the power of the display unit, press the Power button for 5 seconds or longer.

[Brightness Adjustment] buttons

These buttons are used to adjust the brightness of the screen.

The screen increases brightness by pressing the ⊕ button.

The screen decreases brightness by pressing the ⊖ button.

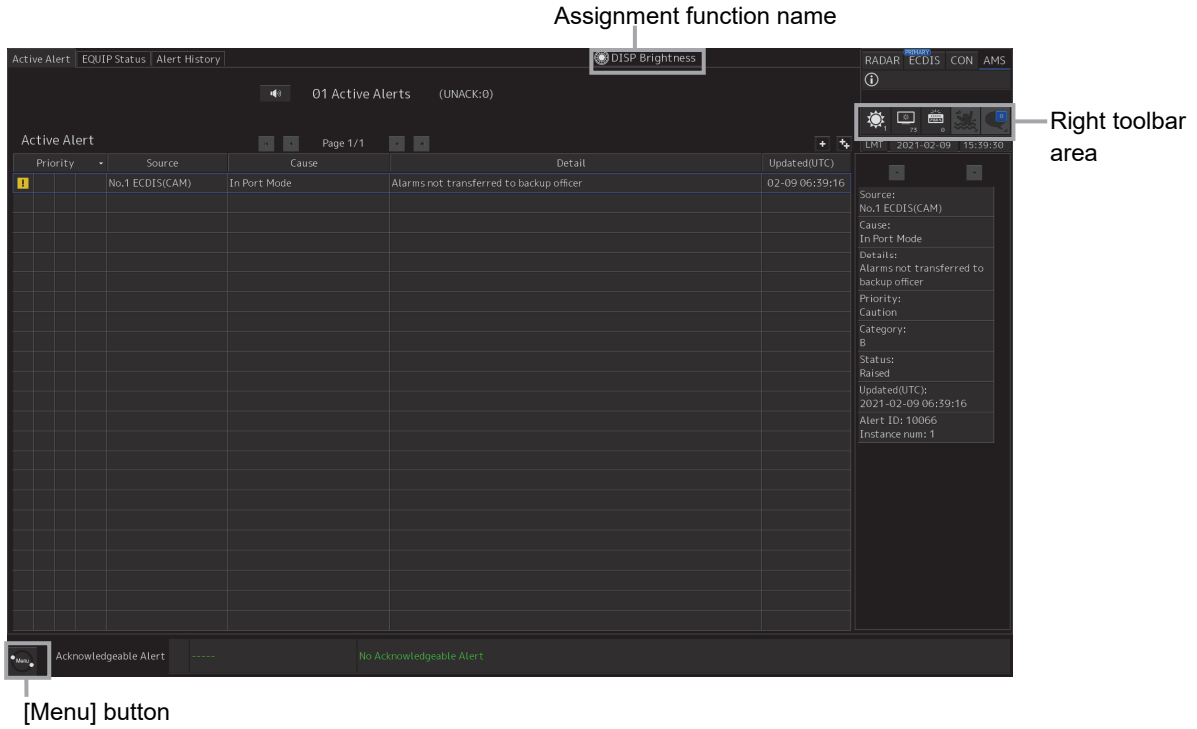
Memo

Adjust the brightness of the screen to the extent it is not dazzling, taking into account the brightness of the surroundings and to the brightness which you can be easily observed the screens.

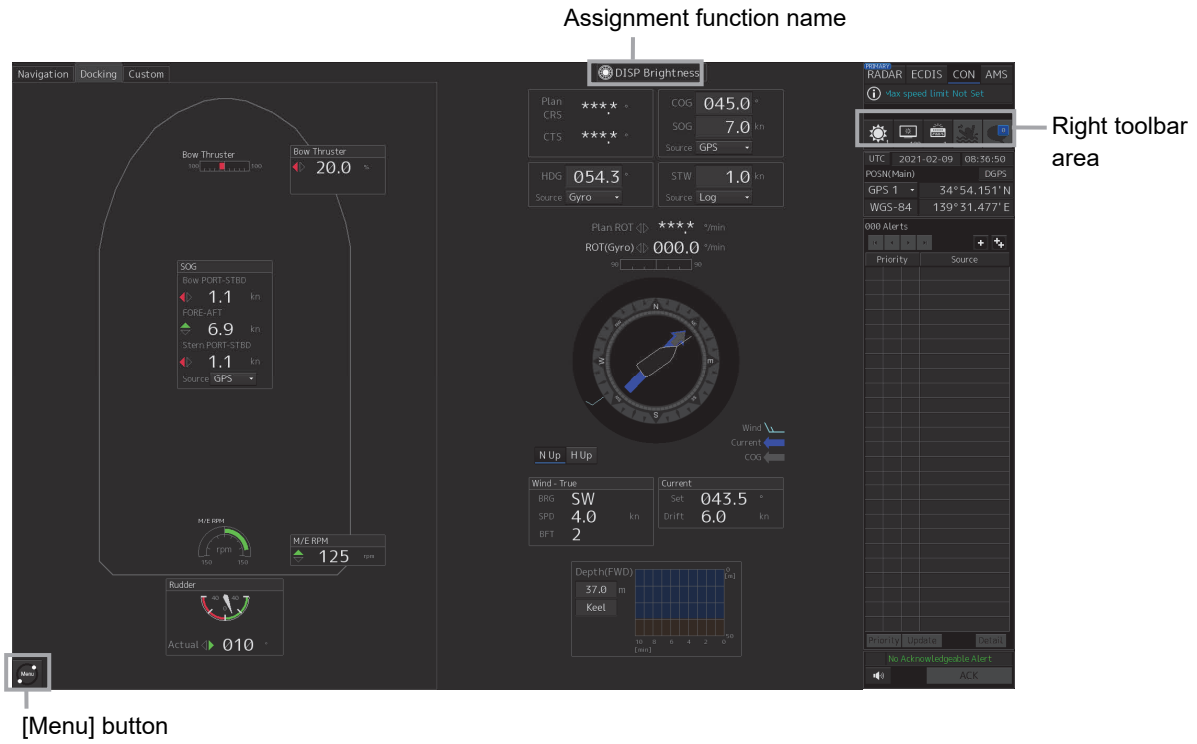
Be careful in the nighttime brightness adjustment because nighttime brightness adjustment may hinder the visibility of information.

2.2 Names and Main Functions of the Task Screen Common Sections

This section describes the names of task screen common sections and outlines the main functions on the alert management screen and the Conning Display.



Display Example of the Alert Management Screen



Display Example of the Conning Display

Key assignment indication area

When the [MULTI] dial is turned, the assigned functions are operated.

Right toolbar

The functions of the buttons on the right toolbar are as follows.

Day/Night button
The display color on the screen can be switched to 5 levels according to the brightness on the bridge.

For the details, refer to "2.2.1 Switching the Day/Night mode".

Display Brightness button
Adjust the screen brightness within the range of 0 to 100.

For the details, refer to "2.2.2.1 Adjusting the brightness of the screen".

Message notification button
Not used on the alert management screen.

MOB (Man OverBoard) button
Not used on the alert management screen and the Conning Display screen.

Panel Brightness button
Switch the brightness of the operation unit to any of the 5 levels, 0 to 4.

For the details, refer to "2.2.2.2 Adjusting the Brightness of the Operation Unit".

2.2.1 Switching the Day/Night mode

The screen display color can be switched to any of five levels according to the brightness in the bridge. Use the following procedure for switching.

1 Click on the Day/Night button on the right toolbar.

Adjustment buttons are displayed based on the brightness that is currently set.

Example: Day2 is set.

2 Adjust the brightness by using the [Light] button and the [Dark] button.

Whenever the [Light] button is clicked on, the brightness increases by one level from the current level.

When the [Dark] button is clicked on, the brightness decreases by one level from the current level.

: Day1

: Day2

: Day3

: Dusk

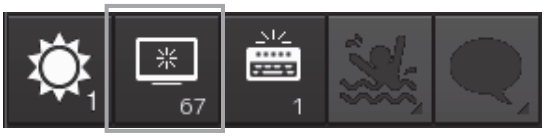
: Night

2.2.2 Adjusting the brightness of the screen and operation unit

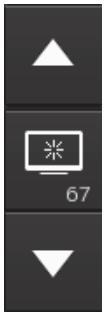
2.2.2.1 Adjusting the Brightness of the Screen

The screen brightness can be adjusted within the range from 0 to 100.

1 Click on the [Display Brightness] button on the right toolbar.



The following screen brightness buttons are displayed.

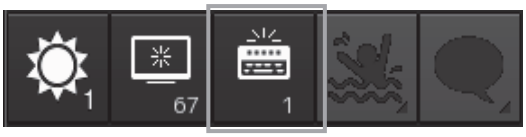


2 Adjust the brighness by using the [Light] button and [Dark] button.
Whenever the [Light] button/[Dark] button is clicked on, the brightness changes by one level.

2.2.2.2 Adjusting the Brightness of the Operation Unit

The brightness of the operation section can be adjusted in 5 levels (0 to 4).

1 Click on the [Panel Brightness] (Brightness of the operation unit) on the Right Tool Bar.

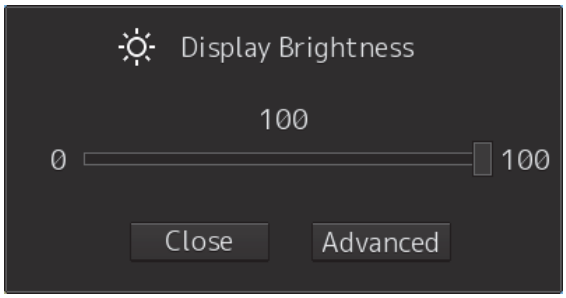


The following operation unit brightness buttons are displayed.

3 Adjust the brighness by using the [Light] button and [Dark] button.
Whenever the [Light] button/[Dark] button is clicked on, the brightness changes by one level.

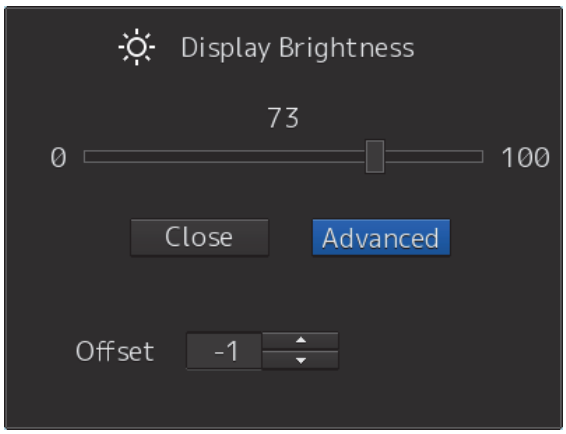
2.2.2.3 [Display Brightness] dialog

When the [MULTI] dial is operated while [DISP Brightness] is assigned to the [MULTI] dial, the "Display Brightness" dialog is displayed.



It is possible to adjust the brightness of the display section by rotating the [MULTI] dial.

In order to set an offset value so that the light emitted becomes the same as in other equipment when it is set to the same value as the screen brightness of other equipment, click the "Advanced" (advanced adjustment)button and adjust the offset value using the  buttons displayed for setting the "Offset".



2.3 Common Basic Operations

2.3.1 Powering on and starting

Turn on the power supply according to the following procedure.

⚠CAUTION

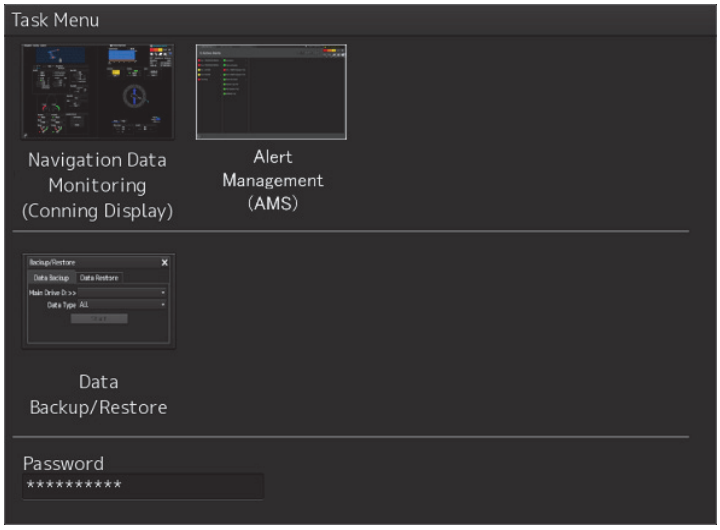
For low-temperature start-up, perform pre-heat for more than 30 minutes.
Otherwise, an operation failure and an accident may occur.

1 Press the Power button on the operation unit.

The Power button is lit and the start-up screen is displayed.
After the start-up screen is displayed, the task menu is displayed after a brief interval.

2.3.2 Starting each mode

When this equipment starts up, a task menu is displayed on the screen.
On the Task menu, you can select and start the desired mode from the operation modes available for this equipment.



Task Menu Display Example

When the button of the mode to be executed is clicked on, the screen of the mode is displayed.

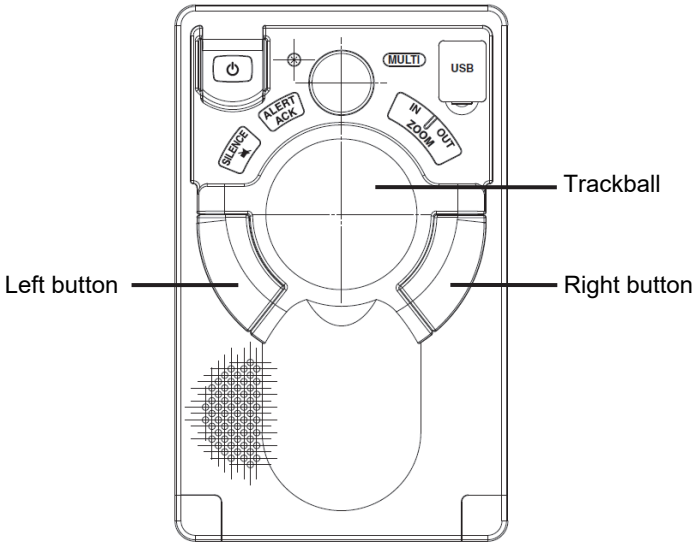
Note

At the initial start of this equipment, the screen is displayed in the mode that was set at the factory delivery if no operation is performed for 10 seconds or more after a task menu is displayed.

2.3.3 Basic operation when using a trackball

A trackball in the trackball operation unit is mainly used for the operations of this equipment.
This section describes the basic operations performed using the trackball.

2.3.3.1 Trackball functions



Trackball:
Use the trackball to move the cursor on the screen. Use the trackball for specifying a position, and setting a button and a dialog box.

Cursor type:
Only the "Pointer Cursor" type ( ) is available.

Left button:
Use the left button to select a tab, execute a button function, and move and determine the dialog box settings.
In this manual, "click" refers to the clicking of the left button once and "double-click" refers to the clicking of the left button twice consecutively.

Right button:
Do not use the right button while operating the alert management screen.

2.3.3.2 Basic trackball operations

Move the cursor that is displayed on the screen by the trackball and perform various operations using the left button.

2.3.3.3 Basic click operations

When the cursor is set to a button and the button is clicked on, the function of the selected button is executed.

- When a function On/Off button is clicked on, the setting is switched to On/Off each time.
- When a function selection button is clicked on, the function selection menu is displayed.

2.3.4 Basic menu operations

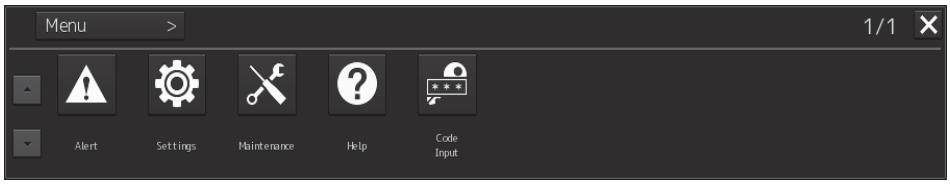
Various functions can be executed or set from the menu that is displayed by clicking on the [Menu] button.
This section describes the basic menu operations.

2.3.4.1 Opening the menu

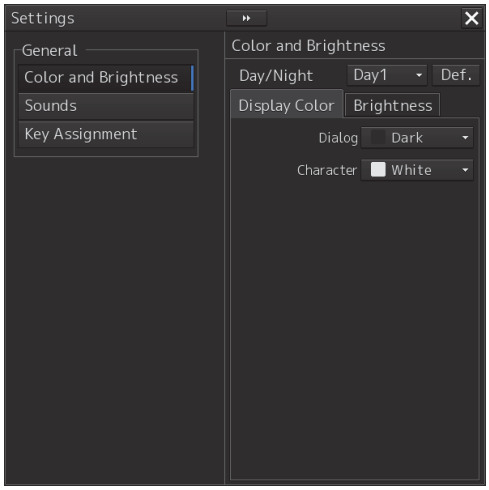
1 Click on the [Menu] button at the bottom left corner of the screen.

[Menu] button

The menu is displayed.



2 Click on one of the buttons that are displayed on the menu.
A dialog box for executing or setting the applicable function appears.

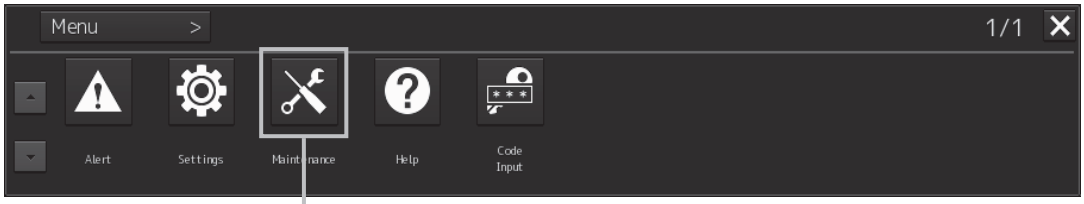


Display Example

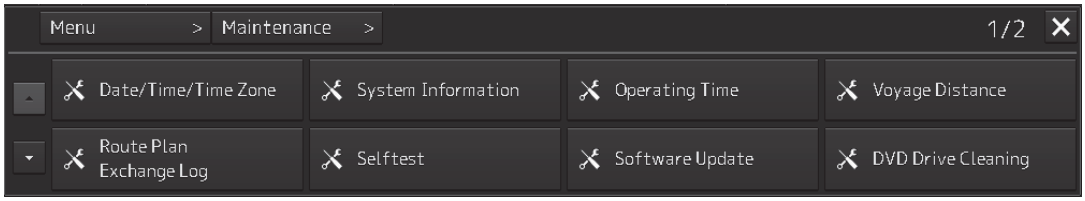
3 A submenu is displayed depending on the function. In this case, display a dialog box of the function by clicking on the button on the submenu.

Example: Maintenance

Menu



Maintenance submenu



2.3.4.2 Closing the menu

Click on the [X] button on the menu (submenu).

2.3.5 Basic dialog box operations

When the dialog is opened, the setting contents of the dialog are those set at the factory delivery or those set at the termination of the previous operation.

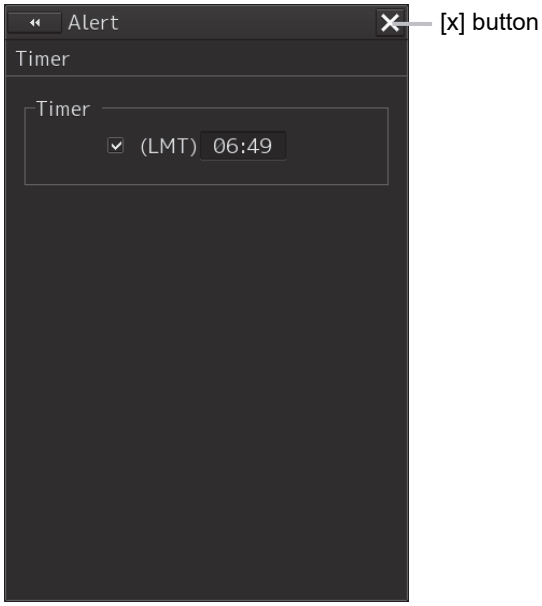
2.3.5.1 Changing dialog box settings

This section describes how to change the settings by using some dialogs as the example.

Alert (Timer) dialog

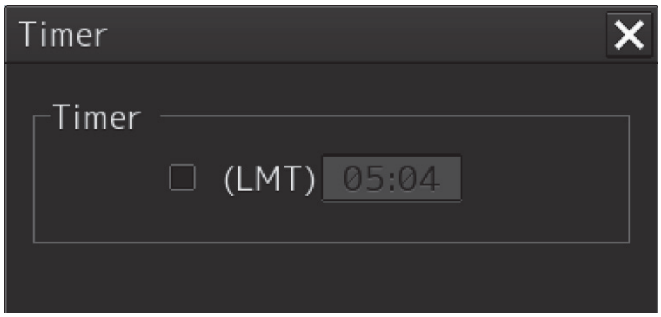
2.3.5.2 Closing the dialog box

Close the dialog by clicking on the [X] button of the dialog.



2.3.6 Setting up the timer

When [Timer] is selected in the Tools menu , the "Timer" dialog is displayed.
In this dialog, the time to generate a Timer alert can be set up.



Item	Contents	Remarks
Timer	Set a time for generating the Timer alert. To turn on the timer, select the [Timer] check box, and input the time.	

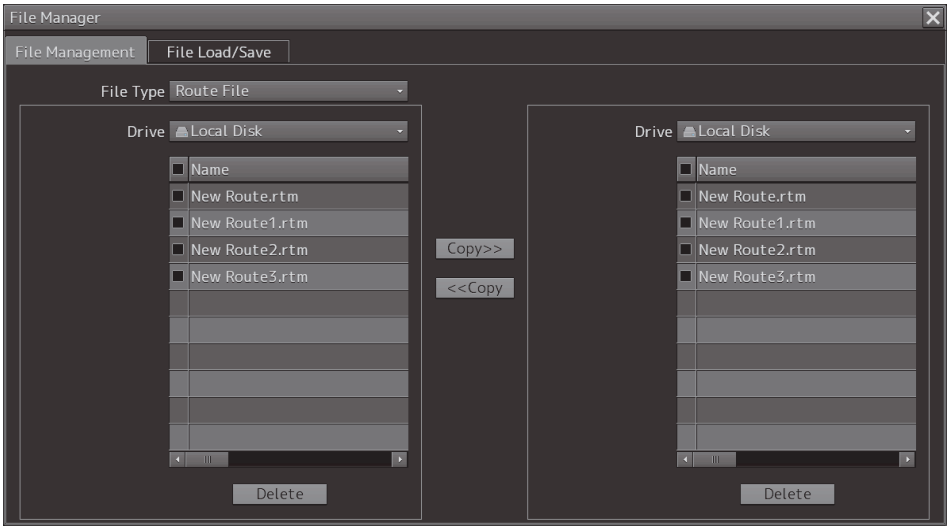
2.3.7 Managing Files with File Manager

The file manager function enables the copying of route files and user map from the hard disk of this equipment to external storage media such as DVD or from external storage media to the hard disk of this equipment.

2.3.7.1 Displaying the "File Manager" dialog box

1 **Click on the [Menu] on the left toolbar.**
The menu is displayed.

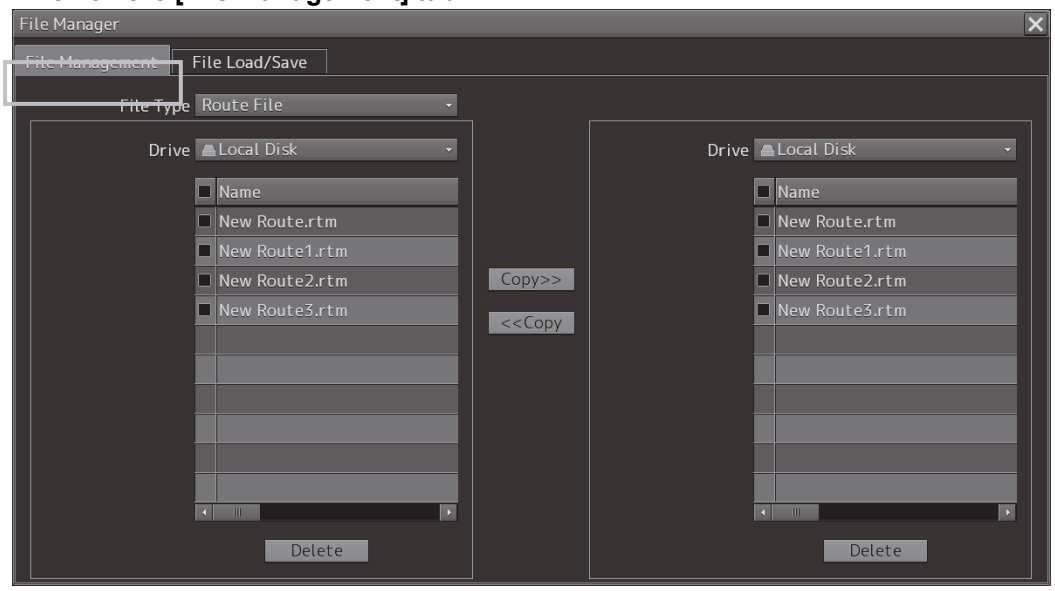
2 **Click on the [Tools] - [File Manager] button on the menu.**
The "File Manager" dialog box appears.



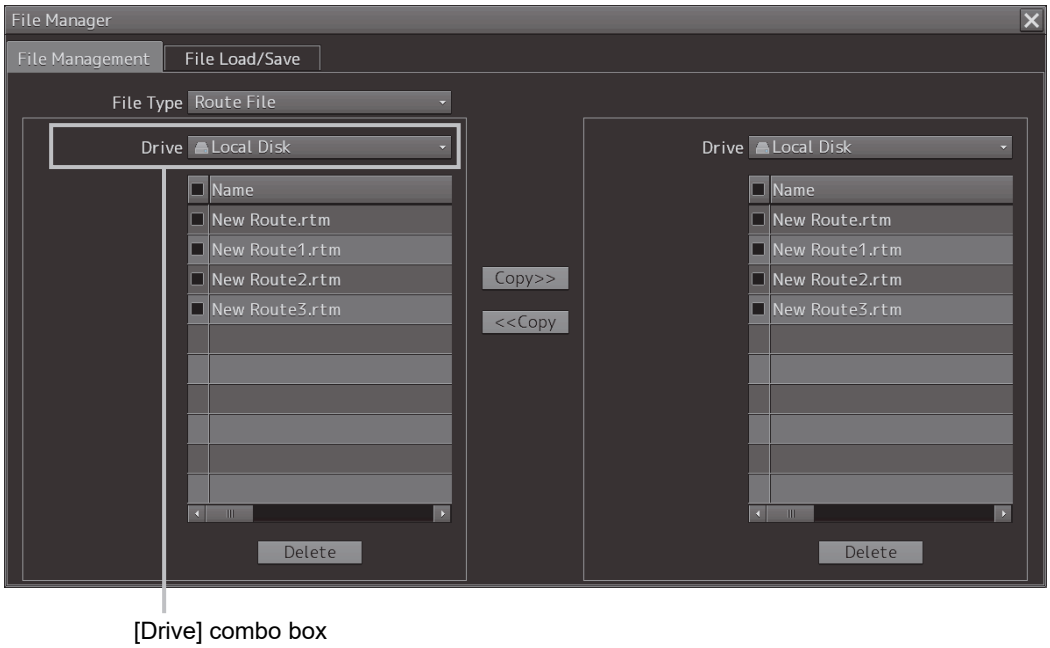
2.3.7.2 File management

The "File Management" tab enables file management.
File management copies files between SSD of this equipment and external storage media and deletes files.
This section describes file management by using the example copying a file in the file list of the drive that is specified in the [Drive] list on the left hand side of the dialog box to the drive that is specified in the [Drive] list on the right hand side.

1 Click on the [File Management] tab.



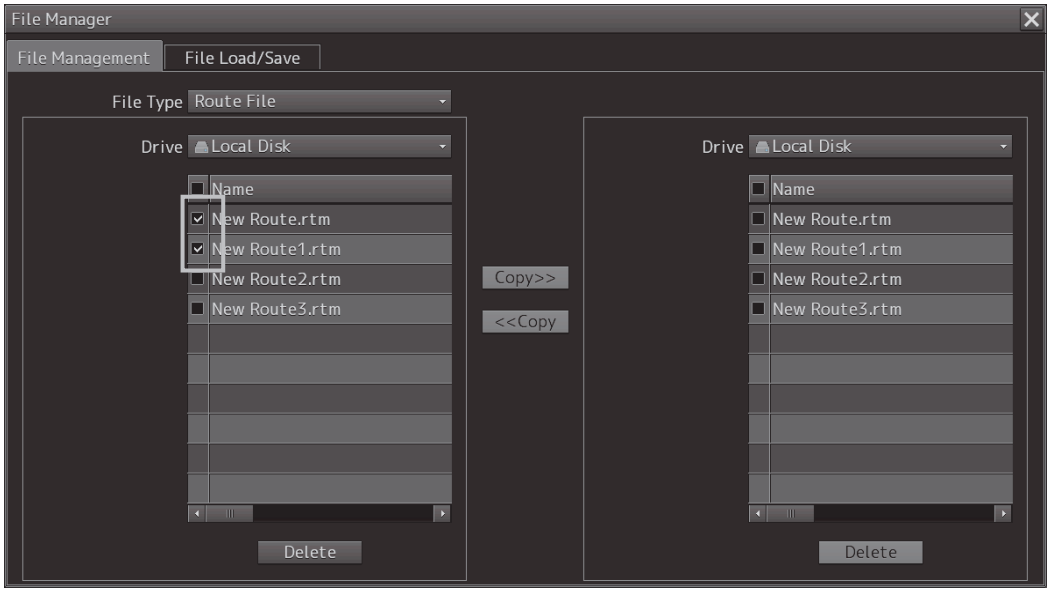
2 Select the drive that contains the file to be copied from the [Drive] combo box.
Files in the drive are displayed in the list.



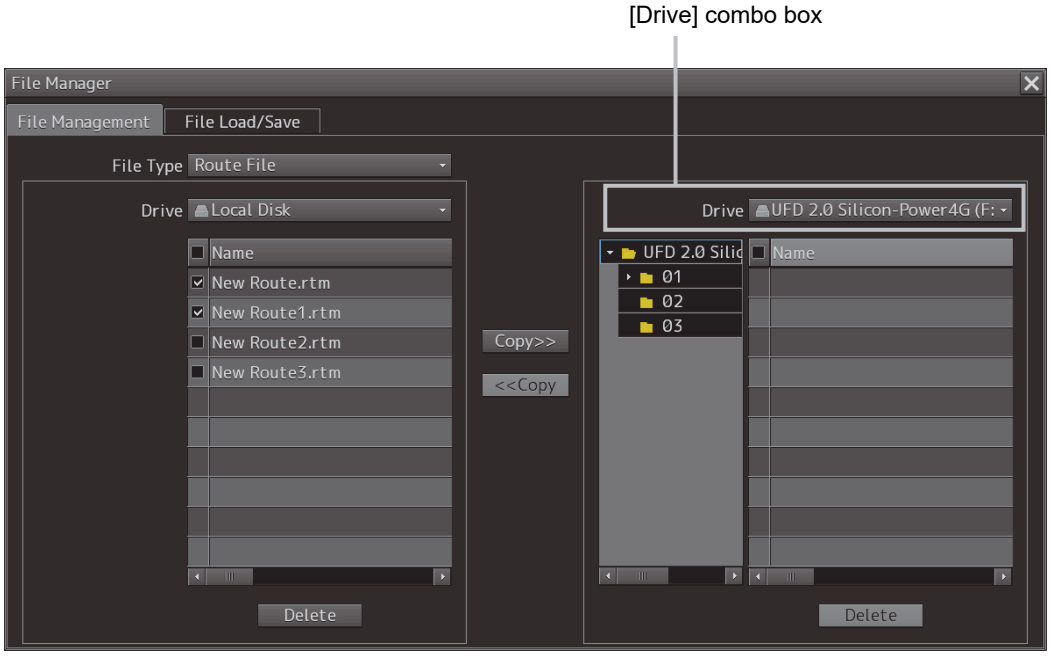
The following file types can be displayed by the file manager.

No.	File type	File extension	Contents
1	Screen Shot (AUTO)	png	Automatically generated screen shot
2	Screen Shot (User)	png	Manually generated screen shot

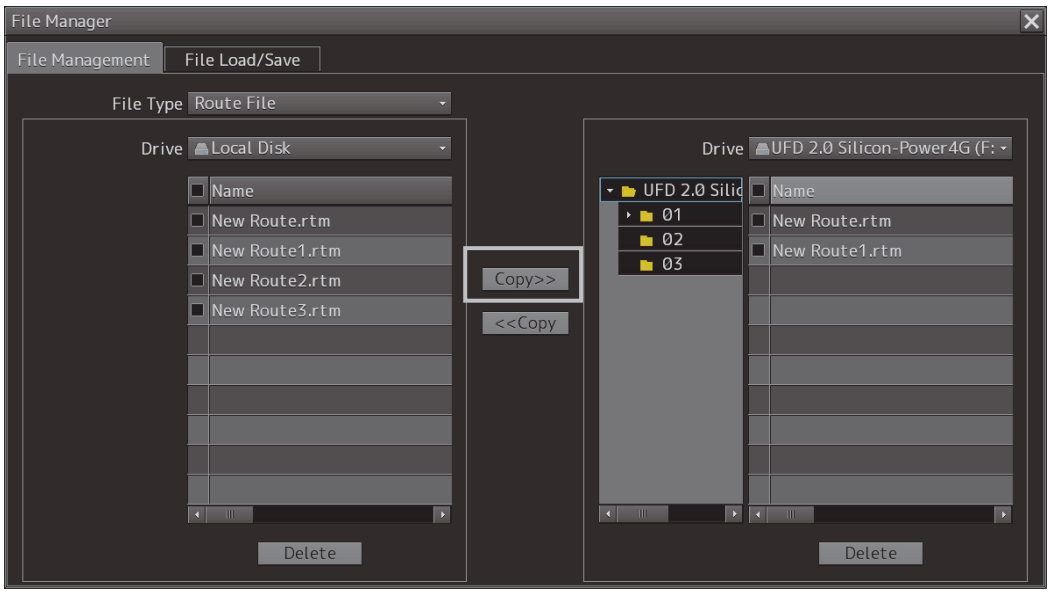
3 Select the files to be copied by checking them.



4 Select a drive of the storage destination from the [Drive] combo box and select a copy location from the folder tree that is displayed.



5 **Click on the [Copy>>] (copy to the right) button.**
The files are copied.



When the drive of the copy source and the drive of the copy destination are reversed, click on the [<<Copy] (copy to the left) in Step 5.

Deleting a file

1 **Click on the [Delete] button.**
A deletion confirmation dialog is displayed.

2 **To delete the file, click on the [OK] button.**

Section 3 Bridge Alert Management (BAM)

3.1 Outline

3.1.1 About BAM

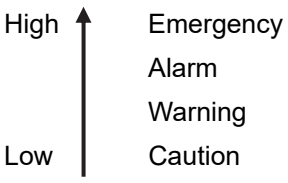
The BAM harmonizes the priority, classification, handling, distribution and presentation of alerts, to enable the bridge team to devote full attention to the safe operation of the ship and to immediately identify any alert situation requiring action to maintain the safe operation of the ship.

The BAM provide the means below:

- the means used to draw the attention of the bridge team to the existence of alert situations.
- the means to enable the bridge team to identify and address the alert condition.
- the means for the bridge team and pilot to assess the urgency of different alert situations in cases where more than one alert situations have to be handled at the same time.
- the means to enable the bridge team to handle alert announcements.
- the means to manage all alert-related states in a distributed system structure in a consistent manner.

3.1.2 Priorities of alerts

The BAM should distinguish between the four priorities listed below.



Alert	Description
Emergency alarm	Highest priority of an alert. Alarms which indicate immediate danger to human life or to the ship and its machinery exits and require immediate action.
Alarm	An alarm is a high-priority alert. Condition requiring immediate attention and action by the bridge team, to maintain the safe navigation of the ship.
Warning	Condition requiring immediate attention, but no immediate action by the bridge team. Warnings are presented for precautionary reasons to make the bridge team aware of changed conditions which are not immediately hazardous, but may become so if no action is taken.
Caution	Lowest priority of an alert. Awareness of a condition which does not warrant an alarm or warning condition, but still requires attention out of the ordinary consideration of the situation or of given information.

3.1.3 Categories of alerts

Alerts should be separated for the alert handling into three categories of alerts.

Categories	Description
Category A	Category A alerts are specified as alerts where information at a task station directly assigned to the function generating the alert is necessary, as decision support for the evaluation of the alert-related condition, e.g.: • danger of collision • danger of grounding. Where category A alerts cannot be acknowledged at alert management screen, this fact should be clearly indicated to the user.
Category B	Category B alerts are specified as alerts where no additional information for decision support is necessary besides the information which can be presented at alert management screen.
Category C	Category C alerts are specified as alerts that cannot be acknowledged on the bridge but for which information is required about the status and treatment of the alerts, e.g., certain alerts from the engine.

3.1.4 State of alerts

Alert	State	Description
Emergency alarms	(Active)	Notified by blinking the icon on the screen. A buzzer sound is not emitted. Cleared when the alert cause is resolved.
Alarms	Unacknowledged/raised alarm	Notified by blinking the icon on the screen and emitting a buzzer sound. The flashing display for an unacknowledged alarm is continued until the alert is acknowledged, unless otherwise specified in the equipment performance standards.*1
	Acknowledged/raised alarm	Notified by lighting the icon on the screen. A buzzer sound is not emitted. Cleared when the alert cause is resolved.
	Unacknowledged/rectified alarm	Notified by blinking the icon on the screen. A buzzer sound is not emitted. At acknowledgement, the alarm disappears.
	Acknowledged/resolved alarm	The icon on the screen is cleared.
Warnings	Unacknowledged/raised warning	Notified by blinking the icon on the screen and emitting a buzzer sound. The flashing display for an unacknowledged warning is continued until the alert is acknowledged, unless otherwise specified in the equipment performance standards.*1
	Acknowledged/raised warning	Notified by lighting the icon on the screen. A buzzer sound is not emitted. Cleared when the alert cause is resolved.
	Unacknowledged/rectified warning	Notified by blinking the icon on the screen. A buzzer sound is not emitted. At acknowledgement, the warning disappears.
	Acknowledged/resolved warning	The icon on the screen is cleared.
Cautions	(Active)	The state of "active" is only displayed while the alert is raised. Cleared when the alert cause is resolved.

*1 Example: Blinking on the screen can be stopped by acknowledging all the CPA/TCPA alerts that are currently occurring.

3.1.5 Display sequence according to the alert status

Active alerts are displayed in the active alert list in the following sequence according to the alert status. (The following alerts are displayed in the descending order.)

- "active" emergency alarms
- "active – unacknowledged" and “active – silenced” alarms
- "active – unacknowledged" and “active – silenced” warnings
- "rectified – unacknowledged" alarms
- "rectified – unacknowledged" warnings
- "active – acknowledged" alarms
- "active – responsibility transferred" alarms
- "active – acknowledged" warnings
- "active – responsibility transferred" warnings
- "active" cautions

3.1.6 About alert management screen

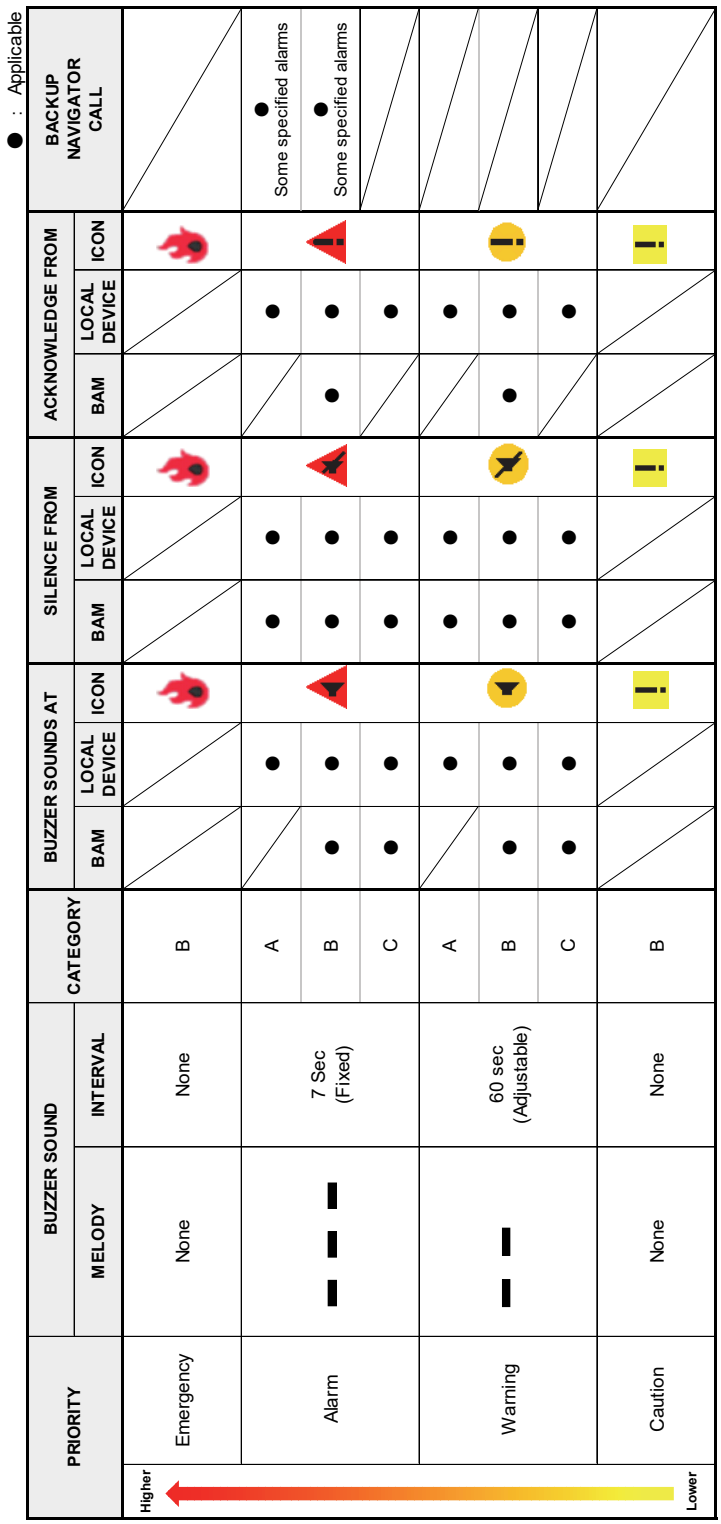
Alert management screen means human machine interface for presentation and handling of alerts in the bridge.

CAM (Central Alert Management) refers to the function that communicates the navigation system and the sensor regarding alerts and centrally manages the alerts that occurred.

The alert management screen is configured as the CAM interface (human-machine interface), notifies the occurrence of an alert on the bridge, and takes the necessary measures.

3.1.7 Alert acknowledgment locations and buzzer sound emission locations

The following table shows the locations where alerts can be acknowledged and the locations from which an buzzer sound is emitted.



Please refer to “Appendix A List of Alert Icons” for the icon.

3.2 Alert Management Screen

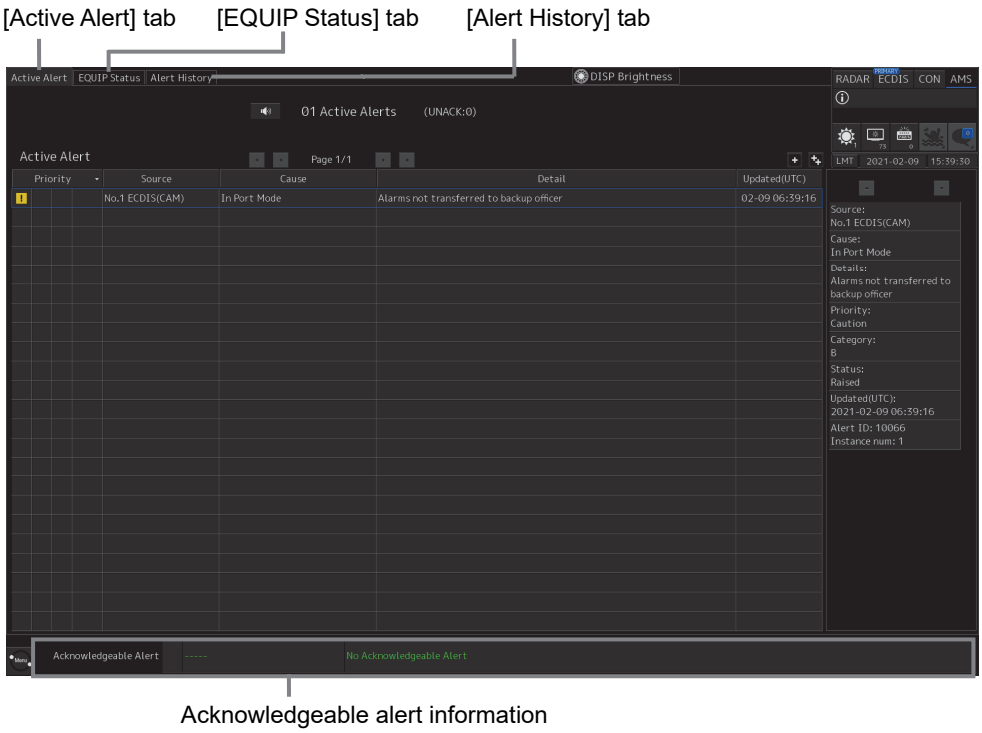
Alert management screen provides central management of the alert which occurred on the bridge. In order to display the alert management screen, select "Alert Management" by the change of a mode. The alert management screen provides active alert display, alert list information and alert history display. The active alert which occurred on the bridge can be displayed also as a Conning Display screen.

Memo

The alert management screen is designed under the assumption that it is used at a distance of 1.1m. (Character height : 3.5mm or more)

3.2.1 Alert management screen

This section describes the names and the main functions of each section of the alert management screen.



[Active Alert] tab

Refer to "3.2.1.1 [Active Alert] tab".

[EQUIP Status] tab

Refer to "3.2.1.2 [EQUIP Status] tab".

[Alert History] tab

Refer to "3.2.1.3 [Alert History] tab".

Approvable Alert Information

Among the unacknowledged alerts of category B, the alert information of the highest priority is displayed.

When the alert is an alarm or warning, a status icon flashes.

When there is no target alert, "No Acknowledgeable Alert" is displayed in a green character.

3.2.1.1 [Active Alert] tab

In the [Active Alert] tab, a list of the current alerts is displayed.

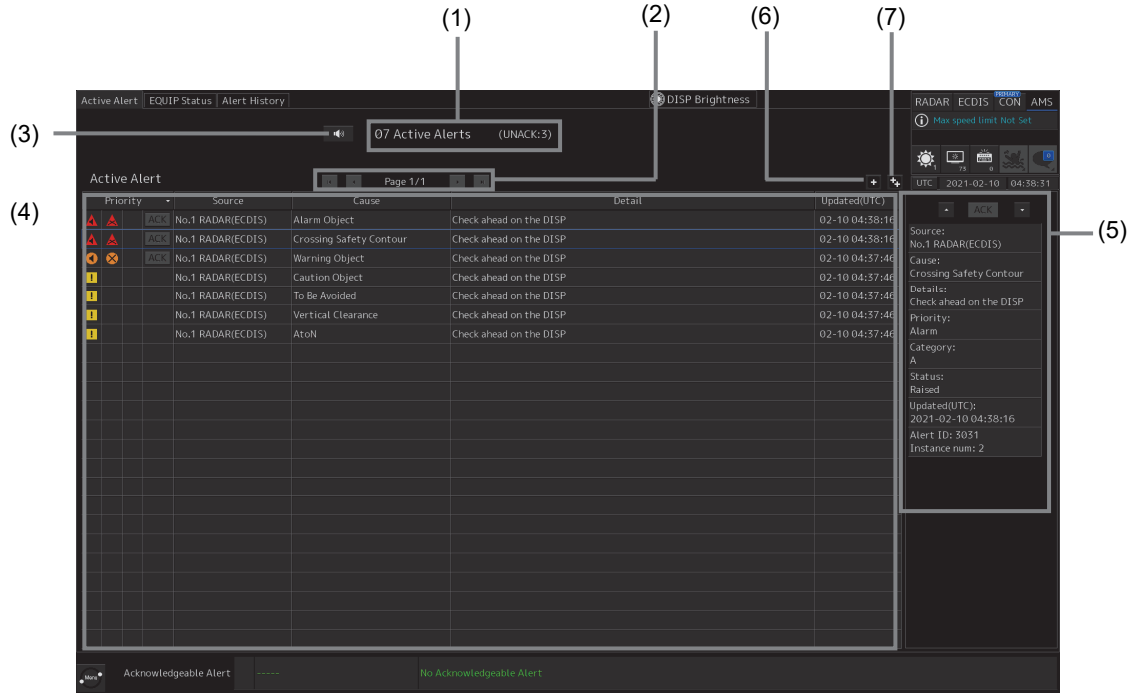
Inhibit target alert

An alert that is not activated even if it occurred is called an Inhibit target alert.

An Inhibit target alert is specified by the BAM file and is ignored even if it occurs. An Inhibit target alert is not displayed on the [Active Alert] tab screen.

Memo

A BAM file is a general term of the file group that is imported and expanded by the BAM interface to construct a database of alert information.



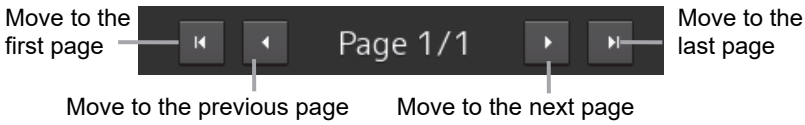
[1] Active alert information

The quantity of current occurring alerts is displayed.

When the quantity of alarms is 100 or more, "More" is displayed instead of the count.

[2] Active page information

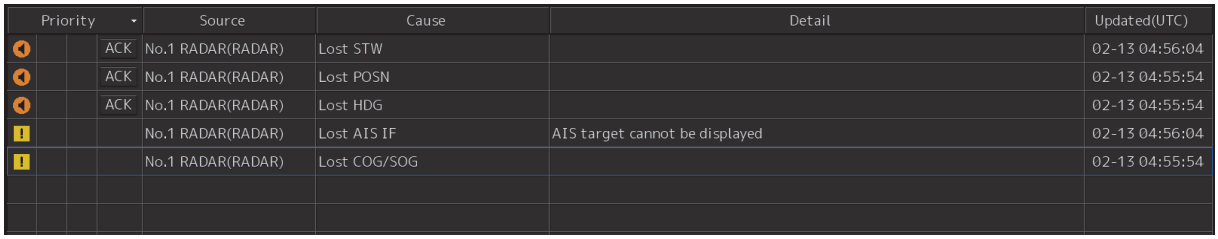
Up to 20 alert information items can be displayed in one page. Use the following buttons to switch pages when the number of alert information items exceeds 20, requiring multiple pages.



[3] [Silence] button

Stops the alert buzzer.

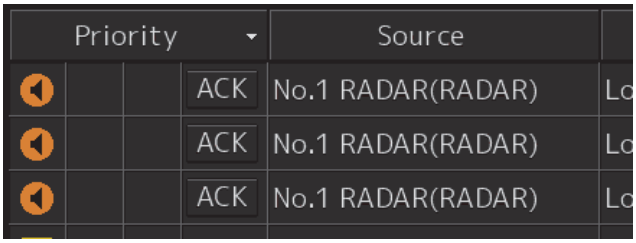
[4] Active alert list



Priority	Source	Cause	Detail	Updated(UTC)
ACK	No.1 RADAR(RADAR)	Lost STW		02-13 04:56:04
ACK	No.1 RADAR(RADAR)	Lost POSN		02-13 04:55:54
ACK	No.1 RADAR(RADAR)	Lost HDG		02-13 04:55:54
	No.1 RADAR(RADAR)	Lost AIS IF	AIS target cannot be displayed	02-13 04:56:04
	No.1 RADAR(RADAR)	Lost COG/SOG		02-13 04:55:54

- The raised alerts are displayed. When any of the alerts are clicked on, the alert is selected.

- The details of the selected alert are displayed in "[5] Active alert details".
- If a new alert occurs when alerts are sorted and displayed by priority on the screen, it will be added to the top position of the corresponding priority.
- By clicking on any of the items in the title line, active alerts can be sorted based on the item.
- When the [ACK] (acknowledgement) button is clicked on, the alert is acknowledged.



Memo

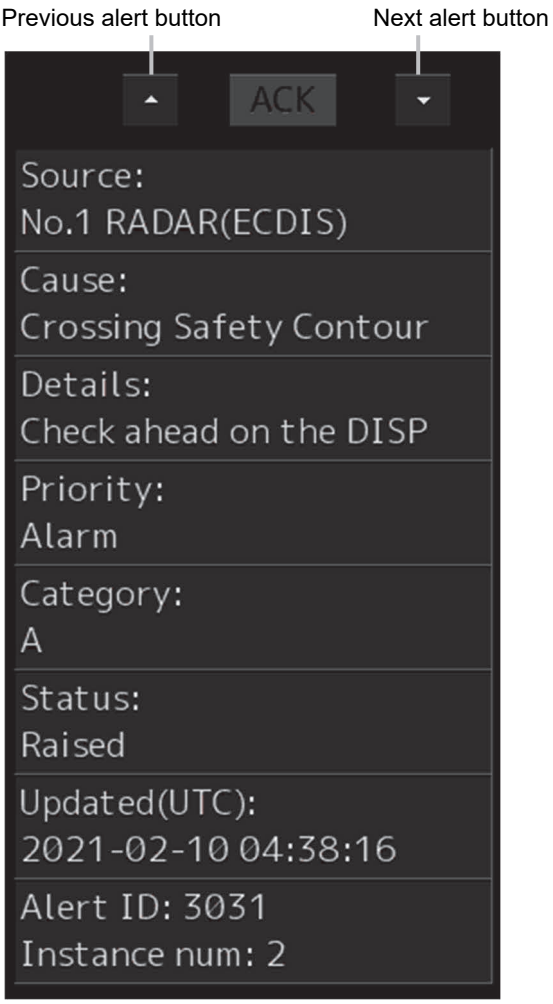
- The [ACK] button is not displayed for the emergency alarm and the [Caution] alert since acknowledgement is not required.
- The [ACK] button is disabled for the [Category A/C] alert since acknowledgement is not required.

[5] Details of active alert

The detailed information of the alert being selected in the active alert list is displayed.

The displayed contents of the detailed information vary with the alert being selected.

The following screen appears if an individual alert is being selected in the active alert list.



Item	Detailed information
Source	Displays the source of the alert.
Cause	Displays the cause of the alert.
Details	Displays the details of the cause of the alert.
Priority	Displays the alert priority (identification of Alarm/Warning/Caution).
Category	Displays the alert category.
Status	Displays the status of the alert (Raised/Silenced/ACKed/Transferred/UnACK-Rectified).
Updated(UTC)	Displays the latest update time of the alert.
Alert ID	Displays the ID of the alert.
Instance num	Displays the Instance number of the alert.

Previous alert display button

When this button is clicked on, the previous alert is displayed.

Next alert display button

When this button is clicked on, the next alert is displayed.

[ACK] button

When this button is clicked on, the alert that is currently selected is acknowledged.

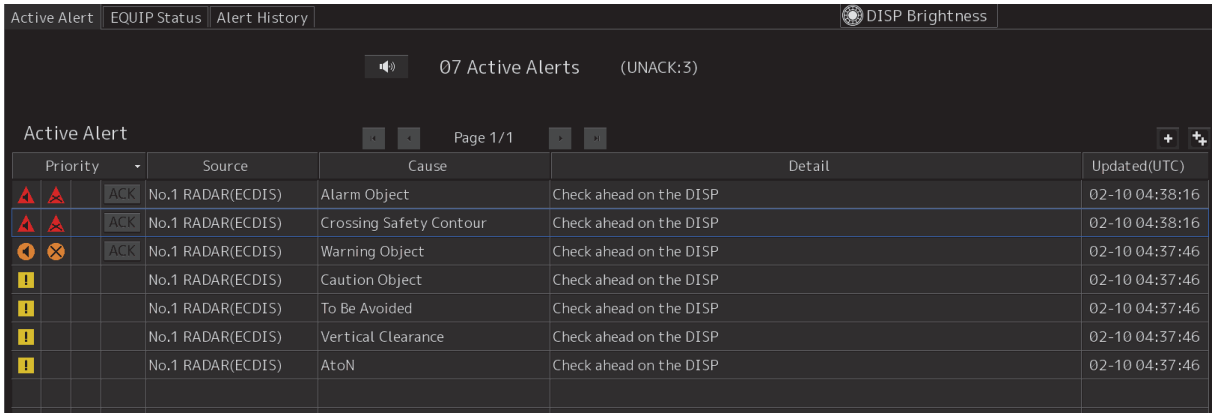
[6] Aggregation of alert

When this button is clicked on, display of the aggregation of alert is switched to ON or OFF.
(For more detailed information about aggregated alerts, refer to "3.3.6.7 Aggregated alerts".)

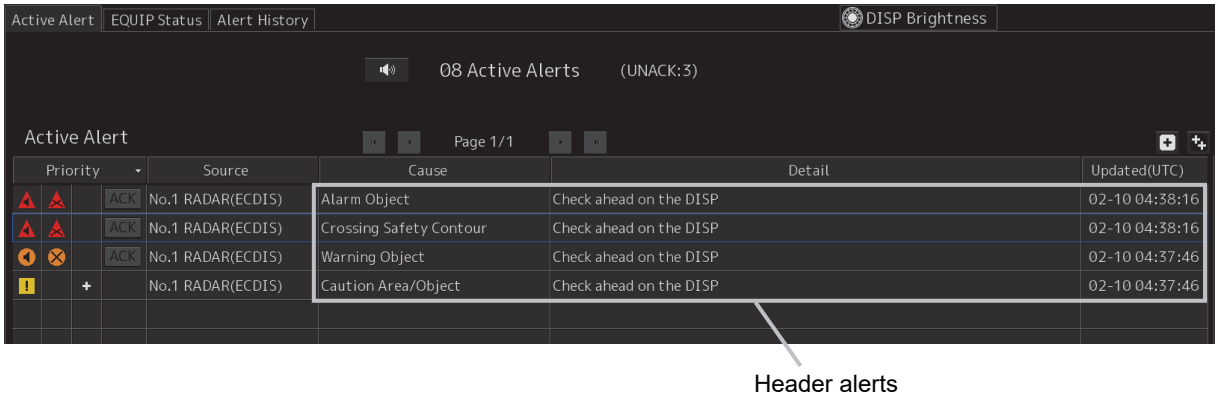
Aggregation: OFF (Default)

Aggregation: ON

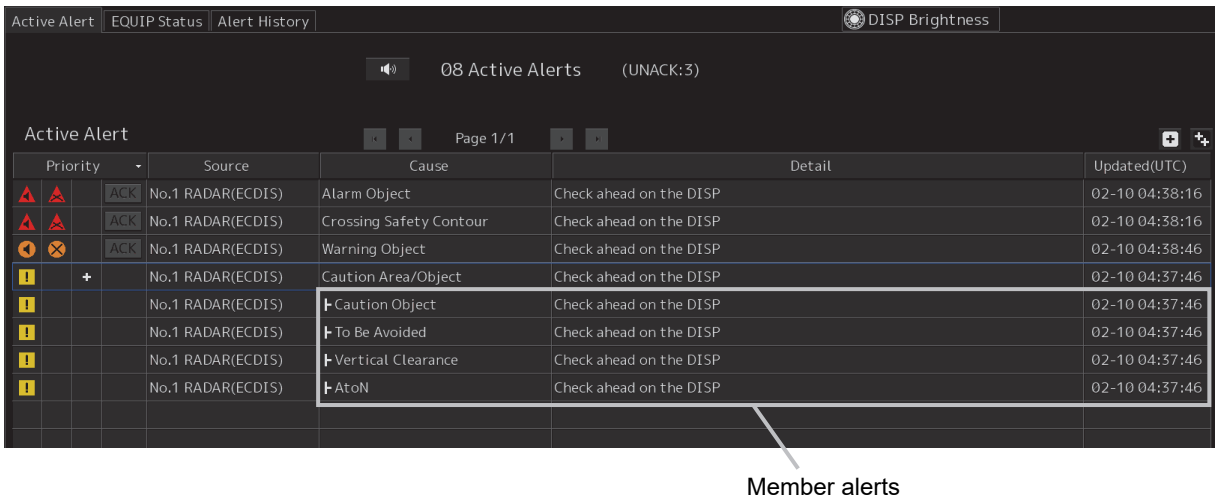
- When aggregation is off, all alerts are displayed.



- When aggregation is on, alerts are aggregated. Displays Header alerts only.



- When Cause of Header alerts is clicked, display of Member alerts is switched to ON or OFF.



[Header alerts]

Alert of an aggregation, under which the associated member alerts are sorted.
Header alerts are displayed with a ✚ when the header alert is associated with a member alert.
And header alerts are displayed with ▲ or ⊗ because header alerts are not allowed to acknowledge.

[Member alerts]

Alerts aggregated by aggregation source. Member alerts are displayed in a hierarchy.

Note

Alerts will not be aggregated if more than one member alert does not exist.

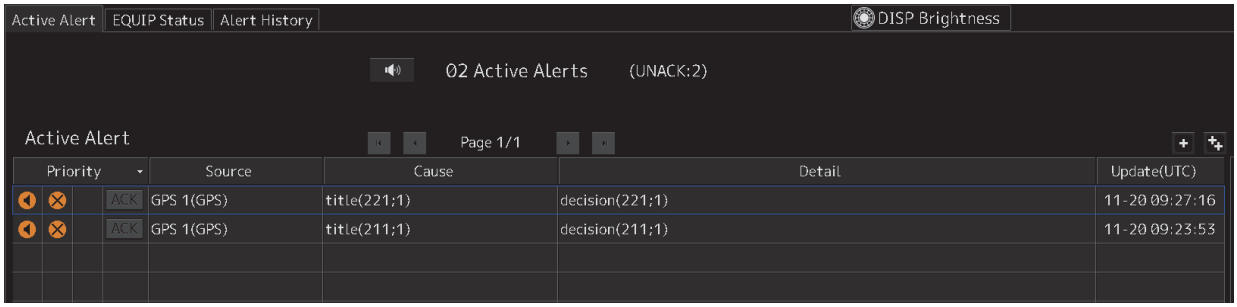
[7] Functional Alert Grouping

When this button is clicked on, display of the functional alert grouping is switched to ON or OFF.
(For more detailed information about aggregated alerts, refer to "3.3.6.8Grouped Alerts".)

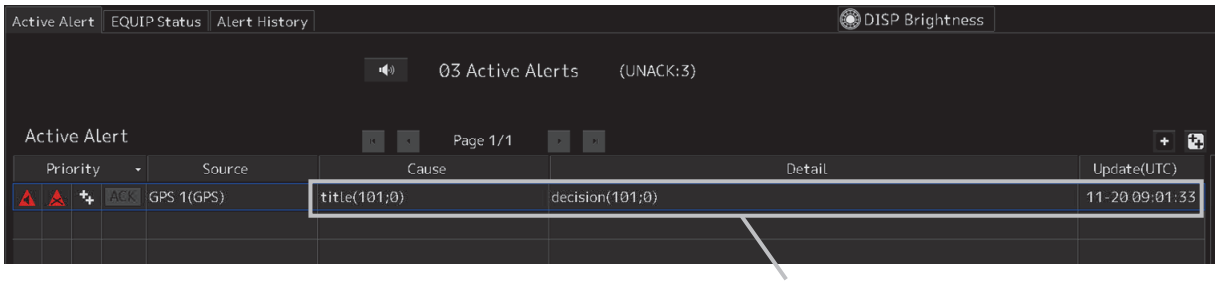
Functional Alert Grouping: OFF

Functional Alert Grouping: ON

- When functional alert grouping is off, all alerts are displayed.

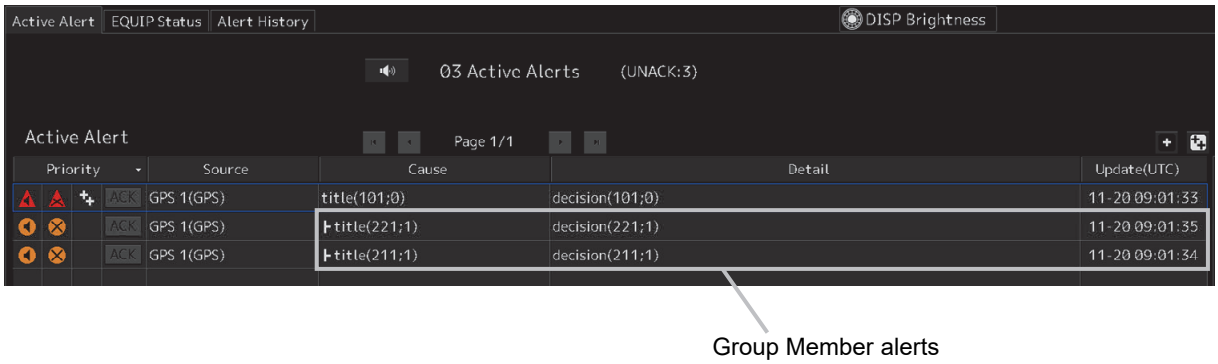


- When functional alert grouping is on, alerts are grouped. Displays Group Header alerts only.



Group Header alerts

- When Cause of Group Header alerts is clicked, display of Group Member alerts is switched to ON or OFF.



[Group Header alerts]

Alert of a functional alert grouping, under which the associated group member alerts are sorted. Group header alerts are displayed with a ⛓ when the group header alert is associated with a group member alert.

[Group Member alerts]

Alerts grouped by a functional alert group source. Group member alerts are displayed in a hierarchy.

Note

Alerts will not be grouped if more than one group member alert does not exist.

3.2.1.2 [EQUIP Status] tab

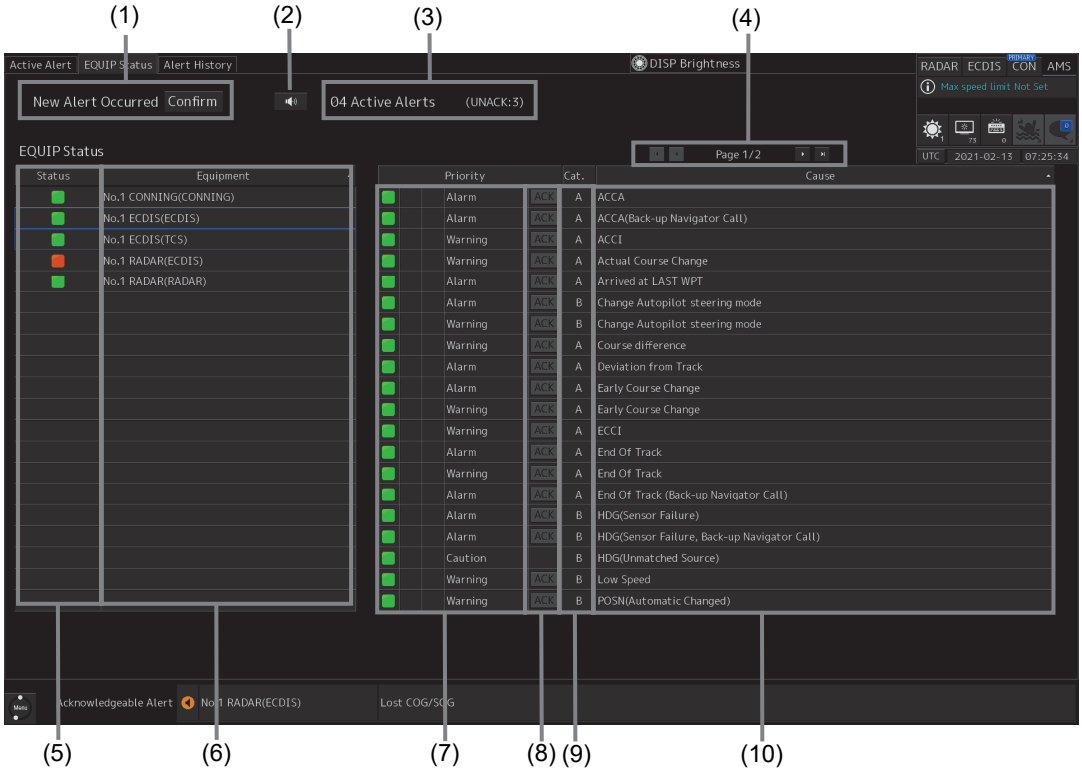
On the screen of the [EQUIP Status] tab, the equipment names and all the alerts that occurred from each equipment (including normal states) are displayed.
All the alerts defined are displayed in a list for each piece of equipment.
Alerts concerning MFD are selected according the license. Alerts concerning equipment other than MFD are displayed according to the definition of the BAM file and the installation status.
Information on aggregated alerts is not displayed. Information only on individual alerts is displayed.

Memo

A BAM file is a general term of the file group that is imported and expanded by the BAM interface to construct a database of alert information.

Inhibit target alert

An alert that is not activated even if it occurred is called an Inhibit target alert.
An Inhibit target alert is specified by the BAM file and is ignored even if it occurs. An Inhibit target alert is displayed as Disable on the [EQUIP Status] tab screen.



[1] [New Alert Occurred] and [Confirm] button

When a new alert occurs while an alert list is displayed, the occurrence of a new alert is notified by displaying a message, [New Alert Occurred], as well as blinking the [Confirm] button.
When the [Confirm] button is clicked on, the top page of the [Active Alert] tab screen is displayed.

[2] Silence button

This button silences the alert sound.

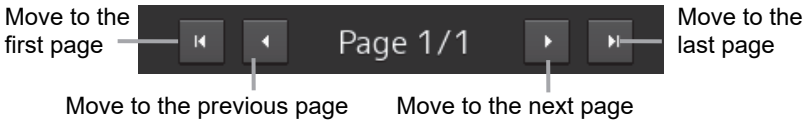
[3] Active alert information

The quantity of current occurring alerts is displayed.

When the quantity of alarms is 100 or more, "More" is displayed instead of the count.

[4] Page information

Up to 20 alert information items can be displayed in one page. Use the following buttons to switch pages when the number of alert information items exceeds 20, requiring multiple pages.



[5] Equipment status icon

This icon indicates the occurrence of an alert in the corresponding equipment by the color.

Green:	No alert occurred.
Yellow:	Caution occurred.
Orange:	Warning occurred.
Red:	Alarm occurred.
Red ([EM] displayed in the icon):	Emergency alarm occurred.
Grey:	Communication failure occurred.

The icon blinks when the alert has not been acknowledged or the resolution has not been acknowledged.

The icon blinks in red when an alert of low priority has not been acknowledged or the resolution has not been acknowledged even if the alert of the higher priority of the corresponding equipment has been acknowledged.

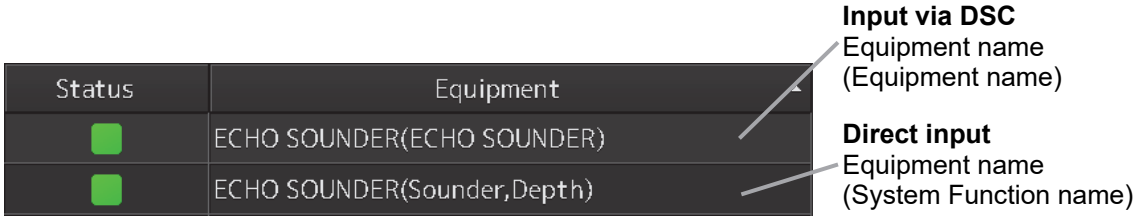
[6] Equipment name list

Equipment names are displayed. When an equipment name is clicked on, the alert list of the equipment is displayed.

- In the initial state, equipment names are displayed alphabetically in the ascending order.

Memo

Even if there are alerts from the same equipment, if there are alerts that are inputted via DSC (NCT-82 / 83) in addition to the alerts that are inputted directly, the equipment names will be displayed separately.



[7] Alert status icon

This icon indicates the corresponding alert status.

This icon blinks when the alarm or warning that occurred has not been acknowledged.

When the alert status of the corresponding equipment changes, the display also changes automatically.

- In the initial state, the status is displayed from the top in the following order.
  - "active" emergency alarms
  - "active – unacknowledged" and “active – silenced” alarms
  - "active – unacknowledged" and “active – silenced” warnings
  - "rectified – unacknowledged" alarms
  - "rectified – unacknowledged" warnings
  - "active – acknowledged" alarms
  - "active – responsibility transferred" alarms
  - "active – acknowledged" warnings
  - "active – responsibility transferred" warnings
  - "active" cautions

[8] [ACK](Acknowledgment) button

When this button is clicked on, the corresponding alert is acknowledged.

Memo

The [ACK] button corresponding to the alerts that are specified as Inhibit target alerts by the BAM file are disabled.

[9] Category list

Category is displayed. (identification of A, B or C).

[10] Alert name list

Alert names are displayed.

- In the initial state, alert names are displayed alphabetically in the ascending order.
- When a new alert occurs while alerts are being displayed and sorted based on the priority order, the new alert is added to the top of the applicable priority.

Memo

For alerts that are specified as Inhibit target alerts by the BAM file, the characters in the [Priority] and [Causes] columns are displayed in gray.

3.2.1.3 [Alert History] tab

In the [Alert History] tab, a list of past alerts that have been rectified is displayed.

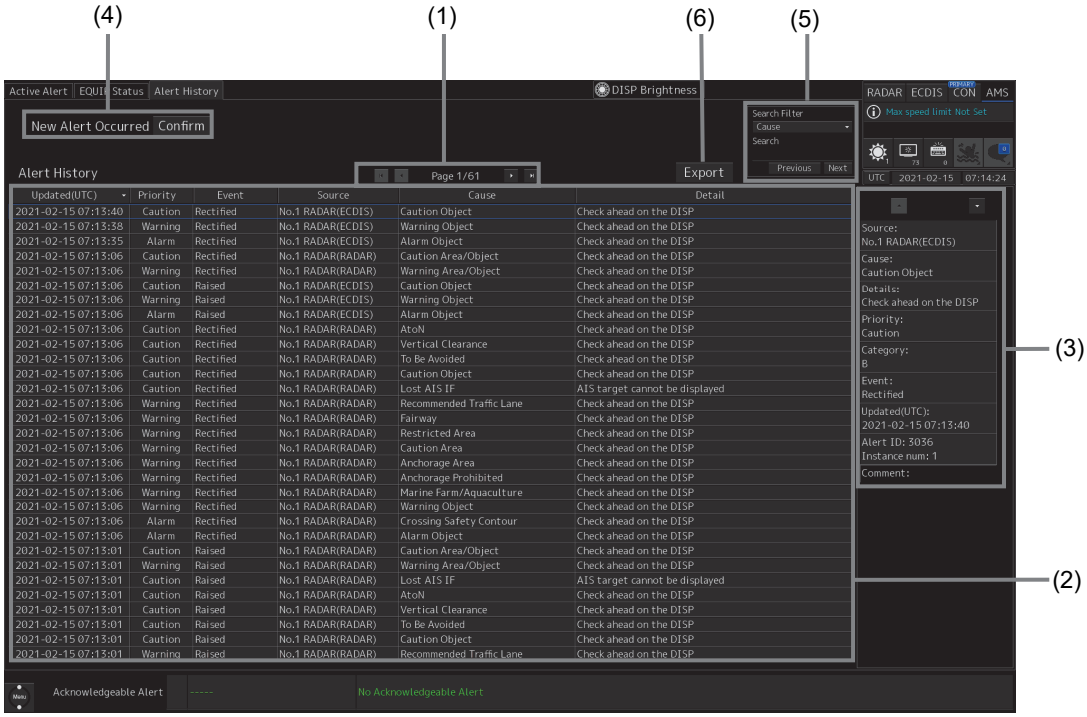
Inhibit target alert

An alert that is not activated even if it occurred is called an Inhibit target alert.

An Inhibit target alert is specified by the BAM file and is ignored even if it occurs. The alert is not displayed on the [Alert History] tab screen.

Memo

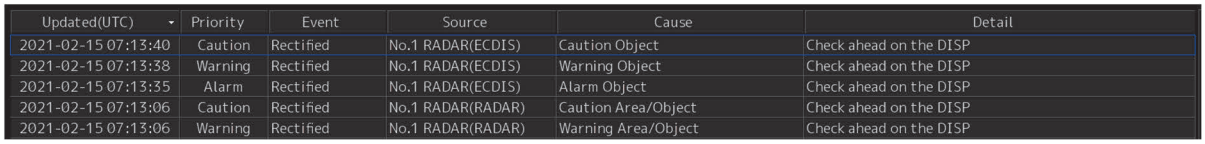
A BAM file is a general term of the file group that is imported and expanded by the BAM interface to construct a database of alert information.



[1] page information

Up to 20 alerts can be displayed in one page. Use this function to switch pages when the number of alerts exceeds 20, requiring multiple pages.

[2] Alert History list



Updated(UTC)	Priority	Event	Source	Cause	Detail
2021-02-15 07:13:40	Caution	Rectified	No.1 RADAR(ECDIS)	Caution Object	Check ahead on the DISP
2021-02-15 07:13:38	Warning	Rectified	No.1 RADAR(ECDIS)	Warning Object	Check ahead on the DISP
2021-02-15 07:13:35	Alarm	Rectified	No.1 RADAR(ECDIS)	Alarm Object	Check ahead on the DISP
2021-02-15 07:13:06	Caution	Rectified	No.1 RADAR(RADAR)	Caution Area/Object	Check ahead on the DISP
2021-02-15 07:13:06	Warning	Rectified	No.1 RADAR(RADAR)	Warning Area/Object	Check ahead on the DISP

- When any of the alerts is clicked on, the alert is selected (enclosed by a blue frame).

2021-02-15 07:13:40	Caution	Rectified	No.1 RADAR(ECDIS)	Caution Object

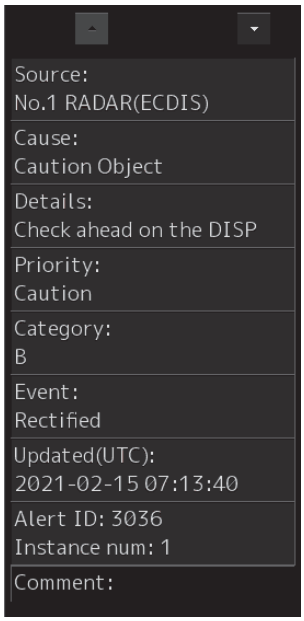
- The details of the selected alerts are displayed in "(3) Details of alert history".
- When an alert is newly resolved while the screen is displayed, addition is made according to the sort sequence that is set (the initial setting of the sort sequence is the occurrence time).
- By clicking on any of the items in the title line, alerts can be sorted based on the item.
- Alerts are added per event as follows.

2021-02-15 07:13:06	Warning	Rectified	No.1 RADAR(RADAR)	Warning Area/Object
2021-02-15 07:13:06	Caution	Raised	No.1 RADAR(ECDIS)	Caution Object

Event	Detailed information
Raised	Alert raised
Silenced	Alert silenced
ACKed	Alert acknowledged
Transferred	Alert responsibility transferred
UnACK-Rectified	Rectified alert was unacknowledged
Rectified	Alert rectified
Repeat	Alert sound was repeated
Removed	Alert removed This event occurs when equipment shuts down, returns to the task menu, removes the installation, or loses the alert function.
Call Nav	Alarm was transferred to BNWAS

[3] Details of alert history

Details of the alert that is currently selected are displayed.



Item	Detailed information
Source	Displays the source of the alert.
Cause	Displays the cause of the alert.
Details	Displays the details of the cause of the alert.
Priority	Displays the alert priority (identification of Alarm/Warning/Caution).
Category	Displays the alert category.
Event	Displays the event of the alert.
Updated(UTC)	Displays the latest update time of the alert.
Alert ID	Displays the ID of the alert.
Instance num	Displays the Instance number of the alert.

[4] [New Alert Occurred] and [Confirm] button

When a new alert occurs while alert history is displayed, the new alert is notified by flashing the [Confirm] button together with the message, [New Alert Occurred].

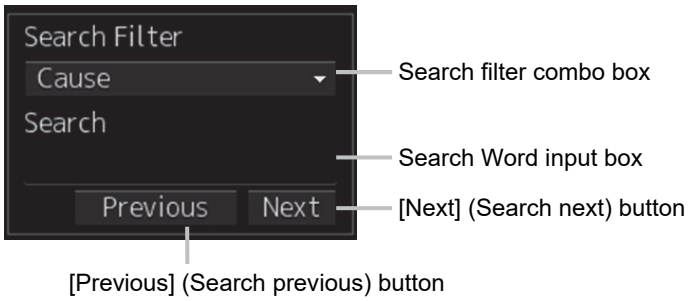
When the [Confirm] button is clicked on, the first page of the [Active Alert] tab screen is displayed.

[5] Alert search

Alerts in the alert history list can be searched by specifying a condition.

For the search operation, refer to "Searching alerts".

Searching alerts



1 **Select a search target on the Search Filter combo box.**

Any of the following search targets can be selected from the alert history list.

Updated(UTC), Priority, Event, Source and Cause.

2 **Enter up to 64 characters to be searched in the Search word input box.**

3 **When the [Next] button is clicked on, search starts in the downward direction from the row currently selected in the alert history list. When the [Previous] button is clicked on, search starts in the upward direction.**

When the applicable alert is found, the row is selected.

When no applicable alert is found, the effect is displayed on the dialog. Click on [OK] and close the dialog.

[6] [Export] button

Press this button to export alert history information to the USB memory in CSV format.

The following information items are written to the CSV file for one alert.

Source / Cause / Category / Current Priority / Original Priority / Raised / Acknowledged / Rectified / Details / Comment

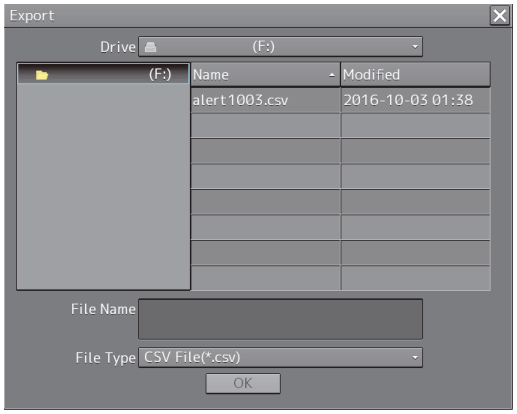
Up to 5000 alerts can be exported.

For the export operation, refer to "Exporting alert history".

Exporting alert history

1 **Click on the [Export] button.**

The “Export" dialog is displayed.



2 **Specify Drive, Folder, and Name (file name) from which the alert history is to be exported.**

Specify [CSV File (*.csv)] for the File Type (file format).

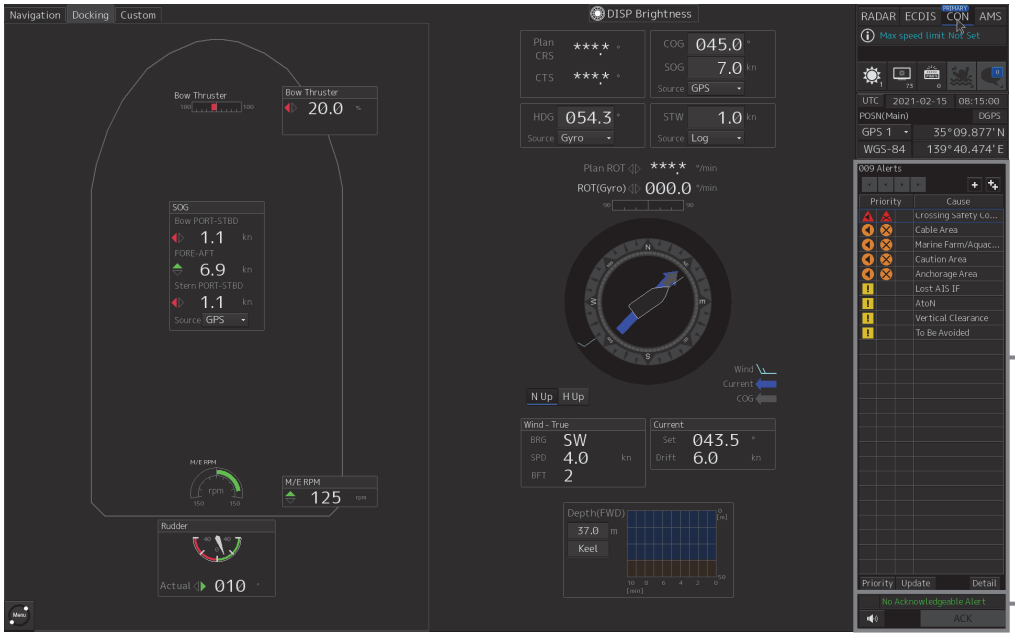
3 **Click on the [OK] button.**

The alert history is exported.

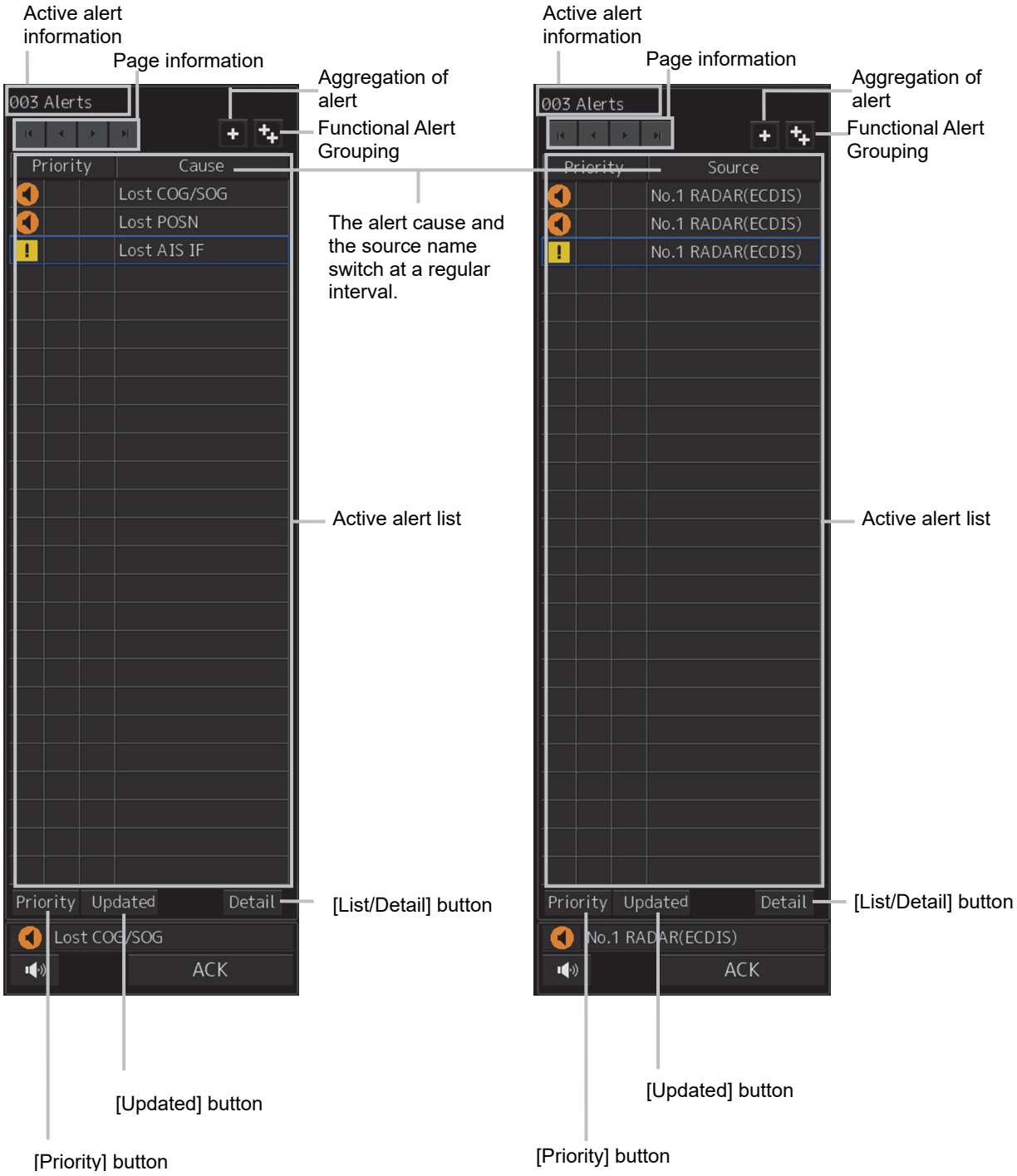
To cancel file export, click on the [x] button.

3.2.2 Conning Display screen

This section describes the names and main functions of each section of the Conning Display screen. For the information other than active alerts and acknowledgeable alert of Conning Display, refer to the "Conning Display" instruction manual.



[1] Active Alert

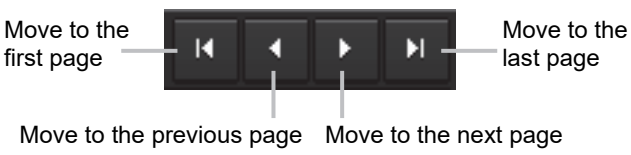


Active Alert Information

The quantities of alerts that are currently occurring are displayed.

Page Information

In the list, 20 alerts (26-inch display) are displayed per page. When the number of alerts exceeds 20, the page can be switched by using the following buttons.



Aggregation of alert

When this button is clicked on, display of the aggregation of alert is switched to ON or OFF.

Aggregation: OFF (Default)

Aggregation: ON

Functional Alert Grouping

When this button is clicked on, display of the functional alert grouping is switched to ON or OFF.

Functional Alert Grouping: OFF

Functional Alert Grouping: ON

Active alert list

- The alerts that are currently raised are displayed. When any of the alerts is clicked on, the alert is selected.
- When the [List/Detail] button is clicked on the selected alert, the details are displayed. For the details, refer to "[List/Detail] button".
- When a new alert is raised, the alert is added at the list. Alert is sorted automatically according to the following alert status order.
  - "active" emergency alarms
  - "active – unacknowledged" and “active – silenced” alarms
  - "active – unacknowledged" and “active – silenced” warnings
  - "rectified – unacknowledged" alarms
  - "rectified – unacknowledged" warnings
  - "active – acknowledged" alarms
  - "active – responsibility transferred" alarms
  - "active – acknowledged" warnings
  - "active – responsibility transferred" warnings
  - "active" cautions

[Priority] (priority sequence sort) button

By clicking on this button, the active alert list can be sorted in the priority sequence.

[Update] (detection sequence sort) button

By clicking on this button, the active alert list can be sorted in the detection sequence.

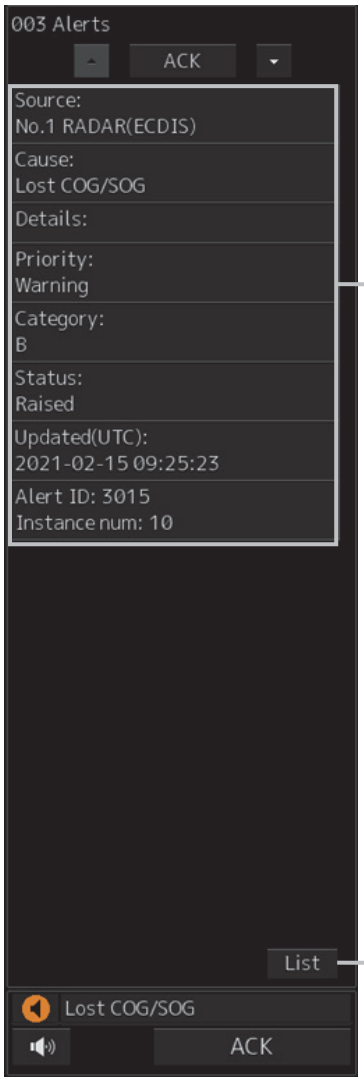
[List/Detail] button

When this button is clicked, the screen display changes to detailed display.

The displayed contents of the detailed information vary with the alert being selected.

- In the case of individual alerts

  The following screen appears if an individual alert is being selected in the active alert list.



Active alert detail display

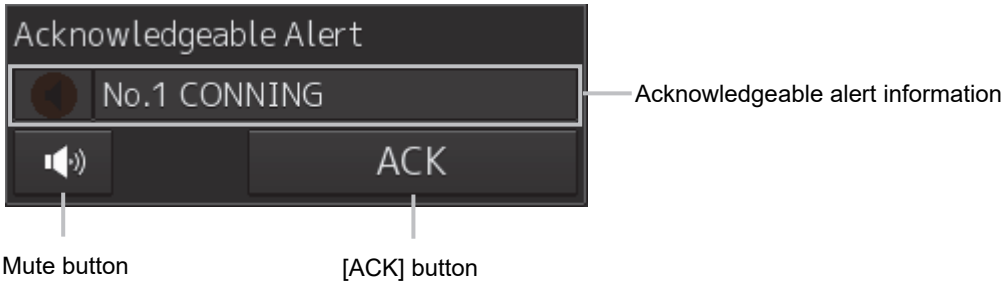
Detail information of the selected alerts is displayed.

Item	Detailed information
Source	Displays the source of the alert.
Cause	Displays the cause of the alert.
Details	Displays the details of the cause of the alert.
Priority	Displays the alert priority (identification of Alarm/Warning/Caution).
Category	Displays the alert category.
Status	Displays the status of the alert (Raised/Silenced/ACKed/Transferred/UnACK-Rectified).
Updated(UTC)	Displays the latest update time of the alert.
Alert ID	Displays the ID of the alert.
Instance num	Displays the Instance number of the alert.

[List/Detail] button

When this button is clicked on, the display is switched to the list display.

[2] Acknowledgeable alert



Acknowledgeable alert information

Of the unacknowledged alerts of category B, information of the alert of highest priority is displayed.

Mute button

This button silences the alert sound.

[ACK] (acknowledgement) button

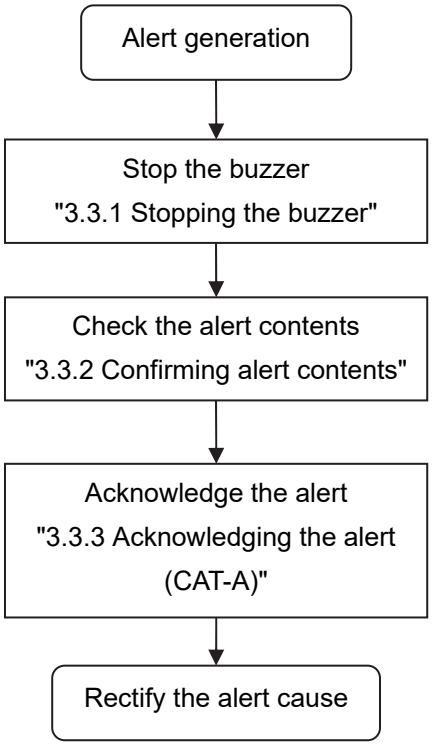
This button acknowledges the alert that is being displayed in the acknowledgeable alert information.

3.3 Confirming and Acknowledging an Alert

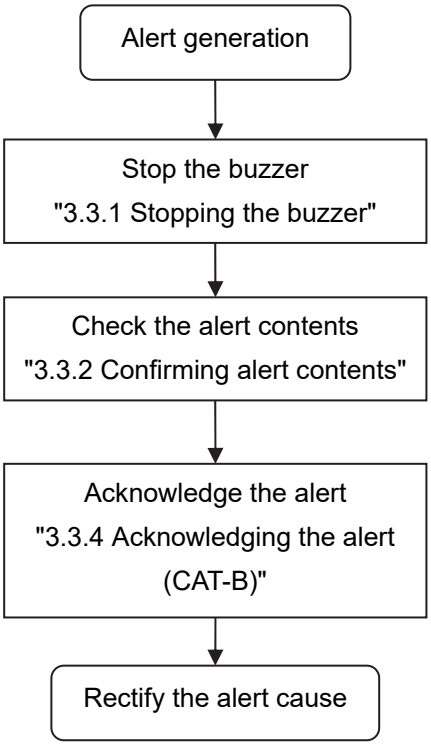
When an alert is generated, a buzzer sound is emitted, and the alert contents are displayed on the screen of the [Active Alert] tab.

The general procedure for handling an alert is shown below.

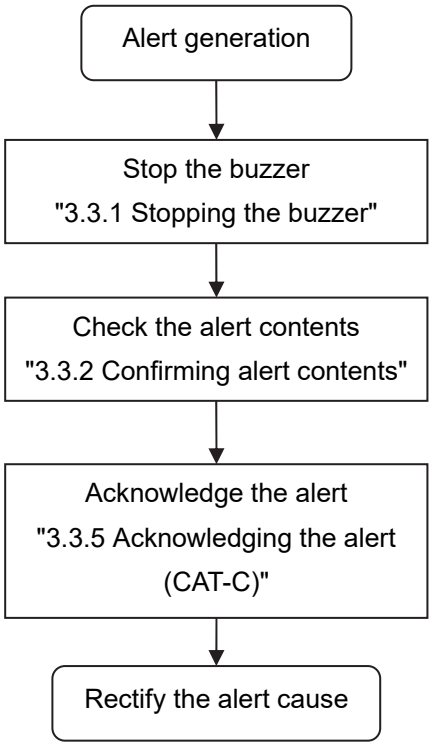
[Category-A Alert]



[Category-B Alert]



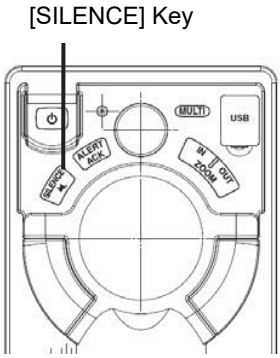
[Category-C Alert]



3.3.1 Stopping the buzzer

To stop a buzzer (silencing), click the silence button or press the [SILENCE] key in the trackball operation unit.

Active Alert tab



Memo

When alert sound is silenced by selecting [Alert]-[AMS]-[Reactivation of Silenced Alert] in the menu and the silenced alert has not been acknowledged, it is possible to set a time interval for re-emitting the alert sound. For the details, refer to "3.7.2 **Setting up alert processing**".

3.3.2 Confirming alert contents

When an alert is generated, the alert message is displayed in the "Active Alert tab".

3.3.3 Acknowledging the alert (CAT-A)

The Alarm of category-A cannot be acknowledged in alert management screen.
It is necessary to acknowledge this alarm at the generated equipment.

3.3.4 Acknowledging the alert (CAT-B)

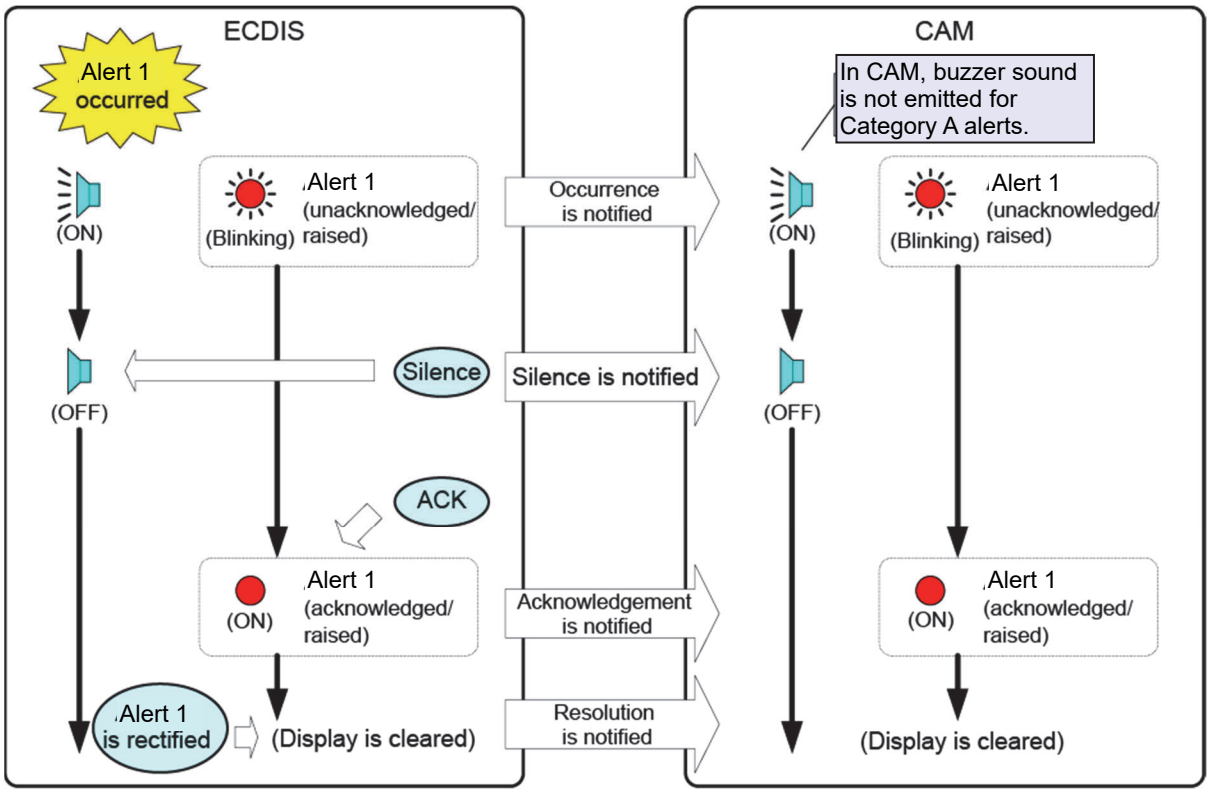
After checking the alert contents, when the [ACK] button of the active alert list or [ACK] button of the alert details is clicked on, the alert that is displayed is acknowledged.
When the [ALERT ACK] (alert acknowledgement) button on the trackball operation unit is pressed, the alert that is displayed in the acknowledgeable alert information is acknowledged.
When there are a number of alerts, perform the same operation for each alert.

3.3.5 Acknowledging the alert (CAT-C)

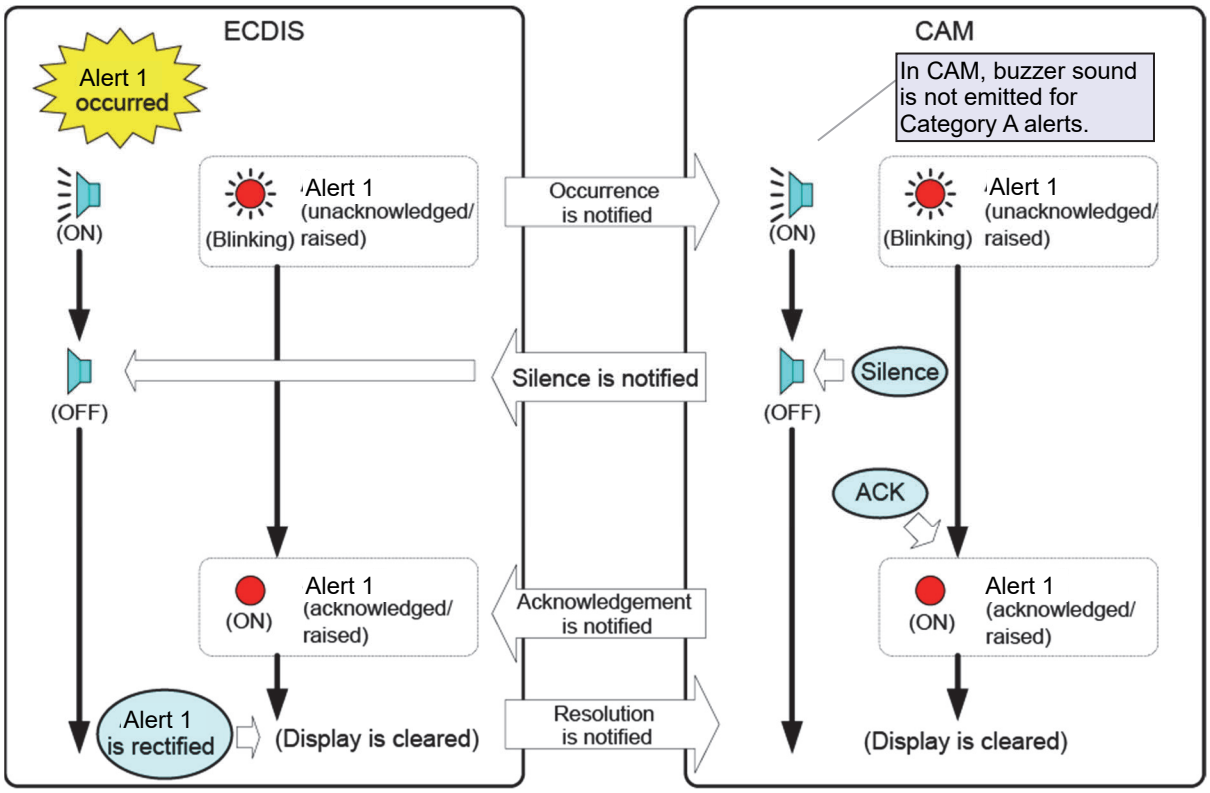
The Alarm of category-C cannot be acknowledged in alert management screen.
Acknowledgment operation is necessary on the equipment from which the alert is detected.

3.3.6 Flow of alart silence and acknowledgement operations

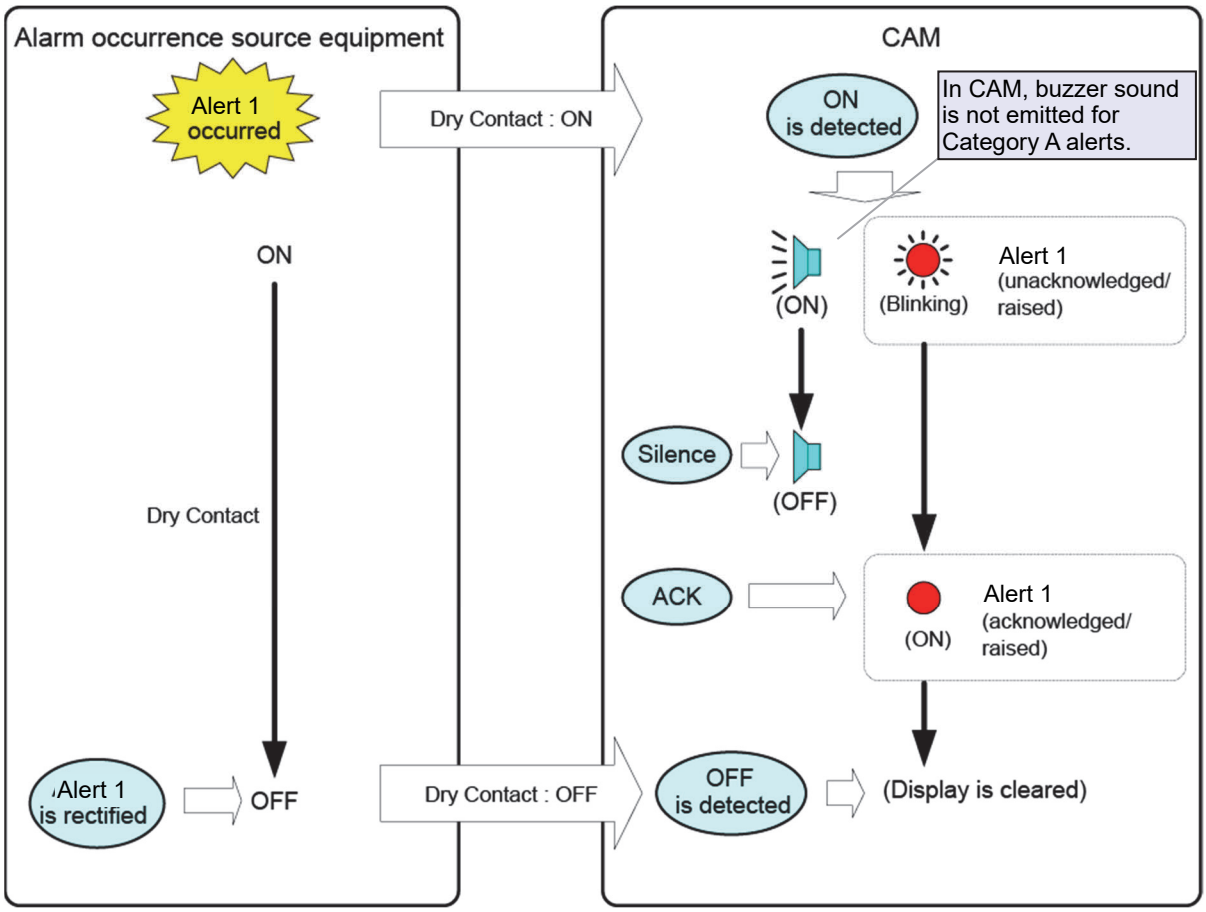
3.3.6.1 Silence and acknowledgment operations on the occurrence source equipment



3.3.6.2 Silence and acknowledgement operations on CAM



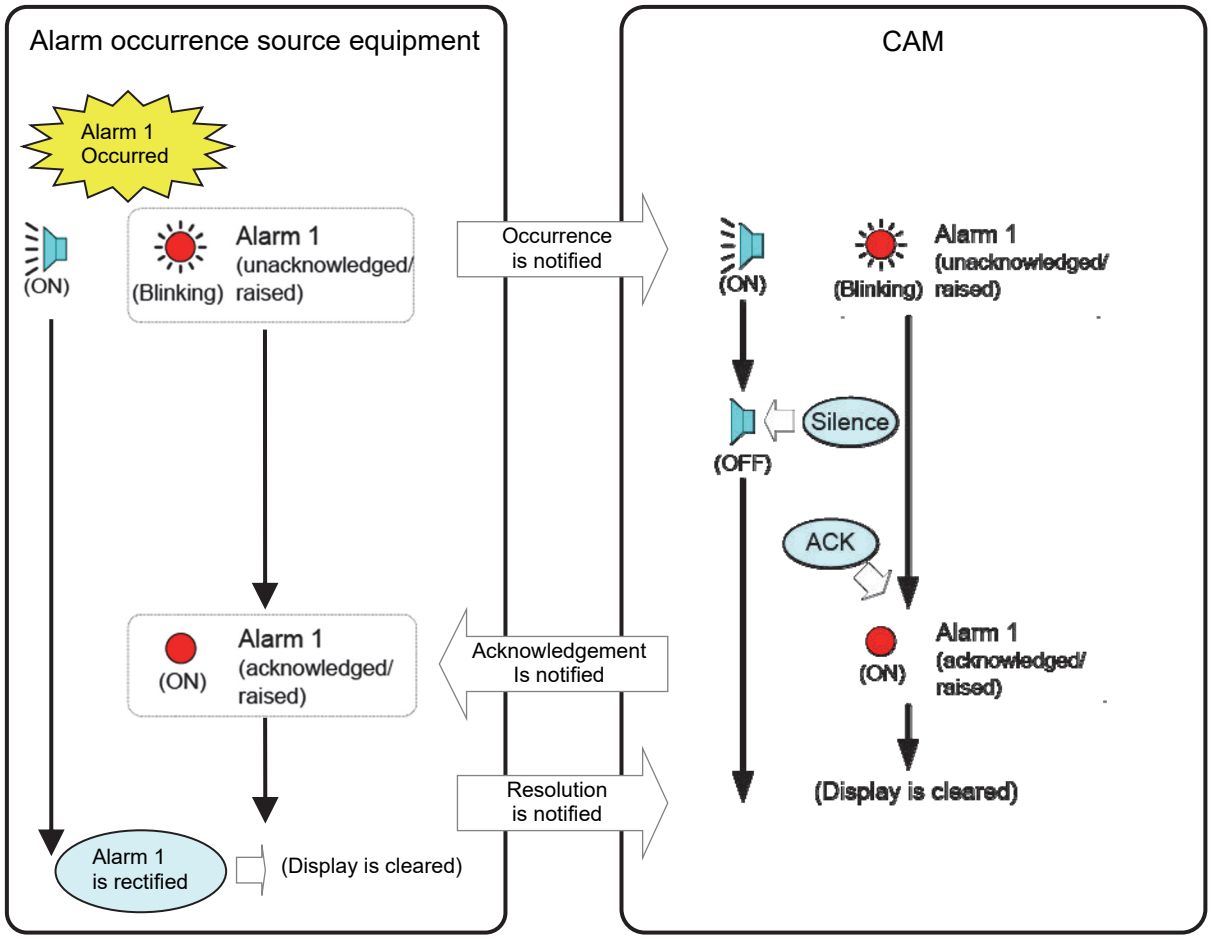
3.3.6.3 Silence and acknowledgment of the alerts that are notified at dry points



Memo

- The alert acknowledgement operation in the occurrence source equipment is allowed under category A/B/C.
- The alert acknowledgment operation in CAM is allowed under category B only.
- The alert acknowledgment and silence operation in CAM are valid only for alerts displayed on CAM. Alerts on occurrence source equipment cannot be acknowledged and silenced from CAM.
- Alert can not rearise. Alert status can not changed from “active – acknowledged”, “active – responsibility transferred” or “rectified – unacknowledged” to “active – unacknowledged”.

3.3.6.4 Silence and acknowledgment of the legacy alerts

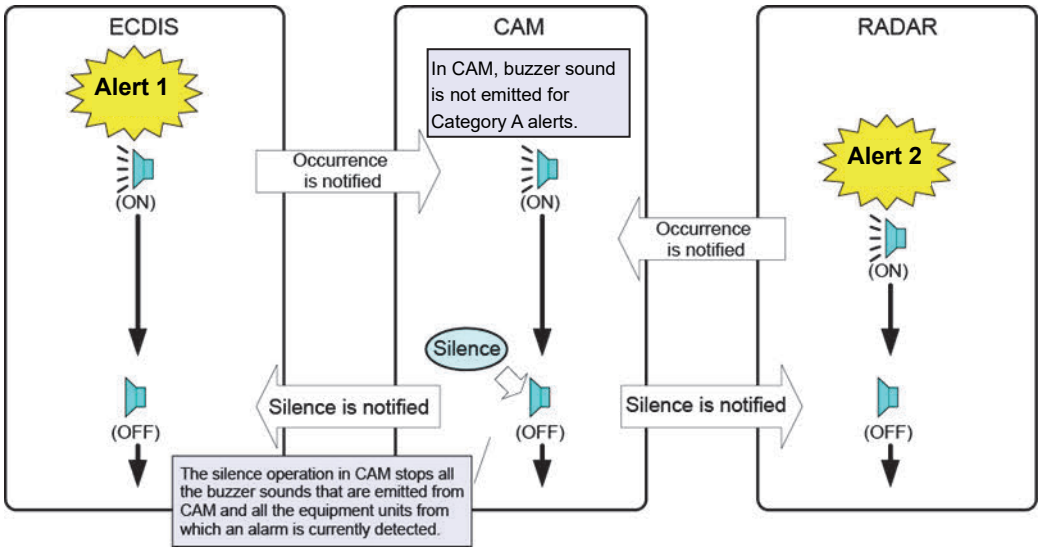


Memo

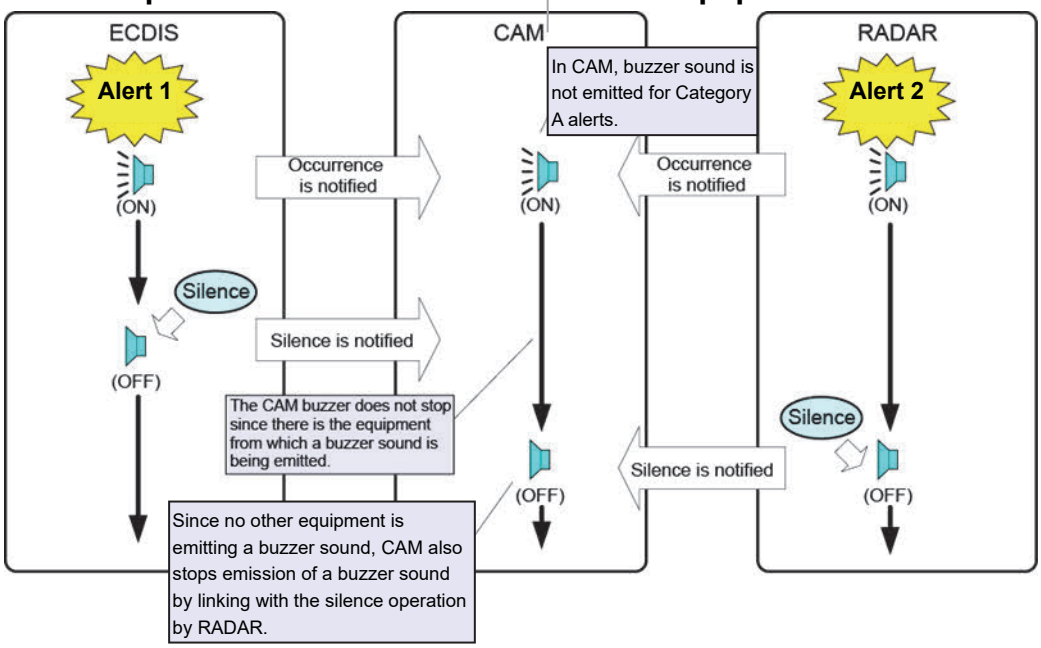
- The alert acknowledgement operation in the occurrence source equipment is allowed under category A/B/C.
- The alert acknowledgment operation in CAM is allowed under category B only.
- If the alert after changing the alert category of the occurrence source equipment from B to A or C is displayed on CAM, the alert cannot be confirmed on CAM.
- If the alert after changing the alert of the occurrence source equipment to emergency alert or caution is displayed on CAM, the alert cannot be confirmed on CAM.
- The alert silence operation in CAM are valid only for alerts displayed on CAM. Alerts on occurrence source equipment cannot be silenced from CAM.

3.3.6.5 Silence operation at the occurrence of alerts from multiple equipment units

Silence operation in CAM

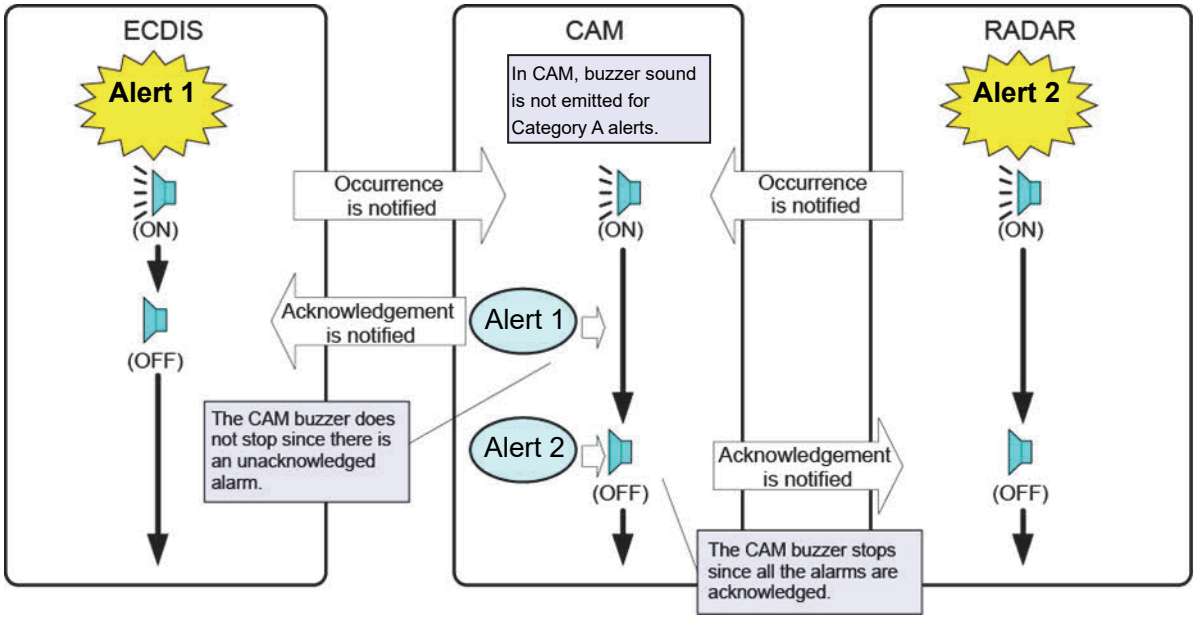


Silence operation in the occurrence source equipment

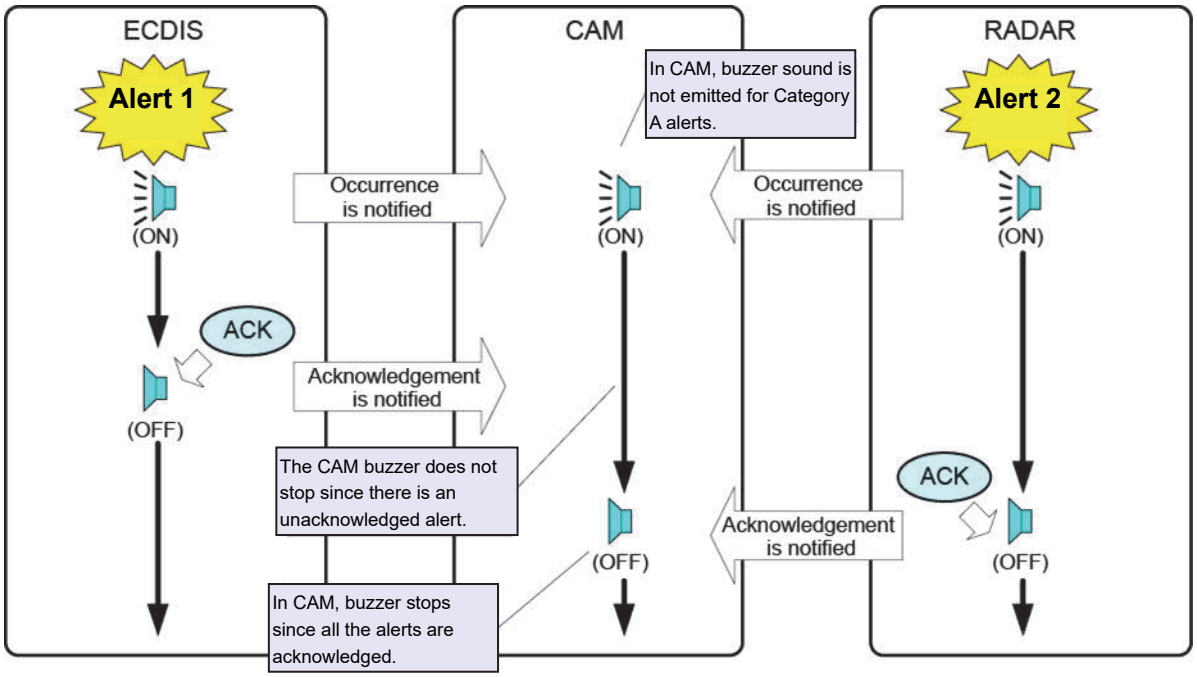


3.3.6.6 Acknowledgment operation at the occurrence of alerts from multiple equipment units

Acknowledgment operation in CAM (category B alerts only)

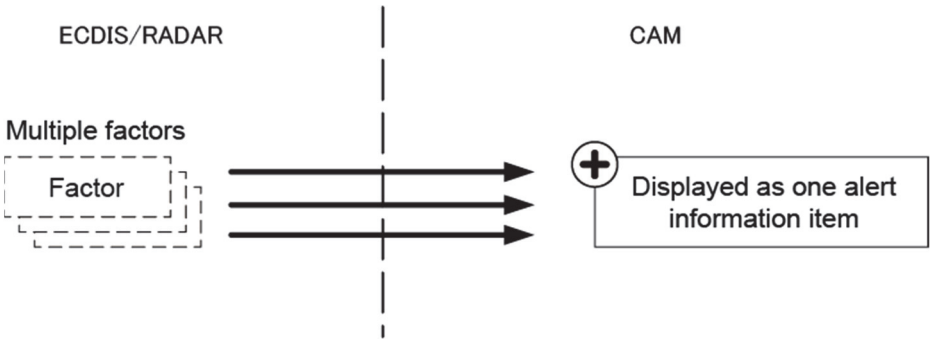


Acknowledgment operation in the occurrence source equipment

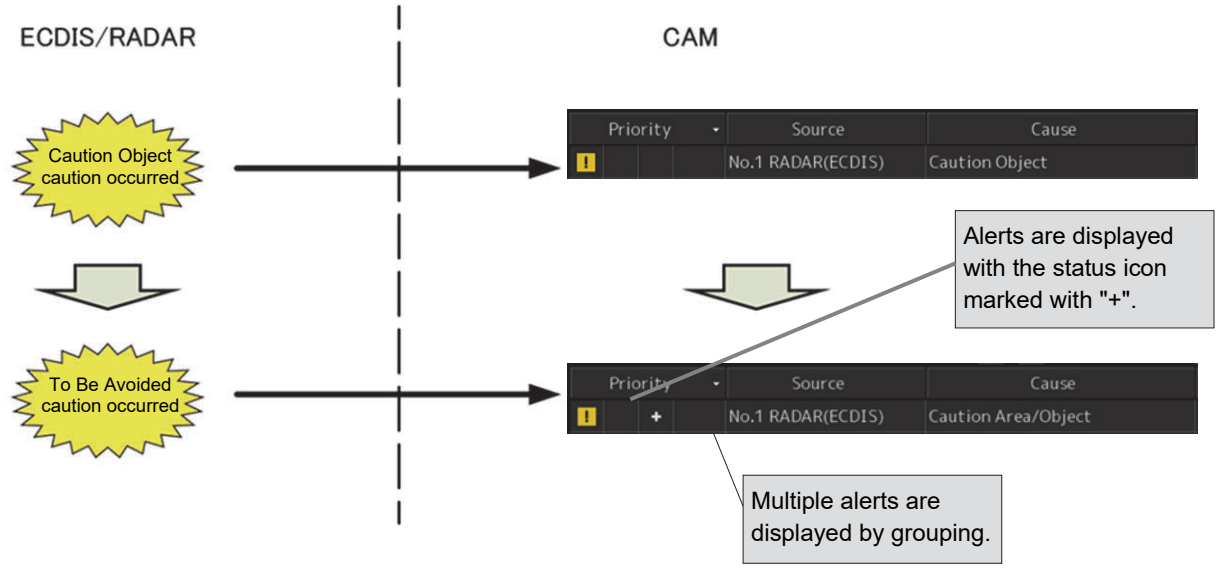


3.3.6.7 Aggregated alerts

Alerts of the same type may be grouped and displayed as one alert. These alerts are referred to as Aggregated alerts.

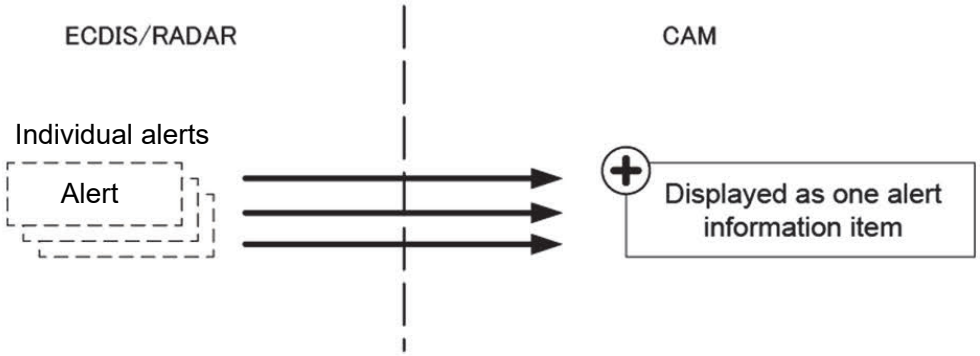


An aggregated alert is indicated by a status icon with "+" symbol.

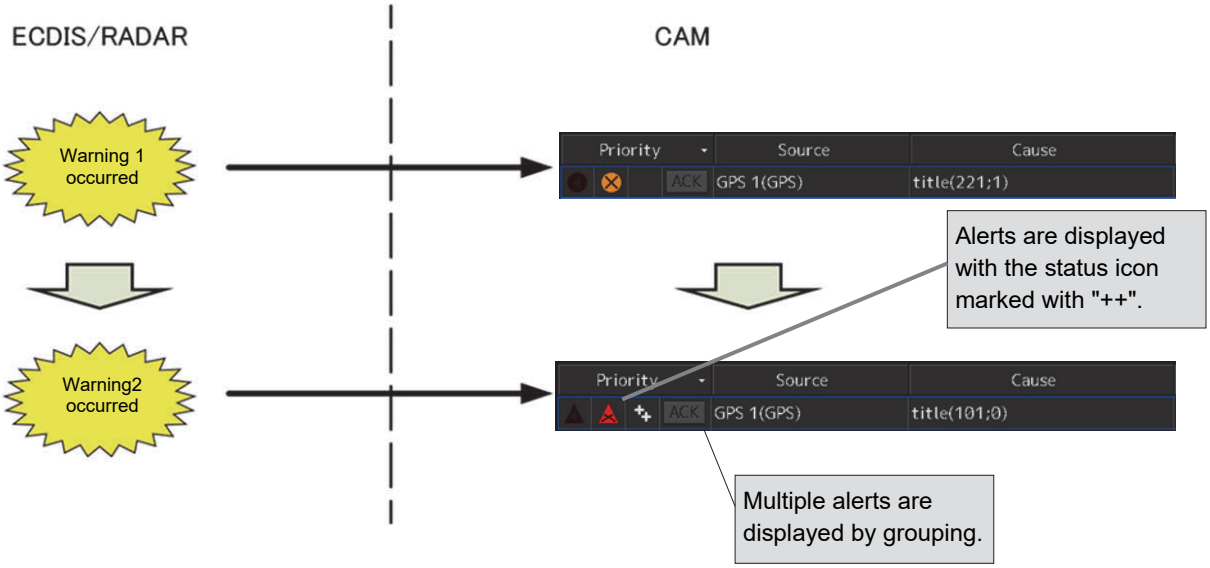


3.3.6.8 Grouped Alerts

Multiple individual alerts may be grouped and displayed as one alert. These alerts are referred to as grouped alerts.



A grouped alert is indicated by a status icon with "++" symbol.



3.4 Redundancy Concept

The concept of backup and redundancy is as follows.

1) Two units featuring CAM are installed in the system. One unit displays the alert management screen in the normal state and functions as the alert management server (hereinafter referred to as the CAM (Main)). The other unit executes other tasks (such as ECDIS) in the normal state and takes over the alert management server if a failure occurs in the CAM (Main) (hereinafter referred to as the CAM (Backup)).
2) Once the CAM (Backup) is activated, it starts collecting alert information from each unit (RADAR, ECDIS, various types of sensors and so on).
3) All the units without the CAM feature send alert information to the CAM unit and also display alerts individually. Thus, even if there is no active CAM unit in the system, each of other units can display alert information.

Alert display, buzzer emission, and approval

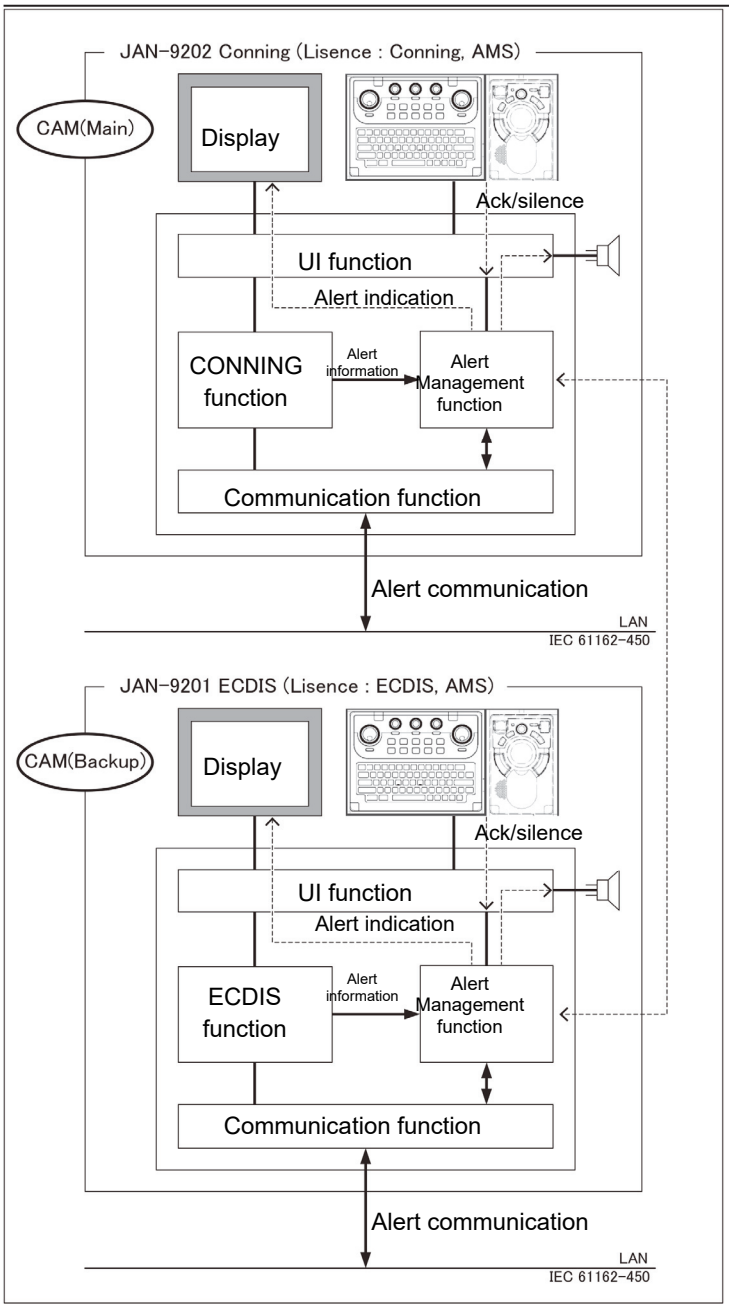
- Alerts of MFD and sensors are displayed synchronously with both CAM (Main) and CAM (Backup).
- Alert buzzer sound is emitted from both CAM (Main) and CAM (Backup) at the occurrence of an alert.
- Alerts can be approved by both CAM (Main) and CAM (Backup).

Switching between CAM (Main) and CAM (Backup)

- Normally, CAM (Main) mainly collects and distributes alerts to the system.
- When CAM (Main) stops, control is switched to CAM (Backup) and CAM (Backup) takes over the processing.
- When CAM (Backup) stops, control is switched to CAM (Main) and CAM (Main) takes over the processing.

CAM(Client)

- CAM(Client) is function that display the alert management screen of CAM in equipment other than CAM.
- CAM(Client) is displayed the same screen as the alert management screen and alerts in bridge. CAM(Client) emits buzzer sound, silences the sound and acknowledge alerts.
- CAM(Client) receives distribution of alert information from alert management server and display. When only CAM(Client) is enabled, alerts that CAM(Client) can display decrease because CAM(Client) cannot receive distribution of alert information. CAM(Client) cannot also transfer alerts to BNWAS, because the function to transfer alerts to BNWAS is the function which not CAM(Client) but alert management server should play a role.



Memo

As the backup equipment of CAM, the following JRC equipment units are necessary with the license that has the AMS mode activation authorization.

- JAN-7201/9201 ECDIS

- JAN-7202/9202 Conning Display

- JMR-7200/9200 Series RADAR

3.5 Transfer of Alert to BNWAS

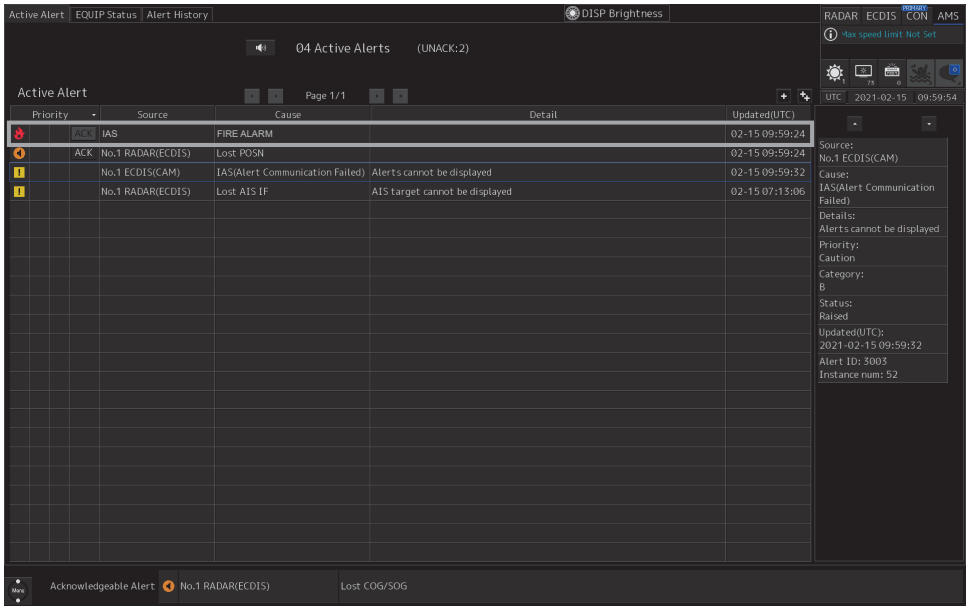
When a BNWAS (Bridge Navigational Watch Alarm System) is connected, specify the time to transfer an unacknowledged alert to the BNWAS in a range between 0 and 30 seconds.
(Refer to "3.7.2 Setting up alert processing")

3.6 Monitoring the IAS status

The IAS status can be monitored with CAM for the ship with IAS (Integrated Automation System) installed.

3.6.1 Displaying IAS alerts

Alerts from IAS are displayed on the alert management screens of CAM ([Active Alert] tab screen and [Alert History] tab screen). In this case, [IAS] is displayed in the [Equipment] column of the alert management screen.



Memo

- IAS alerts are defined in the BAM file.
- IAS alerts are handled in the same way as the alerts of each sensor.

3.6.2 Acknowledging IAS alerts

CAM can send alerts to IAS. IAS can send ACK (acknowledgement) of the received alerts to CAM.

Memo

The alerts that are sent to IAS are defined in the BAM file.

3.7 Setting Up Alerts

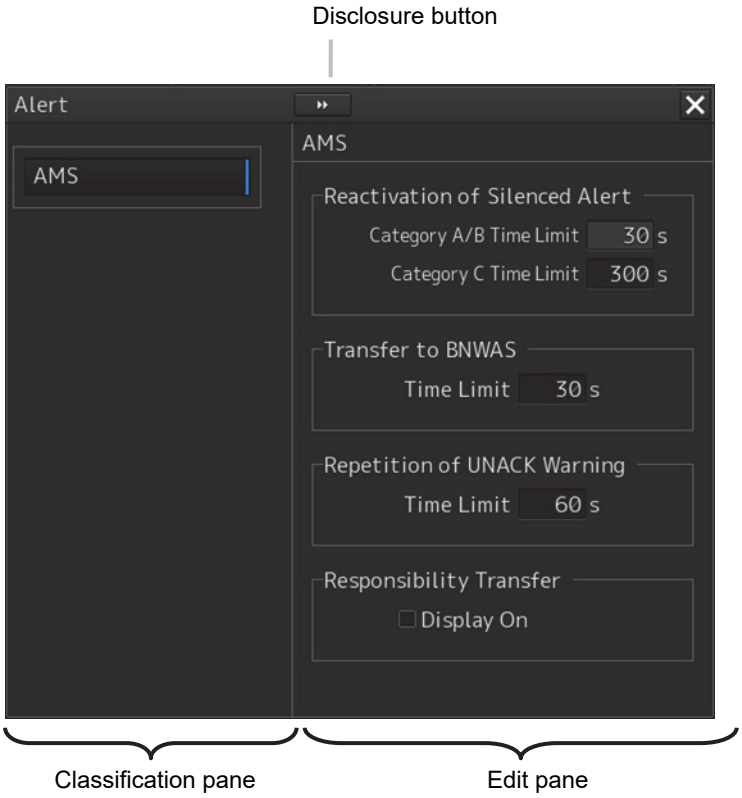
This section explains a setup of alert processing operations, and a setup of alert timer using the [Alert] menu.

3.7.1 Selecting setting items

When the [Alert] menu is opened, the "Alert" dialog box appears.
By selecting a setting item in the "Alert" dialog box, the setting dialog of the selected item can be displayed.

1 Click on the [Menu] button in the lower left corner of the screen.

2 Click on the [Alert] button on the menu.
The "Alert" dialog box appears.



The "Alert" dialog box consists of the Classification pane and the Edit pane.
By clicking the Disclosure button (>>), you can hide the Classification pane. To show the Classification pane again, click the Disclosure button (<<).

3 Click the alert classification you want to set up in the Classification pane.
The setting dialog of the selected item is displayed in the Edit pane.

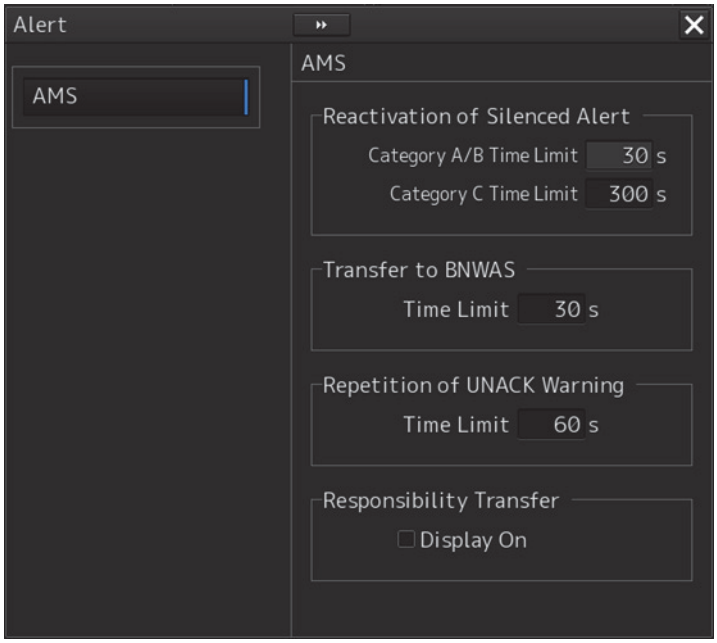
4 Set up in the Edit pane.

The following items can be set in the "Alert" dialog box.

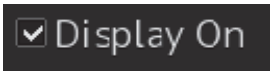
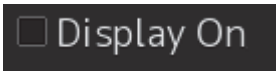
item	contents	Function restriction
AMS	Set the actions to be taken at the next stage for an unacknowledged alert. Refer to "3.7.2 Setting up alert processing".	None

3.7.2 Setting up alert processing

When [AMS] is selected in the Classification pane, the "AMS" dialog is displayed on the Edit pane.
In this dialog, the time to activate the action at the next stage when acknowledge is not performed for an alert can be set up.



Item	Contents	Remarks
Reactivation of Silenced Alert	Category A/B Time limit 30 seconds, the time required to reactivate the alert sound that was silenced temporarily if the alert is not unacknowledged. Category C Time Limit Set, within the range from 0 second to 300 seconds, the time required to reactivate the alert sound that was silenced temporarily if the alert is not unacknowledged. This setting is valid when alert of equipment that is set or legacy alert. BAM standard compliant equipment is invalid.	30 s Default: 300 s
Transfer to BNWAS	When a BNWAS (Bridge Navigational Watch Alarm System) is connected, specify the time to transfer an unacknowledged alert to the BNWAS in a range between 0 and 30 seconds. This setting is valid when alert of equipment that is set or legacy alert. BAM standard compliant equipment is invalid.	Default: 30 s

Item	Contents	Remarks
Repetition of UNACK Warning	Set a time interval for an unacknowledged alert with warning priority to re-emit a warning sound within the range from 16 to 300 seconds. A warning sound is repeatedly emitted for this alert until it is acknowledged. In addition, this is not applicable to the following warnings according to the Standard (operation that is defined in the IEC62065 (TCS) or IEC61174 (ECDIS) Standard). Warning are escalated to alarm, if warning was not acknowledged for the following times. • Early Course Change Warning Early Course Change Alarm occurs in 30 seconds (fixed). • Actual Course Change Warning Wheel Over Line Alarm occurs in 30 seconds (fixed). • End Of Track Warning Arrived at LAST WPT Alarm in 30 seconds (fixed). • Track Control Stopped Warning Track Control Stopped Alarm in 30 seconds (fixed). • Outside Anchor Watch Area Warning Outside Anchor Watch Area Alarm in 120 seconds(fixed) This setting is valid when alert of equipment that is set or legacy alert. BAM standard compliant equipment is invalid.	Default: 60 s
Responsibility Transfer	When click the check box, display of responsibility transferred alert is switched to ON or OFF.  Display of Responsibility transferred alert: ON  Display of Responsibility transferred alert: OFF	Default: OFF

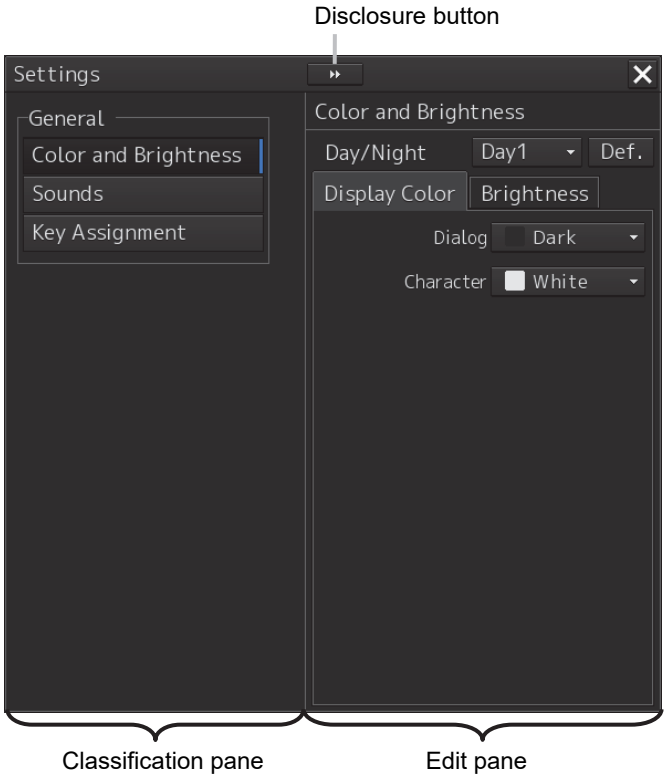
3.8 Setting Up the Operation Mode

3.8.1 Basic operation of the "Settings" dialog box

You can set up the operation mode in the "Settings" dialog box.

1 **Click on the [Menu] button in the lower left corner of the screen.**
The menu is displayed.

2 **Click on the [Settings] button.**
The "Settings" dialog box appears.
The "Settings" dialog box consists of the Classification Pane and the Edit pane.
Click on the Disclosure button (<<) to hide the Edit pane. To show the Edit pane again, click on the Disclosure button (>>).



3 **Click on the item you want to set up in the Classification pane.**
The setting dialog of the selected item is displayed in the Edit pane.

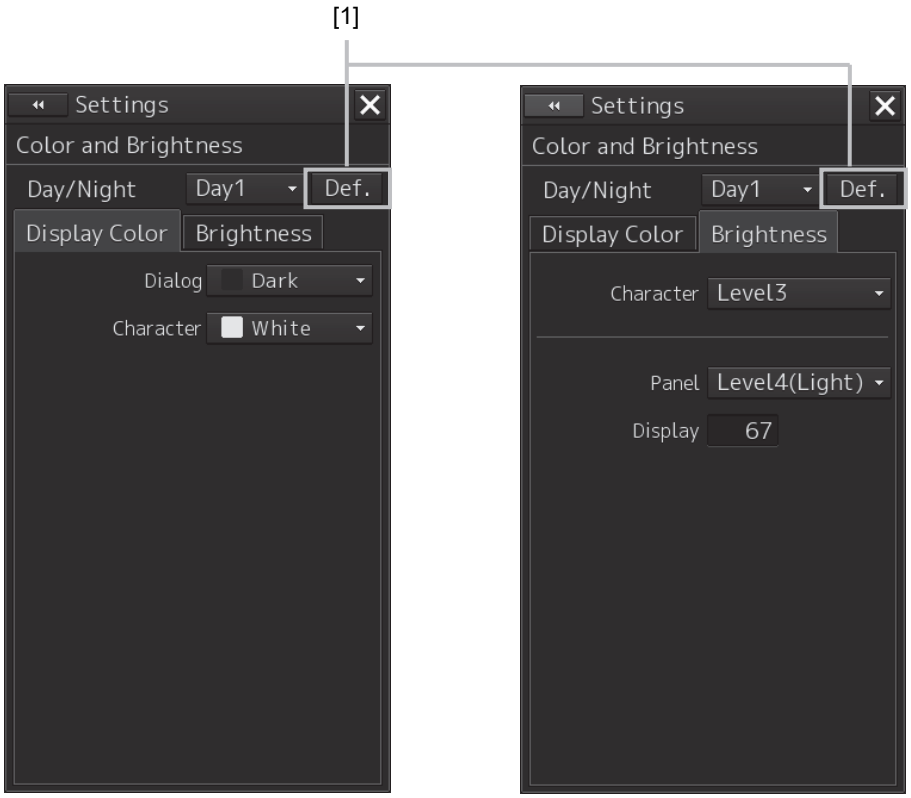
4 **Set up in the Edit pane.**

The following items can be set in the "Settings" dialog box.

item	Contents
Color and Brightness	Refer to "3.8.2 Setting color and brightness"
Sounds	Refer to "3.8.3 Setting sounds"
Key Assignment	Refer to "3.8.4 Setting key assignment"

3.8.2 Setting color and brightness

Set the color and brightness of the display contents.



[1] [Def.] (Default value) button

When this button is clicked on, all the setting items of the mode that is selected on the [Day/Night] combo box are reset to the Default values.

Setting Item	Description of Setting	Setting Value
Day/Night	Set up the color of the dialog box itself.	Day1 [Default] Day2 Day3 Dusk Night
[Display Color] tab		
Dialog	Set up the dialog color.	Dark [Default] Black
Character	Set up the text color.	White [Default] Green

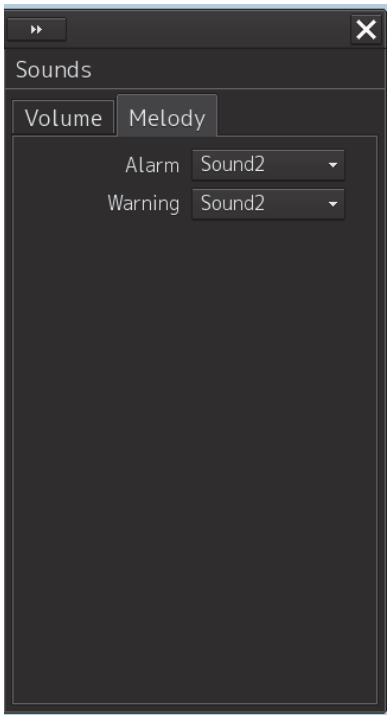
Setting Item	Description of Setting	Setting Value
[Brightness] tab		
Character	Set up the text brightness.	Level1 [Default of Day3] Level2 [Default of Day2/Dusk /Night] Level3 [Default of Day1] Level4
Panel	Set the brightness of the operation unit.	Off Level1(Dark) [Default of Dusk/Night] Level2 [Default of Day3] Level3 [Default of Day2] Level4(Light) [Default of Day1]
Display	Set the brightness of the display to the numerical value input to the box.	0 – 100 *1

*1 The initial value of brightness is as follows.

26inch	19inch
Day1/Day2/Day3: 67 Dusk: 60 Night: 11	Day1/Day2/Day3: 42 Dusk: 20 Night: 4

3.8.3 Setting sounds

Set the volumes of the operation sounds and error sounds and alert melody.
When the volume or melody is to be changed, the volume can be set while listening to the sound since the selected volume or melody is played back.



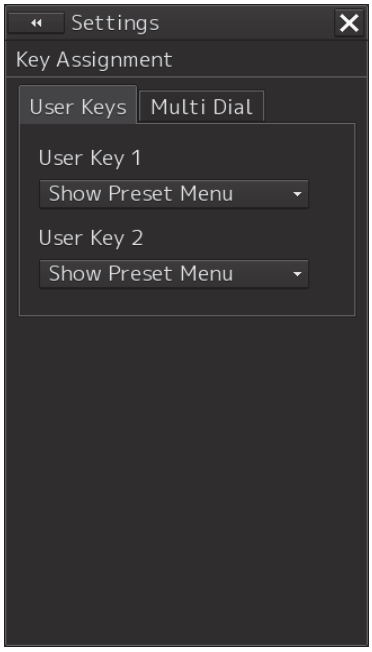
Setting Item	Description of Setting	Setting Value
[Volume]tab		
Key ACK	Set up the volume of sound when a key is pressed.	Off Level1(Soft) Level2 Level3[Default] Level4(Loud)
Misoperation	Set up the volume of operation error sound.	Off Level1(Soft) Level2 Level3[Default] Level4(Loud)
Response/Notification	Set up the volume of the control response sound to the external devices of the MFD and the control completion sound.	Off Level1(Soft) Level2 Level3[Default] Level4(Loud)
Message Notification	Set up the volume of message notification sound.	Off Level1(Soft) Level2 Level3[Default] Level4(Loud)

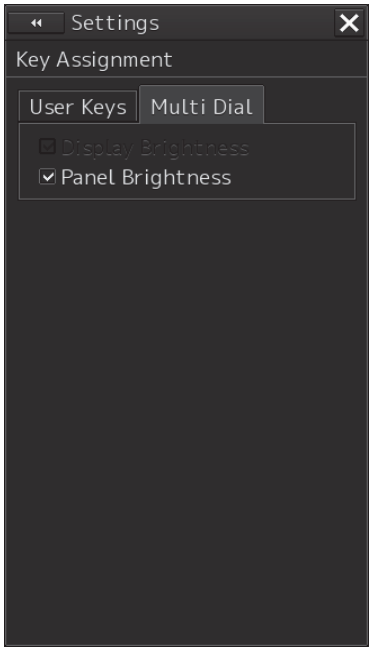
Setting Item	Description of Setting	Setting Value
Alert Setting Reminder	Set up the volume of alert condition not set notification sound.	Off Level1(Soft) Level2 Level3[Default] Level4(Loud)
Alarm	Set up the volume of alarm sound.*1	Level4(Loud)
Warning	Set up the volume of warning sound. *1	Level4(Loud)
[Melody] tab		
Alarm	Set up the melody of alarm.	Sound1 Sound2[Default] Sound3 Sound4
Warning	Set up the melody of Warning.	Sound1 Sound2[Default] Sound3 Sound4

*1 For these volumes, only Level 4 (Loud) is able to be selected.

3.8.4 Setting key assignment

Only those items of the functions that can be specified in the task dialog are displayed.





The [User Keys] tab is displayed only when the optional operation unit is installed.

Setting Item	Description of Setting	Setting Value
[User Keys]tab		
User Key 1	Select a function to assign to the USER1 key on the operation unit. [User Key 1] is displayed only when the optional operation unit is installed.	Show Preset Menu Capture Screen
User Key 2	Select a function to assign to the USER2 key on the operation unit. [User Key 2] is displayed only when the optional operation unit is installed.	Show Preset Menu Capture Screen
[Multi Dial] tab		
Display Brightness	When this is selected, the display brightness adjustment function will be manipulated with the [MULTI] control. It cannot be changed since power is always on.	To enable: Select. To disable: Clear.
Panel Brightness	When this is selected, the operation unit brightness adjustment function will be manipulated with the [MULTI] control. This item is always displayed.	To enable: Select. To disable: Clear.

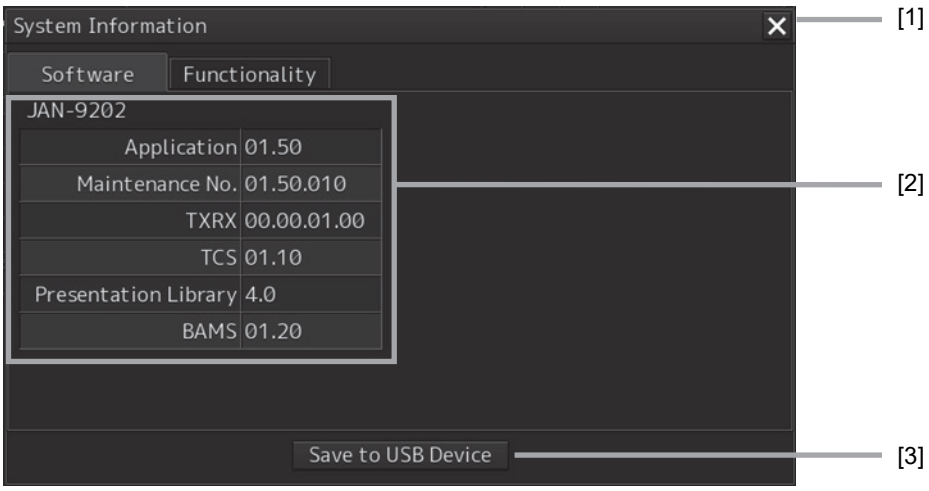
3.9 Checking the Software Information

The information of this software can be displayed as follows.

1 Click the [Menu] button in the lower left corner of the screen.
The menu appears.

2 Click [Maintenance] - [System Information] on the menu.
The "System Information" dialog box appears.

3 Click the [Software] tab.
The software information is displayed.



[1] [x] button

Clicking this buttons closes the "System Information" dialog box.

[2] Software information

Item	Description
Jxx-xxxx	The model name of the system
Application	The version of this application software
Maintenance No.	7-digit maintenance number
BAMS	The software version of the BAM system

[3] [Save to USB Device] button

Clicking this button saves the displayed data into a USB memory stick.

Section 4 Failure Mode and Effects Analysis (FMEA)

4.1 Extent of Effect, Likelihood of Occurrence, and Level of Criticality

Extent of Effect

1	A fire, explosion, a collision, stranding, or other serious phenomena
2	Complete failure of a system or equipment
3	Partial failure of a system or equipment
4	Failure which can be disregarded

Failure Probability

1	Generates 1 time or more per month.
2	Generates 1 time or more per year.
3	Generates 1 time or more in a product life cycle
4	Not generates 1 time or more in a product life cycle

Level of Criticality

		Extent of effect of the result			
		1	2	3	4
Likelihood of Occurrence	1	1	1	2	4
	2	1	2	3	5
	3	2	3	4	5
	4	4	5	5	5

4.2 FMEA Check Sheet

The FMEA check sheet for this equipment is shown in the following page onwards.

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	JAN-9202 #1 CONNING/ AMS (main)	NBD-913 Power Supply Unit	DC Input	Contact Failure	- Shallow Insert of Terminal - Breakage Failure by Stress and Vibration - Unplugged Terminal by Stress and Vibration - Deterioration by Salt Damage and Humidity	Turn On from AC Power Supply (Normal Operation)	- Shutdown the DC output when blackout is occurred	- Check the operation after installation - Check the operation by periodic inspection - DC Power Failure warning is generated	- Repair by troubleshooting	2	3	3
			AC/DC Input	Overcurrent	- Short Circuit in the Power Supply by Particle and Dust - Reverse Connection of DC input	Shutdown the DC Output	MFD is not working	DC output is 0V	- Repair by troubleshooting - Prepare the repair unit	2	3	3
				Overcurrent	- Short Circuit in the Power Supply by Particle and Dust - Reverse Connection of DC input	Shutdown the DC Output	MFD is not working	DC output is 0V	- Repair by troubleshooting - Prepare the repair unit	2	3	3
				Overvoltage	- Ship's Main Power Failure - Switch to Shore Power	Shutdown the DC Output	MFD is not working	Interrupt power input by circuit breaker	Reclosing circuit breaker	4	3	5
			Power Supply	Unit Failure	Random Failure	Shutdown the DC Output	MFD is not working	DC output is 0V	- Repair by troubleshooting - Prepare the repair unit	2	3	3
			Air Cooling	FAN Failure	Random Failure Mechanical Life	Increase Internal Temperature of PSU	Increase Internal Temperature of MFD (Standalone model)	- System Failure warning is generated - High Temp alarm is generated	- Prepare FAN repair unit - Replace FAN	3	3	4
		NWZ-208/NWZ-207/NWZ-214 Monitor Unit	DC Input	Contact Failure	- Shallow Insert of Terminal - Breakage Failure by Stress and Vibration - Unplugged Terminal by Stress and Vibration - Deterioration by Salt Damage and Humidity	MNU is not working	Nothing is showing up on the screen.	- Check the operation after installation - Check the operation by periodic inspection	Repair by troubleshooting	3	3	4
				Overcurrent	- Short Circuit in the Power Supply by Particle and Dust - Reverse Connection of DC input	MNU is not working	Nothing is showing up on the screen.	- Check the operation after installation - Check the operation by periodic inspection	- Repair by troubleshooting - Prepare the repair unit - Available overcurrent protection circuit	3	3	4

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	JAN-9202/JAN-7202 CONNING/ AMS (main)	NWZ-208/NWZ-207/NWZ-214 Monitor Unit	Air Cooling	FAN Failure	- Random Failure - Mechanical Life	Increase Internal Temperature of MNU	- Switch to power saving mode (Brightness decrease by half)	System Failure warning is generated	- Switch to the backup Equipment - Prepare FAN repair unit - Replace FAN	3	3	4
				Two FANs Failure	- Random Failure - Mechanical Life	Increase Internal Temperature of MNU	- Switch to power saving mode (Brightness decrease by half) - Nothing is showing up on the screen.)	System Failure warning is generated	- Prepare FAN repair unit - Replace FAN	3	3	4
			Display Brightness	Backlight Failure	- Mechanical Life - Backlight Failure	- Brightness decrease by half - MNU is not working	Nothing is showing up on the screen.	Check by periodic replacement	Prepare the repair unit	3	3	4
			OSD Panel	OSD Panel Failure	Random Failure	MNU button is not working	- Impossible to setting brightness on monitor button. - Impossible to turn off monitor	- Check the operation after installation - Check the operation by periodic inspection	Prepare the repair unit	3	3	4
			DVI Connector	Contact Failure	- Shallow Insert of Cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	MNU is not working	Nothing is showing up on the screen.	- Check the operation after installation - Check the operation by periodic inspection	Repair by troubleshooting	3	3	4
			Display	Unit Failure	Random Failure	MNU is not working	Nothing is showing up on the screen.	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair unit - Replace MNU	3	3	4
		NCE-5605 Trackball-Operation Unit	Power Switch	Switch Failure	- Random Failure - Mechanical Life	Power switch is not working	Impossible to turn on MFD	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CCK-1069	2	4	5

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	JAN-9202/JAN-7202 CONNING/AMS (main)	NCE-5605 Trackball-Operation Unit	Functional Switch - ZOOM IN/OUT - ALERT ACK - SILENCE	Switch Failure	- Random Failure - Mechanical Life	Functional switch is not working	Impossible to operate function button	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CCK-1069 - Available alternative function as touch panel	3	3	4
			Multi Knob	Encoder Failure	- Random Failure - Mechanical Life	Encoder is not working	Impossible to use multi knob	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CCK-1069 - Available alternative function as touch panel	3	2	3
			Vibration Motor	Vibration Motor Failure	Random Failure	T-OPU vibration function is not working	Impossible to synchronize alarm and vibration	- Check the operation after installation - Check the operation by periodic inspection	Prepare the repair parts	4	3	5
			Loud Speaker	Speaker Failure	Random Failure	No sound	Impossible to synchronize alarm and sound	- Check the operation after installation - Check the operation by periodic inspection	Prepare the repair parts	4	3	5
			Trackball	Trackball Failure	- Dirt of a laser irradiation part - Random Failure	- Trackball operability is low - Trackball operation is not working	Impossible to operate cursor	- Check the operation after installation - Check the operation by periodic inspection	- Periodic cleaning - Prepare the repair trackball - Replace trackball	3	3	4
			USB Connector	USB Connection Failure	- Random Failure - Breakage Failure by Insert and Remove a Connector - Incompatibility of USB device	USB device is unacknowledged	Impossible to use USB device	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CCK-1069 - Alternative using CCU USB port	3	3	4
			Left-Right Click button	Click Failure	- Random Failure - Mechanical Life	Click function is not working	Impossible to operate cursor	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CCK-1050	3	3	4

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
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No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	JAN-9202/JAN-7202 CONNING/AMS (main)	NCE-5605 Trackball-Operation Unit	T-OPU Inter Connection	Contact Failure	- Loose Fit of Connector - Shallow Insert of Internal Cable - Breakage Failure by Stress and Vibration - Unplugged Inner Cables by Stress and Vibration - Deterioration by Salt Damage and Humidity	T-OPU is not working	Impossible to operate MFD	- Check the operation after installation - Check the operation by periodic inspection	Repair by troubleshooting	3	3	4
			OPU-A OPU-SW OPU-CN	Circuit Failure	Random Failure	T-OPU is not working	Impossible to operate MFD	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CCK-1050 - Replace CCK-1069 - Replace CCK-1070	3	3	4
			Operating	Contact Failure	- Shallow Insert of Cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	T-OPU is not working	Impossible to operate MFD	- Check the operation after installation - Check the operation by periodic inspection	Repair by troubleshooting	3	3	4
		NCE-5625 Keyboard Operation Unit	Functional Switch - TX/STBY - PI - DISP OFF - AZ - PANEL - DAY/NIGHT - MOB - USER1/2	Switch Failure	- Random Failure - Mechanical Life	Functional switch is not working	Impossible to operate function button	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CCK-1059 - Available alternative function as touch panel	3	3	4
			Knob - EBL/VRM - SEA/RAIN/GAIN	Encoder Failure	- Random Failure - Mechanical Life	Encoder is not working	Impossible to operate encoder function	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CCK-1059 - Available alternative function as touch panel	3	3	4

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	JAN-9202/JAN-7202 CONNING/AMS (main)	NCE-5625 Keyboard Operation Unit	Keyboard	Keyboard Failure	- Random Failure - Mechanical Life	Keyboard is not working	Impossible to input word by using key	- Check the operation after installation - Check the operation by periodic inspection	- Switch to the backup Equipment - Prepare the repair unit - Replace keyboard - Available alternative function as touch panel	3	3	4
			Operating	Contact Failure	- Shallow Insert of cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	K-OPU is not working	Impossible to operate function button and key	- Check the operation after installation - Check the operation by periodic inspection	- Repair by troubleshooting - Available alternative function as touch panel	3	3	4
			K-OPU Inter Connection	Contact Failure	- Shallow Insert of FFC	Keyboard is not working	Impossible to input word by using key	- Detect by connector open detect function	- Repair by troubleshooting - Available alternative function as touch panel	3	3	4
			OPU-B	Circuit Failure	Random Failure	K-OPU is not working	Impossible to operate function button and key	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CCK-1059 - Available alternative function as touch panel	3	3	4
		NDC-1590/A Central Control Unit	Power Input Connector	Contact Failure	- Shallow Insert of Cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	CCU is not working	Impossible to turn on MFD	- Check the operation after installation - Check the operation by periodic inspection	Repair by troubleshooting	2	3	3
			T-OPU Connector	Contact Failure	- Shallow Insert of Cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	T-OPU is not working	Impossible to operate MFD	- Check the operation after installation - Check the operation by periodic inspection	Repair by troubleshooting	3	3	4

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	JAN-9202/JAN-7202 CONNING/ AMS (main)	NDC-1590/A Central Control Unit	PSU Control Connector	Contact Failure	- Shallow Insert of Cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	PSU control signal is fault	Impossible to turn on MFD	- Check the operation after installation - Check the operation by periodic inspection	Repair by troubleshooting	2	3	3
			RGB Out Connector	Contact Failure	- Shallow Insert of Cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	RGB video signal is fault	- Impossible to display on remote monitor -	- Check the operation after installation - Check the operation by periodic inspection	Repair by troubleshooting	3	3	4
			USB Connector	USB Connection Failure	- Random Failure - Breakage Failure by Insert and Remove a Connector - Incompatibility of USB device	USB device is unacknowledged	Impossible to use USB device	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CMH-2406 - Alternative using T-OPU USB port	3	3	4
			DVI Connector	Contact Failure	- Shallow Insert of Cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	MNU is not working	Nothing is showing up on the screen.	- Check the operation after installation - Check the operation by periodic inspection	Repair by troubleshooting	3	3	4

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	JAN-9202/JAN-7202 CONNING/ AMS (main)	NDC-1590/A Central Control Unit	LAN1 Connector	Contact Failure	- Shallow Insert of Cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	Network signal is fault	- Impossible to receive sensor signal - Impossible to control contact signal - Impossible to communicate display unit - Impossible to receive network sensor signal	- Check the operation after installation - Check the operation by periodic inspection - Alert Communication Failed caution is generated.	- Repair by troubleshooting - Backup by using LAN2 network - Backup by using serial input to CCU	3	3	4
			LAN2 Connector	Contact Failure	- Shallow Insert of Cable - Breakage Failure by Stress and Vibration - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity	Network signal is fault	- Impossible to receive sensor signal - Impossible to control contact signal - Impossible to communicate display unit - Impossible to receive network sensor signal	- Check the operation after installation - Check the operation by periodic inspection - Alert Communication Failed caution is generated.	- Repair by troubleshooting - Backup by using LAN1 network - Backup by using serial input to CCU	3	3	4
			DVD Drive	DVD Drive Failure	- Breakage Failure by Stress and Vibration - Grime of Lends - Unplugged Cable by Stress and Vibration - Deterioration by Salt Damage and Humidity - Random Failure	Media reading function is fault	- Impossible to import chart - Impossible to update chart	- Check the operation after installation - Check the operation by periodic inspection - Detect to recognize DVD drive on system	- Prepare the repair unit - Replace DVD drive - SENC delivery - Clean by drive cleaner	3	2	3

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	JAN-9202/JAN-7202 CONNING/ AMS (main)	NDC-1590/A Central Control Unit	HASP	Device Failure	- Random Failure - Breakage Failure by Stress and Vibration - Unplugged device by Stress and Vibration	HASP device is unacknowledged	Impossible to turn on MFD application	- Check the operation after installation - Check the operation by periodic inspection - Detect to recognize HASP on system	- Prepare the repair device - Replace HASP - Replace CMH-2406 - Reconnect to HASP by auto reset	2	3	3
			CPU Board	Circuit Failure	- Random Failure - Breakage Failure by Stress and Vibration - Electrical Overload	CCU is not working	- Impossible to turn on MFD - Application is unstable - CPU clock is down	- Check the operation after installation - Check the operation by periodic inspection - CPU temperature monitoring	- Prepare the repair circuit - Replace COM-Express Board	2	3	3
			SSD	Circuit Failure	Average limit of system re-writing	CCU is not working	- Impossible to turn on MFD - MFD operation is unstable	- Check the operation after installation - Check the operation by periodic inspection	SSD limit monitoring	2	4	4
				Circuit Failure	- Random Failure - Device Failure by Blackout - Write Failure by Noise	CCU is not working	- Impossible to turn on MFD - MFD operation is unstable	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace SSD	2	3	3
				System Failure	System Failure by Virus	CCU is not working	- Impossible to turn on MFD - MFD operation is unstable	- Check the operation after installation - Check the operation by periodic inspection	Install antivirus software	2	4	4
			CCU Inter Connection	Contact Failure	- Shallow Insert of FFC	- USB function is fault	- Impossible to use USB device	- Detect by connector open detect function - Check the operation by periodic inspection	- Repair by troubleshooting	3	3	4

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	JAN-9202/JAN-7202 CONNING/ AMS (main)	NDC-1590/A Central Control Unit	Sensor Input Output	Contact Failure - AIS - High Speed Gyro - GPS - SDME	- Shallow Insert of Terminal - Breakage Failure by Stress and Vibration - Unplugged Terminal by Stress and Vibration - Deterioration by Salt Damage and Humidity	Sensor signal is fault	- Impossible to receive sensor signal - Impossible to control contact signal	- Check the operation after installation - Check the operation by periodic inspection -	- Repair by troubleshooting - Backup by using SLC sensor signal	3	3	4
			External Contact Output	Contact Failure - WMRST - PWR FAIL	- Weld Contact by Large Current - Deterioration Contact by Arc	External equipment cannot be operated.	Impossible to output contact signal	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CMH-2406	3	3	4
			CPC	Circuit Failure	- Random Failure - Breakage Failure by Stress and Vibration	CCU is not working	Impossible to turn on MFD	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CDC-1410	2	3	3
			CIF CTB	Circuit Failure	- Random Failure - Breakage Failure by Stress and Vibration	CCU is not working	Impossible to turn on MFD	- Check the operation after installation - Check the operation by periodic inspection	- Prepare the repair circuit - Replace CDC-1410	2	3	3

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
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No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	cable #1 main-network Hub	Cable	Transmission	Breaking of wire	Physical outside force	No LAN Link	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Replace with backups	2	4	5
	NQA-2443 Network Hub (Sensor LAN Unit)	DC 24V Power Supply	Main Power Supply	No power supply	- Shallow Insert of Terminal - Power Failure	No connection	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Replace with backups	2	4	5
		LAN HUB	Transmission	Transmission Malfunction	- Random Failure - Physical outside force	No connection	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Replace with backups	2	4	5
	cable #3 network Hub-ALC	Cable	Transmission	Breaking of wire	Physical outside force	No LAN Link	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Replace with backups	2	4	5
	NQE-1143 Serial / LAN converter (Junction Box) (ALC)	DC 24V Power Supply	Main Power Supply	No power supply	- Terminal Block Failure - Supply Switch - Melting Fuse - Power Relay Failure - Short Circuit in the Power Supply by Particle and Dust	Shutdown the DC Output	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Repair with periodic checkup	2	4	5

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	NQE-1143 Serial / LAN converter (Junction Box) (ALC)	DC 24V Power Supply	Insulation between Common ground	Short Circuit	- Breakdown By High Voltage	Disability of Insulation	ALC Malfunction	- Overheat,, Burnout - Melting Fuse	- Repair by troubleshooting - Repair with periodic checkup	2	3	3
			Electrolytic condenser for Insulation between Common ground	Open Circuit	- Electrode Evaporation by Excess Current - Terminal Breakage by Stress	Increase of EMC	Interference to VHF	- Impossible to detect	- Repair by troubleshooting - Repair with periodic checkup	4	3	5
		DC 5V Power Supply Module	DC 5V Power Supply	No 5V supply	- Stoppage by Safeguard with Low Voltage - Stoppage by Safeguard with Detection Excess Current of Shot Circuit	Imposing to turn on supply	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Repair with periodic checkup	2	3	3
		3.3VDCDC	Power supply for the System	Exceed Ripple Voltage	- Increase Ripple Currency by Sort in Coil	Unstable Power Supply	ALC Malfunction	- Impossible to detect	- Repair by troubleshooting - Repair with periodic checkup	2	3	3

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	NQE-1143 Serial / LAN converter (Junction Box) (ALC)	3.3VDCDC		No 3.3V supply	- Stoppage with Thermal Shutdown - Stoppage with Exceed Currency by Short Circuit - Breakdown by Condenser Insulation by High ripple Voltage	Unstable Power Supply	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Repair with periodic checkup	2	3	3
		Reset Detect IC	System Reset	Stay in Reset mode	- Low Voltage output of 3.3V - Exceed pressure with substance Insertion in manual Switch	Out of work	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Repair with periodic checkup	2	3	3
	cable #4 network Hub-SLC	Cable	Transmission	breaking of wire	Physical outside force	No LAN Link	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Replace with backups	2	4	5
	NQE-1143 Serial / LAN converter (Junction Box) (SLC)	DC 24V Power Supply	Main Power Supply	No power supply	- Terminal Block Failure - Supply Switch - Melting Fuse - Power Relay Failure - Short Circuit in the Power Supply by Particle and Dust	Shutdown the DC Output	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Repair with periodic checkup	2	4	5
			Insulation between Common ground	Short Circuit	- Breakdown By High Voltage	Disability of Insulation	SLC Malfunction	- Overheat,, Burnout - Melting Fuse	- Repair by troubleshooting - Repair with periodic checkup	2	3	3
			Electrolytic condenser for Insulation between Common ground	Open Circuit	- Electrode Evaporation by Excess Current - Terminal Breakage by Stress	Increase of EMC	Interference to VHF	- Impossible to detect	- Repair by troubleshooting - Repair with periodic checkup	4	3	5

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	NQE-1143 Serial / LAN converter (Junction Box) (SLC)	DC 5V Power Supply Module	DC 5V Power Supply	No 5V supply	- Stoppage by Safeguard with Low Voltage - Stoppage by Safeguard with Detection Excess Current of Shot Circuit	Imposing to turn on supply	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Repair with periodic checkup	2	3	3
		3.3VDCDC	Power supply for the System	Exceed Ripple Voltage	- Increase Ripple Currency by Sort in Coil	Unstable Power Supply	SLC Malfunction	- Impossible to detect	- Repair by troubleshooting - Repair with periodic checkup	2	3	3
			Power supply for the System	No 3.3V supply	- Stoppage with Thermal Shutdown - Stoppage with Exceed Currency by Short Circuit - Breakdown by Condenser Insulation by High ripple Voltage	Unstable Power Supply	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Repair with periodic checkup	2	3	3
		Reset Detect IC	System Reset	Stay in Reset mode	- Low Voltage output of 3.3V - Exceed pressure with substance Insertion in manual Switch	Out of work	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Repair with periodic checkup	2	3	3
	cable #5 ALC-Dry-Contact/ Serial Coveter	Cable	Transmission	Breaking of wire	Physical outside force	No LAN Link	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting - Replace with backups	2	4	5

	FMEA Check Sheet	Approved	Checked	Charged	Issued No.	
					Issued Dep.	
					Issued Date	

No.	Equipment Name		Function	Failure Mode	Failure Cause	Failure Effect		Failure Detection	Alternative Provisions	Severity	Failure Probability	Criticality Level
	Equipment	Unit/Parts				Local Effect	End Effect					
	Dry-contact / Serial converter (Digital Signal converter)	AC 100V Power Supply	Power Supply	No power supply	- Shallow Insert of Terminal - Power Failure	No connection	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting	2	4	5
		Convert	Convert Signal	Conversion Malfunction	- Random Failure - Physical outside force	No Conversion signal	Impossible to transmit vessel information to servers	- Check the operation after installation - Check with response error from servers	- Repair by troubleshooting	2	4	5

Section 5 Maintenance & Inspection

5.1 Updating Help Data

This section describes updating of help data of this product.

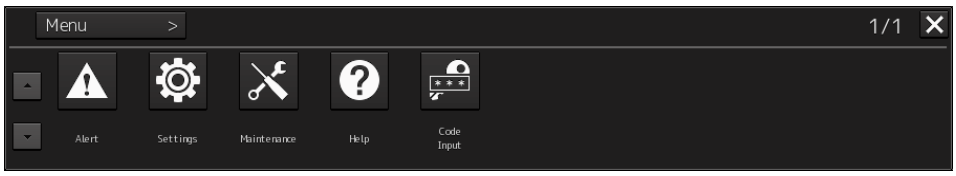
Note

- Help data is classified to the data for RADAR, data for ECDIS, data for Conning Display, and data for AMS. To display help information on each of the RADAR screen, ECDIS screen, Conning Display screen, and AMS screen (Alart management screen), install the help data for each display.
- When Help update starts, currently active tasks are terminated automatically. Complete the necessary operations, such as saving the settings, before the start of update.

1 Set the CD/DVD or USB memory where update data is stored.

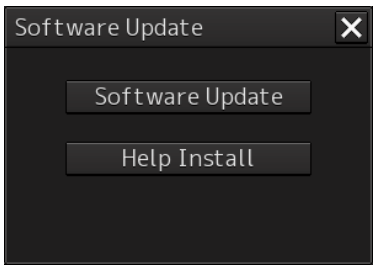
2 Click the [Menu] button on the Left Tool Bar.
A menu is displayed.

3 Click [Maintenance] - [Software Update].

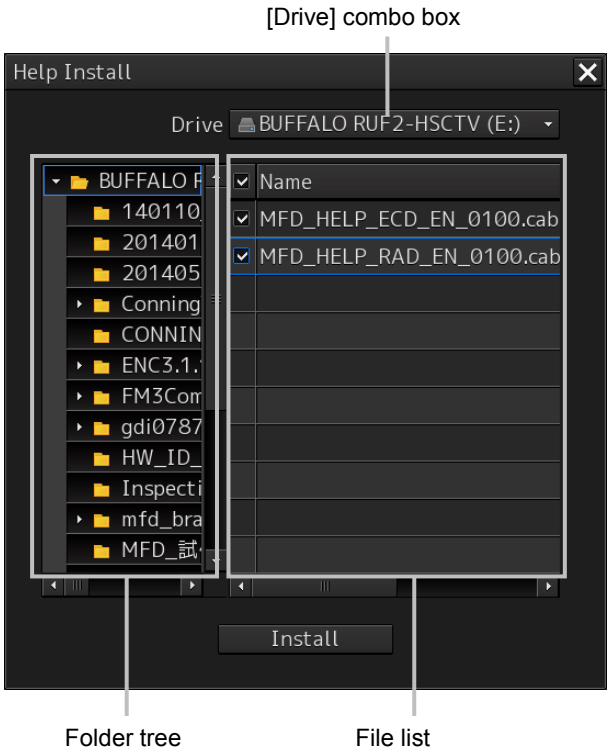


The "Software Update" dialog is displayed.

4 Click the [Help Install] button.



A file selection dialog is displayed.

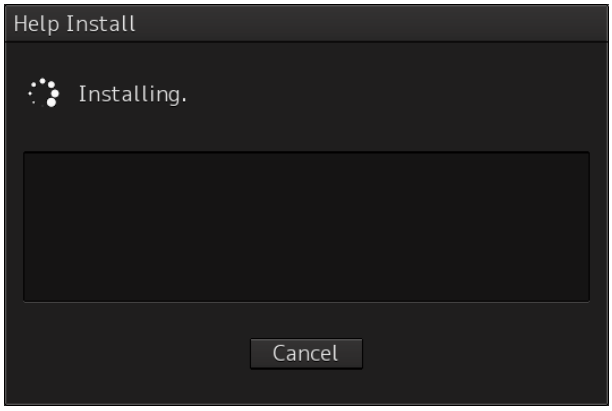


5 **Select the drive containing update data from the [Drive] combo box.**

6 **Select the folder containing update data from the folder tree and check the file to be updated from the file list.**

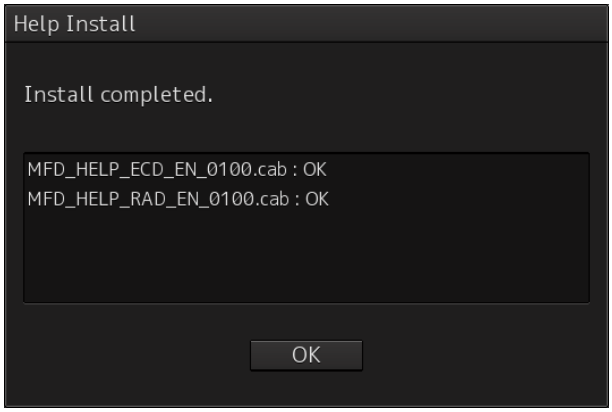
7 **Click the [Install] button.**

Installation starts and the following screen is displayed.



Wait until installation is completed.

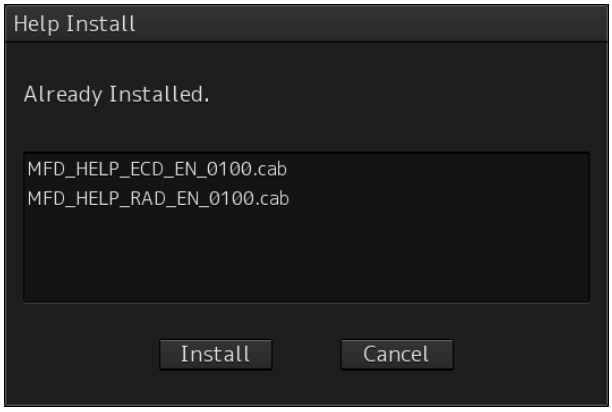
When installation is completed, the following screen is displayed.



8 Click the [OK] button.

Memo

- When the [Cancel] button is clicked during installation, installation of subsequent files is cancelled after the installation of the file that is currently being installed is completed.
- When the selected update file already exists, the following screen is displayed.



End the operation by clicking on the [Cancel] button.

Appendix A Alert List

A.1 Caution

Indicates a list of alerts with priority caution. Only alerts that are frequently used indicated because there are many alerts.

Cause	Conditions to raise	Conditions to rectify	Detail	Category	Required standard
No.1 Radar(Alert Communication Failed)	Alert sentence from No.1 RADAR is lost.	Alert sentence from No.1 RADAR can be received.	Alerts cannot be displayed	B	IEC62923
No.2 Radar(Alert Communication Failed)	Alert sentence from No.2 RADAR is lost.	Alert sentence from No.2 RADAR can be received.	Alerts cannot be displayed	B	IEC62923
No.1 ECDIS(Alert Communication Failed)	Alert sentence from No.1 ECDIS is lost.	Alert sentence from No.1 ECDIS can be received.	Alerts cannot be displayed	B	IEC62923
No.2 ECDIS(Alert Communication Failed)	Alert sentence from No.2 ECDIS is lost.	Alert sentence from No.2 ECDIS can be received.	Alerts cannot be displayed	B	IEC62923
No.1 CONNING(Alert Communication Failed)	Alert sentence from No.1 CONNING is lost.	Alert sentence from No.1 CONNING can be received.	Alerts cannot be displayed	B	IEC62923
No.2 CONNING(Alert Communication Failed)	Alert sentence from No.2 CONNING is lost.	Alert sentence from No.2 CONNING can be received.	Alerts cannot be displayed	B	IEC62923
GPS 1(Alert Communication Failed)	Alert sentence from No.1 GPS is lost.	Alert sentence from No.1 GPS can be received.	Alerts cannot be displayed	B	IEC62923
GPS 2(Alert Communication Failed)	Alert sentence from No.2 GPS is lost.	Alert sentence from No.2 GPS can be received.	Alerts cannot be displayed	B	IEC62923
Autopilot(Alert Communication Failed)	Alert sentence from Autopilot is lost.	Alert sentence from Autopilot can be received.	Alerts cannot be displayed	B	IEC62923
Gyro 1(Alert Communication Failed)	Alert sentence from No.1 Gyro is lost.	Alert sentence from No.1 Gyro can be received.	Alerts cannot be displayed	B	IEC62923
Gyro 2(Alert Communication Failed)	Alert sentence from No.2 Gyro is lost.	Alert sentence from No.2 Gyro can be received.	Alerts cannot be displayed	B	IEC62923

Cause	Conditions to raise	Conditions to rectify	Detail	Category	Required standard
Echo Sounder 1(Alert Communication Failed)	Alert sentence from No.1 Echo Sounder is lost.	Alert sentence from No.1 Echo Sounder can be received.	Alerts cannot be displayed	B	IEC62923
Echo Sounder 2(Alert Communication Failed)	Alert sentence from No.2 Echo Sounder is lost.	Alert sentence from No.2 Echo Sounder can be received.	Alerts cannot be displayed	B	IEC62923
Log 1(Alert Communication Failed)	Alert sentence from No.1 Speed Log is lost.	Alert sentence from No.1 Speed Log can be received.	Alerts cannot be displayed	B	IEC62923
Log 2(Alert Communication Failed)	Alert sentence from No.2 Speed Log is lost.	Alert sentence from No.2 Speed Log can be received.	Alerts cannot be displayed	B	IEC62923
AIS(Alert Communication Failed)	Alert sentence from AIS is lost.	Alert sentence from AIS can be received.	Alerts cannot be displayed	B	IEC62923
DSC(Alert Communication Failed)	Alert sentence from DSC is lost.	Alert sentence from DSC can be received.	Alerts cannot be displayed	B	IEC62923
In Port Mode	In Port Mode is changed to ON.	In Port Mode is changed to OFF.	Alarms not transferred to backup officer	B	-

A.2 List of Alert icons

The alert icons displayed in the alert status area are listed below.

No.	Name of alert icon	Functional outline	Alert icon
1	emergency alarm	For the details, refer to "Emergency Alarm types and display".	
2	Active – unacknowledged alarm	A flashing red triangle. A symbol of loudspeaker in the middle of the triangle.	
3	Active – silenced alarm	A flashing red triangle. A symbol as in icon number 5 with a prominent diagonal line above it.	
4	Active – acknowledged alarm	A red triangle. An exclamation mark in the middle of the triangle.	
5	Active - responsibility transferred alarm	A red triangle. An arrow pointing towards the right in the middle of the triangle.	
6	Rectified – unacknowledged alarm	A flashing red triangle. A tick mark in the middle of the triangle.	
7	Active - unacknowledged warning	A flashing yellowish orange circle. A symbol of loudspeaker in the middle of the circle.	
8	Active – silenced warning	A flashing yellowish orange circle. A symbol as in icon number 10 with a prominent diagonal line above it.	
9	Active – acknowledged warning	A yellowish orange circle. An exclamation mark in the middle of the circle.	
10	Active - responsibility transferred warning	A yellowish orange circle. An arrow pointing towards the right in the middle of the circle.	
11	Rectified – unacknowledged warning	A flashing yellowish orange circle. A tick mark in the middle of the circle.	
12	Caution	A yellow square. An exclamation mark in the middle of the square.	

APP A

No.	Name of alert icon	Functional outline	Alert icon
a	Aggregation	A plus sign. To be presented together with icons number 2 to 12	
b	Group header alert	A double plus sign. To be presented together with the icon numbers 2 to 12	
c	Acknowledge not allowed for alarm	A red triangle with a cross in the middle of equilateral triangle. To be presented together with icons number 2, 3 and 6.	
d	Acknowledge not allowed for warning	A yellowish orange circle with a cross in the middle of circle. To be presented together with icons number 7, 8 and 11.	

Emergency Alarm types and display

No.	Type	Contents	Icon
1	General emergency alarm	Evacuation guidance mark with a green background. (Common to all the statuses from 1 to 4 in the alert icon list) Used for leading passengers to the evacuation location.	
		Rescue boat mark with a green background. (Common to all the statuses from 1 to 4 in the alert icon list) Used for leading crews to the boat station.	
2	Fire alarm	Red flame mark. (Common to all the statuses from 1 to 4 in the alert icon list)	
3	Alarm notifying fire extinguisher emission (CO_2)	Red fire extinguisher (CO_2) mark. (Common to all the statuses from 1 to 4 in the alert icon list)	
4	Mechanical watertight sliding door closing alarm	Watertight sliding door mark with a green background. Displayed when the watertight sliding door is closed. Not displayed as an active alert.	
		Blinking red watertight sliding door mark. (Common to all the statuses from 1 to 4 in the alert icon list) The watertight door is being opened or closed or is opened.	
5	Submersion detection alarm	Red submersion mark. (Common to all the statuses from 1 to 4 in the alert icon list)	

Appendix B Menu List and Materials

B.1 Menu List

This section shows the menus and dialog items of this equipment by target menu.

* Items that are enclosed by a frame of broken lines indicate the dialog and window names that are displayed by selecting the relevant menu.

B.1.1 Tools

File Manager

File Management tab

- File Type
- Drive
- Name
- Copy >>
- << Copy
- Select All
- Delete

File Load/Save tab

- File Type
- File Type (Included GPS Buoy Track)*
- *Setting for using [Utilities] - [GPS Buoy] when [File Type] is [Target Track]
- File List - Name
- File List - Modified
- File List - Display
- Load Mode
- Load
- Unload
- Save Current Target Track

VHF Call

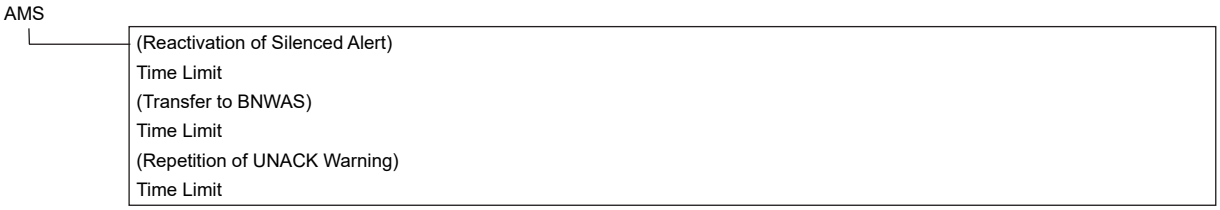
* Case where the VHF radiotelephone option is attached

- VHF (JHS-800S) 1
- VHF (JHS-800S) 2
- VHF (JHS-800S) 3

Timer

- (Timer)
- (LMT)

B.1.2 Alert


AMS
(Reactivation of Silenced Alert)
Time Limit
(Transfer to BNWAS)
Time Limit
(Repetition of UNACK Warning)
Time Limit

B.1.3 Settings

Color and Brightness

- Day/Night
- Def.
- Display Color tab
  - Dialog
  - Character
- Brightness tab
  - Character
  - Panel
  - Day1 : Level4 / Day2 : Level3 / Day3 : Level2 / Dusk,Night : Level1
  - Display
  - <26 inch>[0~100]Day1/Day2/Day3 : 67 / Dusk : 60 / Night : 11
  - <19 inch> Day1/Day2/Day3 : 42 / Dusk : 20 / Night : 4

Sounds

- Volume tab
  - Key ACK
  - Misoperation
  - Response/Notification
  - Message Notification
  - Alert Setting Reminder
  - Alarm
  - Warning
- Melody tab
  - Alarm
  - Warning

Key Assignment

- Multi Dial tab
  - Display Brightness
  - Panel Brightness

APP B

B.1.4 Maintenance

Date/Time/Time Zone
- (Date)
  - Month
  - Year
  - Day
- Time(LMT)
- Time Zone
- Display Style
- Synchronise with Time Source(Date/Time)
- Synchronise with Time Source(Time Zone)

System Information
- Software tab
  - Type
  - Application
  - Maintenance No.
  - TXRX
  - TCS
  - Presentation Library
  - BAMS
- Save to USB Device

Operating Time
- (Operating Time of Work Station)
  - Total
  - SSD1
  - SSD2
  - LCD
  - LCD FAN
  - CCU FAN
  - PSU FAN
  - UPS
- (Operating Time of Scanner)*

* Under radar connection
- Total
- Transmit
- Motor
- FAN

Voyage Distance
- (Current Voyage Distance)
  - Ground
  - Water
- Clear

- Diagnosis
  - Monitor Test
    - All Red
    - All Green
    - All Blue
    - All White
    - Pattern4
    - Pattern5
    - Pattern6
    - Gray Scale
    - S-57 Color Pattern
    - ARCS Color Pattern
  - Key Test
    - Key Test Start
      - Key
      - Key Test Stop
  - Sound Test
    - Sound Test Start
  - Light Test
    - Light Test Start
  - Vibration Test
    - Vibration Test
  - Memory Check
    - Memory Check Start
    - Results

- Software Update
  - Software Update
  - Help Install

- DVD Drive Cleaning

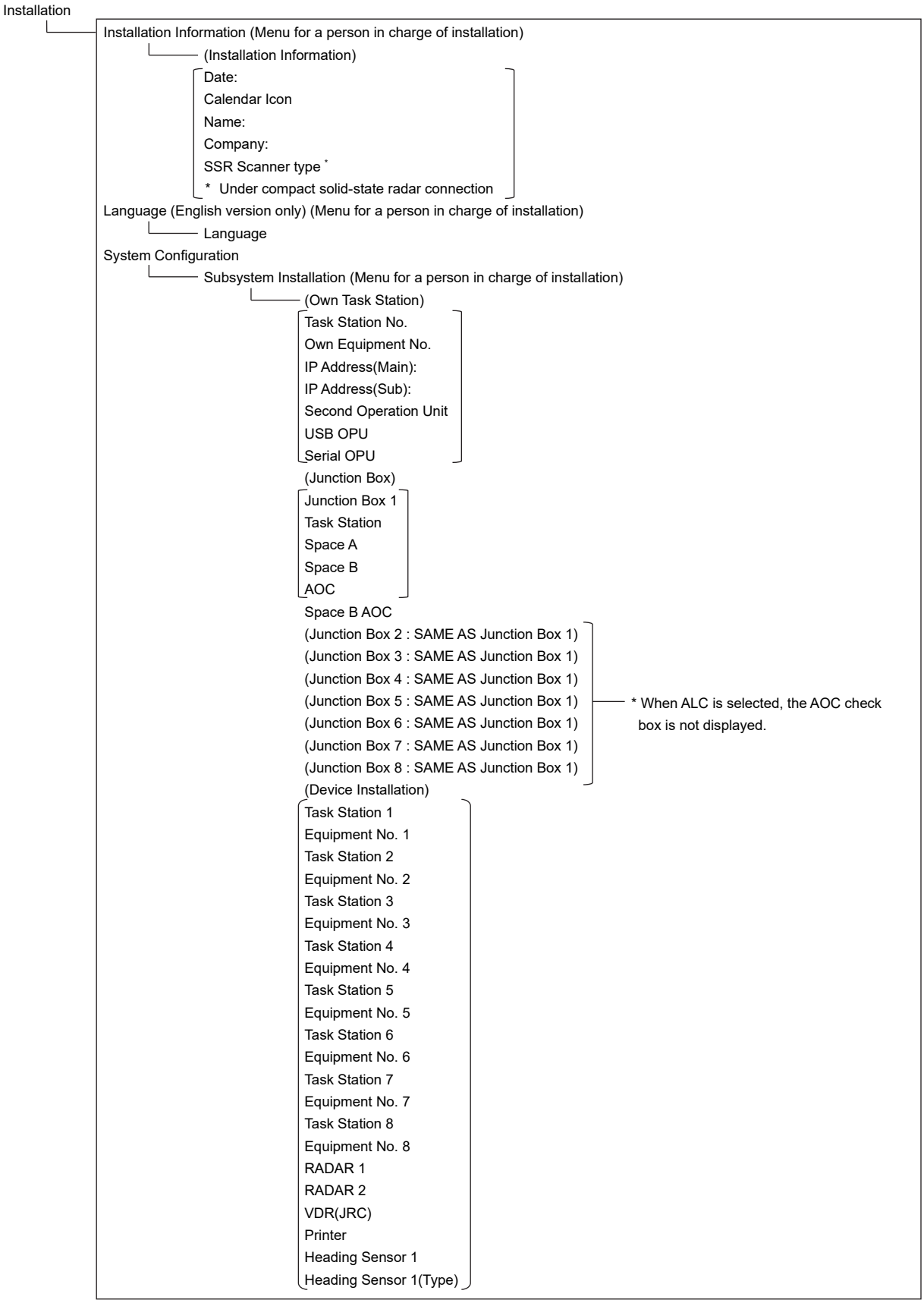
B.1.5 Help

←
→
Home
(Contents tab)
(Search tab)
keyword
Search
Results

B.1.6 Code input

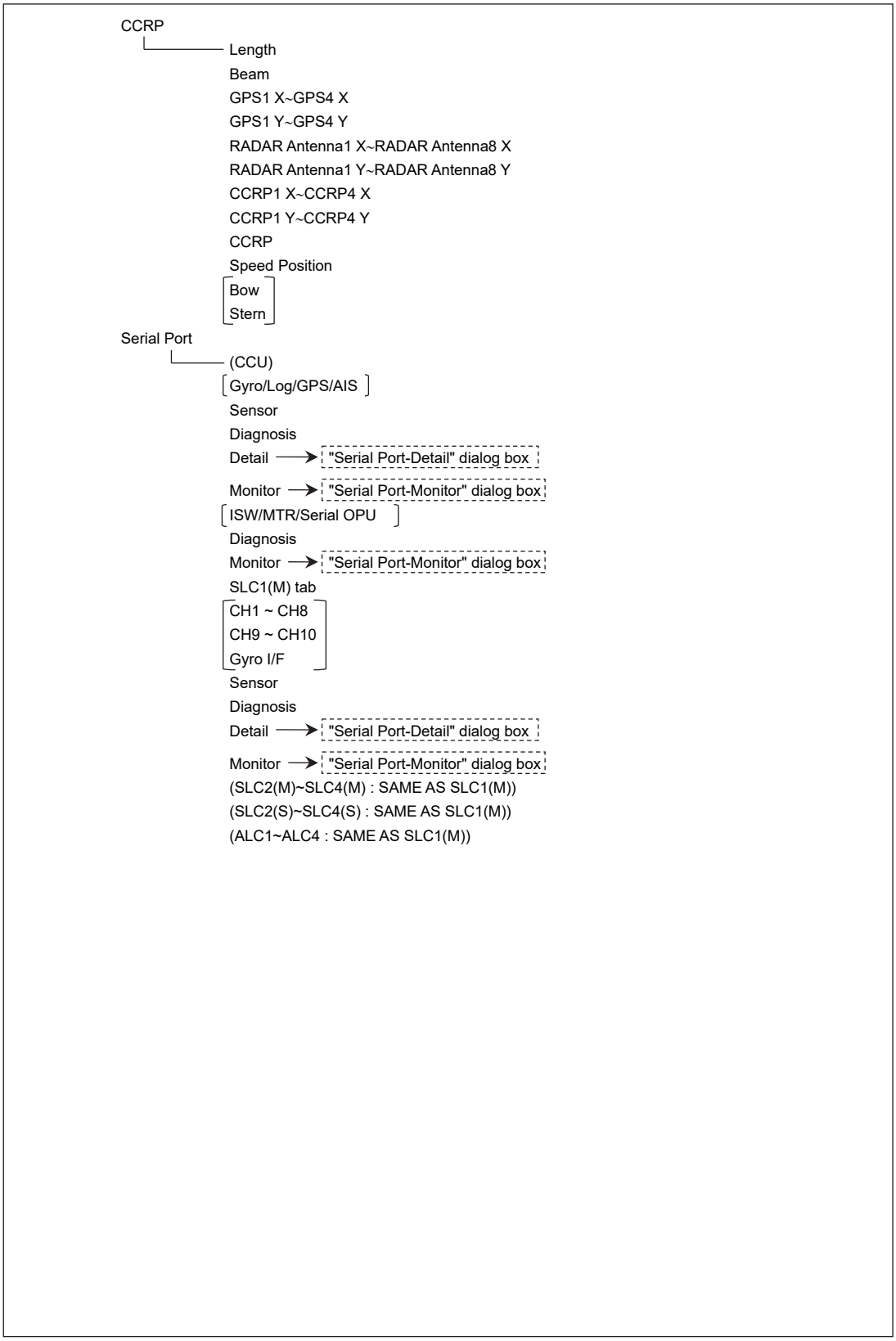
Password

B.1.7 Service

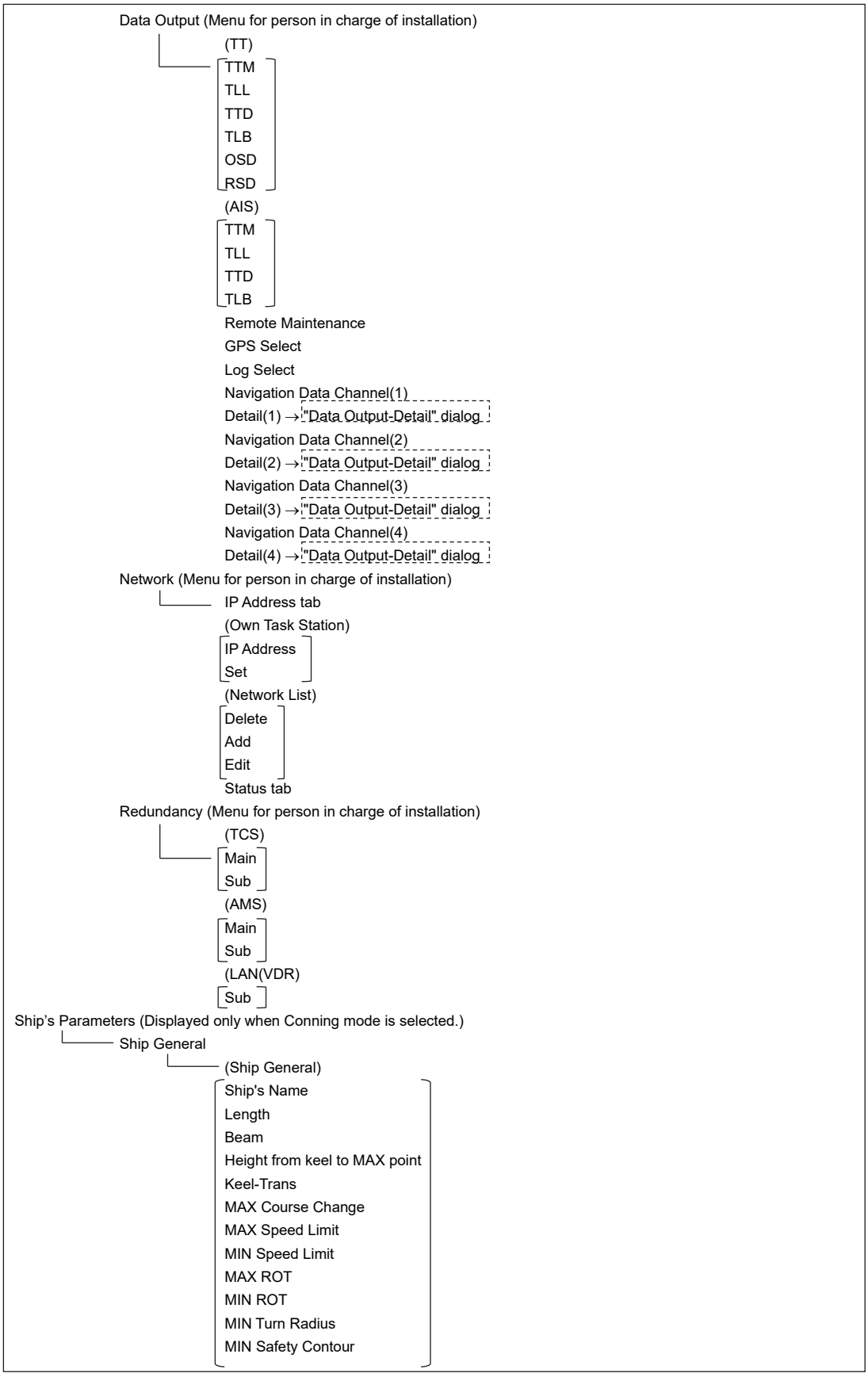

Installation
Installation Information (Menu for a person in charge of installation)
(Installation Information)
Date:
Calendar Icon
Name:
Company:
SSR Scanner type *
* Under compact solid-state radar connection
Language (English version only) (Menu for a person in charge of installation)
Language
System Configuration
Subsystem Installation (Menu for a person in charge of installation)
(Own Task Station)
Task Station No.
Own Equipment No.
IP Address(Main):
IP Address(Sub):
Second Operation Unit
USB OPU
Serial OPU
(Junction Box)
Junction Box 1
Task Station
Space A
Space B
AOC
Space B AOC
(Junction Box 2 : SAME AS Junction Box 1)
(Junction Box 3 : SAME AS Junction Box 1)
(Junction Box 4 : SAME AS Junction Box 1)
(Junction Box 5 : SAME AS Junction Box 1)
(Junction Box 6 : SAME AS Junction Box 1)
(Junction Box 7 : SAME AS Junction Box 1)
(Junction Box 8 : SAME AS Junction Box 1)
* When ALC is selected, the AOC check box is not displayed.
(Device Installation)
Task Station 1
Equipment No. 1
Task Station 2
Equipment No. 2
Task Station 3
Equipment No. 3
Task Station 4
Equipment No. 4
Task Station 5
Equipment No. 5
Task Station 6
Equipment No. 6
Task Station 7
Equipment No. 7
Task Station 8
Equipment No. 8
RADAR 1
RADAR 2
VDR(JRC)
Printer
Heading Sensor 1
Heading Sensor 1(Type)

Heading Sensor 2
Heading Sensor 2(Type)
Log 1
Log 1 Interface/Type
Log 2
Log 2 Interface/Type
GPS 1
GPS 2
GPS 3
GPS 4
Ship's Clock
Echo Sounder (T/D 1)
Echo Sounder (T/D 1) Position
Echo Sounder (T/D 2)
Echo Sounder (T/D 2) Position
Echo Sounder (T/D 3)
Echo Sounder (T/D 3) Position
AIS
NAVTEX
Anemometer
Water TMP Meter
Current Meter
Climate Meter
TRI
Autopilot
Autopilot Type
Rudder
Rudder Number
Engine/Propeller
Engine/Propeller Number
Engine Telegraph
Engine Telegraph Number
Bow Thruster
Bow Thruster Number
Stern Thruster
Stern Thruster Number
Azimuth Thruster
Azimuth Thruster Number
Generator
Generator Number
S-JOY 1
S-JOY 2
S-JOY 3
S-JOY 4
S-JOY 5
GPS Selector
Log Selector
Inmarsat-C 1
Inmarsat-C 2
BNWAS
BNWAS Type
General Equipment(Alert)
General Equipment(Alert) Number
GPS Buoy
Plotter
VHF (JHS-800S) 1
VHF (JHS-800S) 2
VHF (JHS-800S) 3
Hull Motion

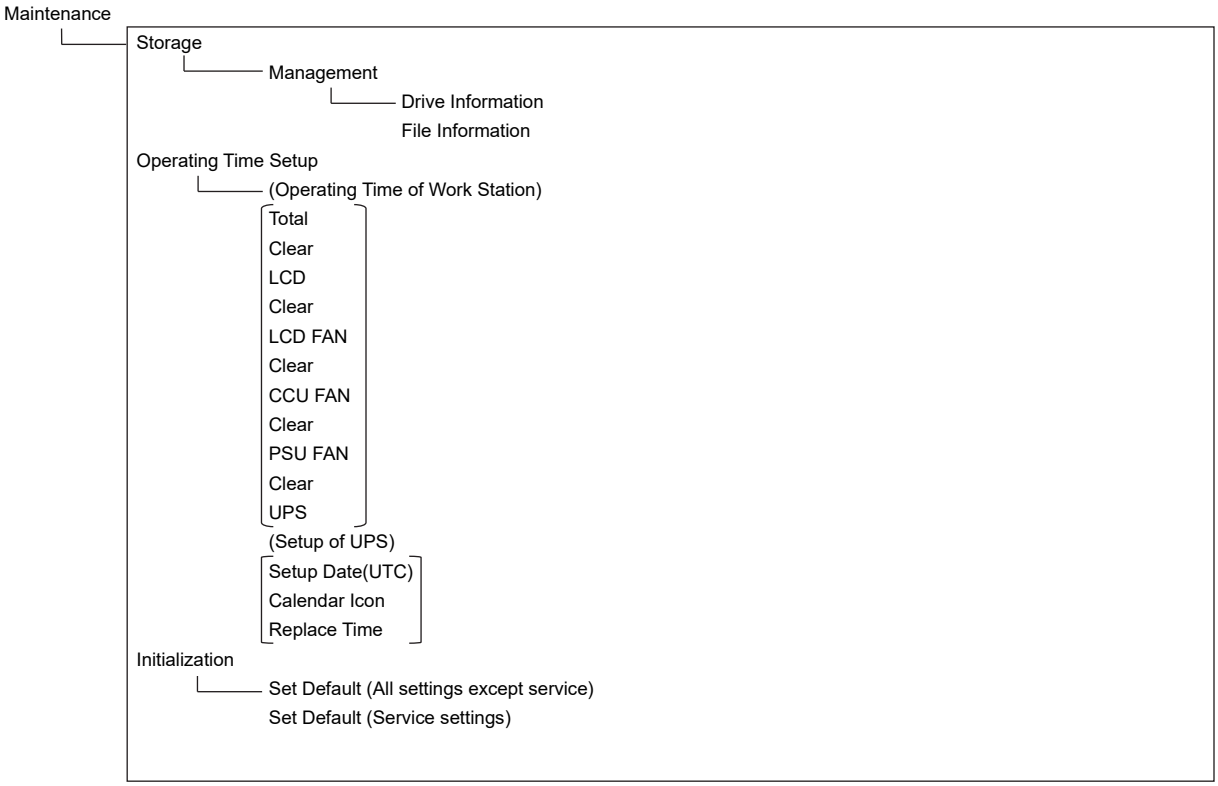
Set


CCRP
Length
Beam
GPS1 X~GPS4 X
GPS1 Y~GPS4 Y
RADAR Antenna1 X~RADAR Antenna8 X
RADAR Antenna1 Y~RADAR Antenna8 Y
CCRP1 X~CCRP4 X
CCRP1 Y~CCRP4 Y
CCRP
Speed Position
Bow
Stern
Serial Port
(CCU)
Gyro/Log/GPS/AIS
Sensor
Diagnosis
Detail
"Serial Port-Detail" dialog box
Monitor
"Serial Port-Monitor" dialog box
ISW/MTR/Serial OPU
Diagnosis
Monitor
"Serial Port-Monitor" dialog box
SLC1(M) tab
CH1 ~ CH8
CH9 ~ CH10
Gyro I/F
Sensor
Diagnosis
Detail
"Serial Port-Detail" dialog box
Monitor
"Serial Port-Monitor" dialog box
(SLC2(M)~SLC4(M) : SAME AS SLC1(M))
(SLC2(S)~SLC4(S) : SAME AS SLC1(M))
(ALC1~ALC4 : SAME AS SLC1(M))

- Contact (Menu for a person in charge of installation)
  - (CCU)
    - WMRST
    - PWR FAIL
    - SLC1 tab
      - Contact Output tab
        - Contact1 ~ Contact8
        - Test
        - Task Station
      - Contact Input tab
        - Contact1 ~ Contact4
        - Diagnosis
        - Task Station
    - (SLC2 : SAME AS SLC1)
    - (SLC3 : SAME AS SLC1)
    - (SLC4 : SAME AS SLC1)
    - (ALC1 : SAME AS SLC1)
    - (ALC2 : SAME AS SLC1)
    - (ALC3 : SAME AS SLC1)
    - (ALC4 : SAME AS SLC1)
- A/D (Displayed only when Conning mode is selected.)
  - (SLC1)
  - Connect (common)
  - CH1 ~ CH4 → "A/D-A/D CH Configuration" dialog box
  - Contents (common)
  - Value (common)
  - Data Unit (common)
  - Clear (common)
  - (SLC2 : SAME AS SLC1)
  - (SLC3 : SAME AS SLC1)
  - (SLC4 : SAME AS SLC1)
  - (ALC1 : SAME AS SLC1)
  - (ALC2 : SAME AS SLC1)
  - (ALC3 : SAME AS SLC1)
  - (ALC4 : SAME AS SLC1)
  - (Analog Option Circuit2)
  - Connect (common)
  - CH1~CH4
  - Contents (common)
  - Value (common)
  - Data Unit (common)
  - Clear (common)
- System Function
  - Equipment
  - Connection
  - System Function
  - SFI Talker
  - SFI No.
  - Cluster
  - Control Tx
  - Alert Tx
  - Alert Rx
  - Delete
  - Add → [System Function(Add)] dialog box
  - Edit → [System Function(Edit)] dialog box


Data Output (Menu for person in charge of installation)
(TT)
TTM
TLL
TTD
TLB
OSD
RSD
(AIS)
TTM
TLL
TTD
TLB
Remote Maintenance
GPS Select
Log Select
Navigation Data Channel(1)
Detail(1) →"Data Output-Detail" dialog
Navigation Data Channel(2)
Detail(2) →"Data Output-Detail" dialog
Navigation Data Channel(3)
Detail(3) →"Data Output-Detail" dialog
Navigation Data Channel(4)
Detail(4) →"Data Output-Detail" dialog
Network (Menu for person in charge of installation)
IP Address tab
(Own Task Station)
IP Address
Set
(Network List)
Delete
Add
Edit
Status tab
Redundancy (Menu for person in charge of installation)
(TCS)
Main
Sub
(AMS)
Main
Sub
(LAN(VDR)
Sub
Ship's Parameters (Displayed only when Conning mode is selected.)
Ship General
(Ship General)
Ship's Name
Length
Beam
Height from keel to MAX point
Keel-Trans
MAX Course Change
MAX Speed Limit
MIN Speed Limit
MAX ROT
MIN ROT
MIN Turn Radius
MIN Safety Contour

- Settings
  - Alert
    - (Watch Alarm)
      - Reset Interval
      - Trackball Threshold
    - Sound Output Mode
  - AC Power Failure
    - Auto Shutdown of Task Station after
    - (LCD Control)
      - Power Off
      - Set display brightness
    - Power Off of Antenna
  - Interswitch
    - ISW Install
    - (Connection Permission)
      - Display Unit
      - Antenna No.1~Antenna No.8 Master
      - Antenna No.1~Antenna No.8 Slave
      - Set
    - Simple-ISW TXRX Power Supply
    - Operation Restriction
    - Control lable MON
  - VDR
    - Send Captured Screen to VDR
    - Address
    - Port
    - Delay Time
    - Timeout
  - Autosail
    - Reach Offset
    - Time / Distance to WPT
    - Actual Radius P Gain
    - Actual Radius D Gain
    - Actual Radius Count N
    - Actual Radius Count M
    - Tracking(Low)
    - Tracking(MID)
    - Tracking (HIGH)
    - Tracking Multiple
    - Tracking Count A
    - Tracking D Gain
    - Tracking Class
    - Default
  - AIS
    - Setting Password
  - Display Size
    - Horizontal Size


Maintenance
Storage
Management
Drive Information
File Information
Operating Time Setup
(Operating Time of Work Station)
Total
Clear
LCD
Clear
LCD FAN
Clear
CCU FAN
Clear
PSU FAN
Clear
UPS
(Setup of UPS)
Setup Date(UTC)
Calendar Icon
Replace Time
Initialization
Set Default (All settings except service)
Set Default (Service settings)

B.2 Lists of Terminologies, Units, and Abbreviations

Abbreviation	Term
A	
A/D = AD	Analog/ Digital
A/P = AP	Auto Pilot
AC	Alternating Current
ACC	Actual Course Change
ACCA	Actual Course Change Alarm
ACK	Acknowledge
ACQ	Acquire, Acquisition
ACT	Activate
AFT	After
AIO	Admiralty Information Overlay (additional information to the navigation)
AIS	Automatic Identification System
ALC	Alert LAN Converter
AMP	Amplifiers
AMS	Alert Management System
ANT	Antenna
ARCS	Admiralty Raster Chart Service (A raster chart published by UKHO.)
ASCII	American Standard Code for Information Interchange
ASIC	Application Specific Integrated Circuit
AtoN	Aids to Navigation
AUTO = auto	Automatic
Av. = AVE	Average
AVCS	Admiralty Vector Chart Service
AZ	Acquisition Zone
AZI	Azimuth Stabilization Mode
B	
BAM	Bridge Alert Management
BCR	Bow Crossing Range
BCT	Bow Crossing Time
BFT	Beaufort
BNWAS	Bridge Navigational Watch Alarm System
BP	Bearing Pulse
BRG	Bearing
BZ	Bearing Zero

Abbreviation	Term
C	
C UP	Course Up
CA-CFAR	Cell Averaging CFAR
Cargo.Cat	Cargo Category
CCRP	Consistent Common Reference Point
CCRS	Consistent Common Reference System
CCU	Central Control Unit
CCW	Counterclockwise
CFAR	Constant False Alarm Rate
CH	Channel
CHG	Change
CID	Conning Information Display
CIF	Companion MPU Interface
CLR	Clear
COG	Course Over the Ground
COM	Communication Port
CONT	Contrast, Control
CONV	Conventional
CORREL	Correlation
CPA	Closest Point of Approach
CPP	Controllable Pitch Propeller
CPU	Central Processing Unit
CRS	Course
CTS	Course to Steer
CTW	Course Through the Water
Curr.	Current
CW	Clockwise
D	
D/N	Day/Night
DC	Direct Current
Def.	Definition
DGPS	Differential GPS
DIFF	Difference
DIR = Dir.	Direction
DISP = Disp	Display
DIST	Distance
DR	Dead Reckoning, Dead Reckoned Position
DSC	Digital Selective Calling
DSP	Digital Signal Processor

Abbreviation	Term
E	
EBL	Electronic Bearing Line
ECC	Early Course Change
ECDIS	Electronic Chart Display and Information System
Ed.	Edition
EGC	Enhanced Group Calling
ENC	Electronic Navigational Chart
ENH	Enhance
EOT	End of Track
EP	Estimated Position
EPA	Electronic Plotting Aids
EPFS	Electronic Position Fixing System
EQUIP	Equipment
ETA	Estimated Time of Arrival
F	
FPGA	Field Programmable Gate Array
FTC	Fast Time Constant
FWD	Forward
G	
GC	Great Circle
GIF	Gyro Interface
GLONASS	Global Orbiting Navigation Satellite System
GND	Ground
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GZ	Guard Zone
H	
H UP	Head Up
H/W = HW	HardWare
HASP	Hardware Against Software Piracy
HC	Heading Control
HCS	Heading Control System
HDG	Heading
HDOP	Horizontal Dilution of Precision
HL	Heading Line
HO	Hydrographic Organization
HSC	High Speed Craft
I	
I/F = IF	Interface

Abbreviation	Term
I/O	Input/Output
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IALA-A	IALA - Region A
IALA-B	IALA - Region B
ID	Identification
IMO	International Maritime Organization
IND	Indication
INFO	Information
INIT	Initialisation
INS	Integrated Bridge System
INT	Interval
IP Address	Internet Protocol Address
IR	Interference Rejection
ISW	Interswitch
J	
JB	Junction Box
K	
KOPU	Keyboard Operation Unit
L	
L/L = LL	Latitude/ Longitude
LAN	Local Area Network
LAT	Latitude
LCD	Liquid Crystal Display
LMT	Local Mean Time
LON	Longitude
LOP	Line of Position
LORAN	Long Range Navigation
LP	Long Pulse
M	
M/E	Main Engine
MAG	Magnetic
MAN	Manual
MAX	Maximum
MBS	Main Bang Suppression
MFDF	Medium Frequency Direction Finding
MHV	Modulator High Voltage
MIC	Microphone
MID	Middle
MIN	Minimum

Abbreviation	Term
MMSI	Maritime Mobile Services Identity Number
MOB	Man Overboard
MON	Monitor
MP	Medium Pulse
MSC	Maritime Safety Committee
MSG	Message
N	
N UP	North Up
NAV = NAVI	Navigation
NAVTEX	Navigational Telex
NE	North East
NFU	Non Follow Up
NLT	Not Less Than
NMEA	National Marine Electronics Association
NMEA0183	NMEA 0183 standards
NMT	Not More Than
No. = NUM	Number
NW	North West
O	
OPE	Operation
OPU	Operation Unit
OSD	Own Ship Data
OVRD	Override
P	
PI	Parallel Index Line
PIN	Personal Identification Number
PL	Pulse Length
PORT	Port/ Portside
POS = POSN	Position
PPI	Plan Position Indicator
PRF	Pulse Repetition Frequency
PROC	Process
PS	Power Supply
PSU	Power Supply Unit
PWR	Power
Q	
R	
R	Relative
RADAR	Radio Detecting and Ranging

Abbreviation	Term
RAND	Random
RCID	Raster Chart Issue Date
REF	Reference
REL	Relative
Rev.	Revolution
RIF	Radar I/F Circuit
RL	Rhumb Line
RM	Relative Motion
RM(R)	Relative Motion. Relative Trails.
RM(T)	Relative Motion. True Trails.
RMS	Root Mean Square
RNC	Raster Navigational Chart
RNG	Range
RoRo	Roll On/ Roll Off (Vessel)
ROM	Read Only Memory
ROT	Rate of Turn
RPS	Route Planning System
RX	Receiver
S	
SA	Scheme Administrator
SAR	Search and Rescue
SART	Search and Rescue Transponder
SATNAV	Satellite Navigation
SBAS	Satellite Based Augmentation System
SCL	Serial LAN Converter
SDK	Software Development Kit
SE	South East
SEL	Select
SENC	System Electronic Navigational Chart
Seq	Sequence
SFI	System Function ID
S-JOY	Steering Joystick Controller
SLC	Serial LAN Converter
SOG	Speed Over the Ground
SP	Short Pulse
SPD	Speed
SprsLvl	Spurious Level
SSD	Solid State Drive
SSE	Security Scheme Error

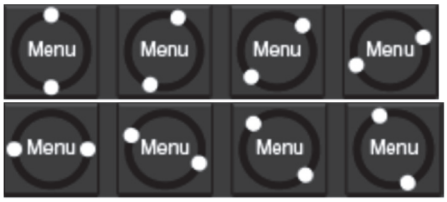
Abbreviation	Term
SSR	Solid State Radar
SSW	Safety Switch
STAB	Stabilized, Stabilization
STBD	Starboard, Starboard Side
STC	Sensitivity Time Control
STD	Standard
STW	Speed Through the Water
Surf	Surface
SW HUB	Switching Hub
SYNC	Synchronisation
SYS	System
T	
T	True
T & P	Temporary and Preliminary Notice to Mariners
TCPA	Time to CPA
TCS	Track Control System
TD	Time Difference
TEMP / Temp.	Temperature
TGT	Target
TM	True Motion
TNI	Tune Indicator
TOPU	Trackball Opelation Unit
TPL	Transferred Line of Position
Trans	Transducer
TRX	Transceiver
TT	Target Tracking
TTG	Time to Go
TX	Transmitter
TXRX	Transmitter Receiver Unit
U	
U.Map	User Map
UNACK	Un-Acknowledge
Up.No.	Update Number
USB	Universal Serial Bus
UTC	Coordinated Universal Time
V	
VD	Video
VDIN	Video In
VDR	Voyage Data Recorder

Abbreviation	Term
Ver.	Version
VHF	Very High Frequency
VOL	Volume
VRM	Variable Range Marker
W	
W UP	Waypoint Up
WGS	World Geodetic System
WIG	Wing-in-ground effect craft
WOL	Wheel Over Line
WPT	Waypoint
WS	Work Station
WTRST	Watch Timer Reset
X	
XTD	Cross Track Distance
XTE	Cross Track Error
XTL	Cross Track Limit, Route Width
Y	
Z	

Abbreviation	Term
Unit	
bps	bit per second
cm	centimetre
dB	decibel
deg	degree
fm	fathom
ft	feet, foot
h = hr	hour
hPa	hecto pascal
Hz	hertz
kg	kilogram
km	kilometre
kn = kts	knot
m	meter
mbar	millibar
min	minute
mph	mile per hour
NM	nautical mile
RAD	radius
rpm	revolutions per minute
s=sec	second
sm	statute mile

B.3 List of Icons/Icon Buttons

The icons/icon buttons displayed in this equipment are listed below.

No.	Name	Functional outline	Displayed image
1	Active indicator	Indicates that the computer is processing by an animation.	
2	Setting mark	Displayed when the operation is valid.	
3	Drive	Displayed at the left of the name when a drive is selected.	
4	Folder	Displayed at the left of the name when a folder is selected.	
5	Close	Closes the dialog box.	
6	Date selection	Displays the calendar picker.	
7	Day/Night	Displays the state of the current Day/Night setting by an icon.	
8	Screen brightness	Enables adjustment of the screen brightness.	
9	Panel brightness	Enables adjustment of the brightness of operation unit.	
10	Menu	"Menu" button with freeze indicator function. Displays the menu. Indicates using animation that the system is operating.	
11	Silencing	Silences the alert sound.	
12	Multiple knob (small knob)	Displays the functions assigned to the multiple knob. Displayed as an icon with the function name at left.	
13	Brightness	Sets the brightness of the screen.	
14	Alert	Opens the alert related menu. When clicked, the alert dialog box appears. Alert settings can be made in the dialog box.	
15	Settings	Opens the menu related to the operation settings of the equipment.	

No.	Name	Functional outline	Displayed image
16	Maintenance	The maintenance related menu for the users is displayed. It is possible to check the software version and to monitor the status of the equipment.	
17	Help	Opens the help screen.	
18	Code Input	Input the password.	
19	Service	The menu related to adjustment, servicing, and maintenance is displayed for the servicing personnel.	
20	Back space	Carries out a backspace operation.	
21	Backward movement of the input position	Moves back the input position.	
22	Forward movement of the input position	Moves the input position forward	

APP B

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