

FURUNO

INSTRUCTION MANUAL

SETTING AND ADJUSTMENTS

Model **FMD-3100**

(For PCU-3010)

Complies with IEC62923-1/2

This manual is solely for use by the installer. Under no circumstances shall this manual be released to the user.

The installer shall remove this manual from the vessel after installation.

This manual contains no password data. Obtain password data from FURUNO before beginning the installation.



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www.furuno.com

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INTRODUCTION

This manual explains the set up procedures after installing the FMD-3100.

After the software setup is completed, make a backup copy of the configuration data on a removable medium (USB memory, PC, etc.).

Items to prepare

- PC
- LAN cable

Trademarks and copyrights

Windows and Internet Explorer are registered trademarks or trademarks of the Microsoft Corporation of the USA and other countries.

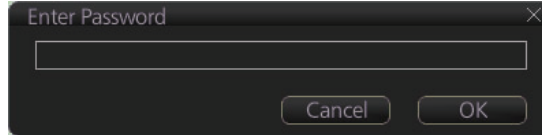
Silent mode

When the vessel is moored and normal functions are not required, you may set the equipment to the silent mode.

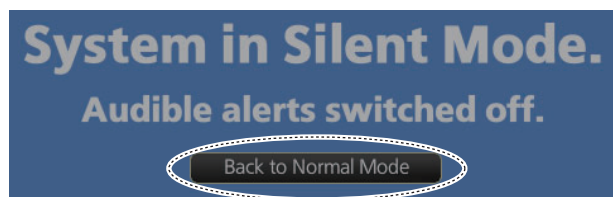
Note: Alerts and buzzers do not function during the silent mode.

To enable the silent mode:

1. Click the [OTHERS] button on the Status bar then click [SILENT].
You are prompted for a password.



2. Enter "3000", then click the [OK] button.
The following pop-up window appears.



Click to return to normal operation.

3. To return to normal operation, click the [Back to Normal Mode] button in the pop-up window shown above.

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1. INITIAL SETTINGS AND ADJUSTMENTS

This chapter covers the initial settings and adjustments to be applied after installation of the PCU-3010 is completed.

Note 1: Each unit of the FMD-3100 has a default IP address. Before connecting each unit and building the network, enter the initial settings (Equipment IDs) and change the IP address from the [Basic Setting] menu (see section 1.2). After entering the equipment IDs, connect each unit and build the network. Enter each unit's settings as you connect them, or complete building the network and enter all equipment settings at one time.

Note 2: To ensure the security of the FURUNO network, be sure to connect with non-FURUNO networks via the service gateway (tBOX810-83A-FL).

1.1 Accessing the [Common Installation Setting] Menu

All initial settings for the FMD-3100 and its units are performed using the [Common Installation Setting] menu. This menu works within a web browser.

Access the [Common Installation Setting] menu using one of the two methods below:

- Access via laptop PC using a LAN connection (see section 1.1.1.)
- Access via the Trackball Control Unit RCU-030 (see section 1.1.2.)

Note 1: The following browsers are compatible with this software.

- Internet Explorer®11
- Firefox ESR 78

Note 2: To update the software with the updating file (see section 1.11), access the [Common Installation Setting] menu via LAN connection. To update the software with the DVD, access the [Common Installation Setting] menu with the control unit.

Note 3: The [Alert Define List] menu is not accessible from the Internet Explorer® when the MC-3000S is connected directly to the processor unit. Connect the MC-3000S via the PCU-3010, or use Firefox.

1.1.1 Laptop PC (LAN connection) access

1. Set the IP address and subnet mask of the PC according to the LAN port where the PC is connected, referring to the table below:

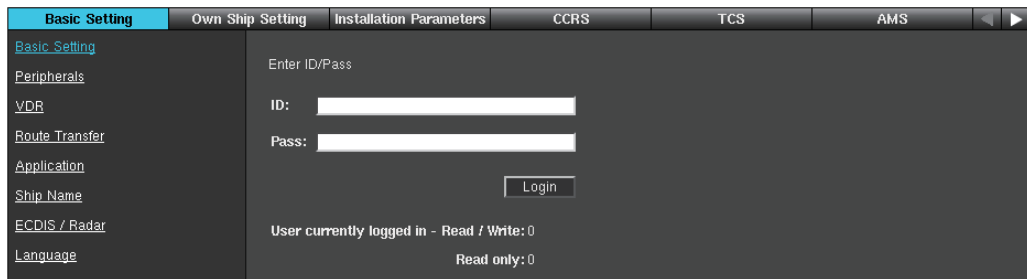
LAN port	IP address/Subnet mask	Setting
LAN1 (Gateway network)	IP Address	192.168.31.200
	Subnet mask	255.255.255.0
LAN2 (Sensor network)	IP Address	172.31.16.200
	Subnet mask	255.255.0.0

1. INITIAL SETTINGS AND ADJUSTMENTS

2. Connect the PC to LAN port 1 or 2 with a LAN cable.
Note: It is possible to connect to LAN1 or LAN2 using a LAN hub. In order to operate from the [Basic Setting] menu, however, turn all units off, except the unit to be set up. Enter settings for all other units in this manner.
3. Open a web browser on the laptop PC.
4. Enter the appropriate IP address in the browser's address bar, referring to the table below.


	Access point	IP Address
For initial setting	Gateway Network	192.168.31.1
	Sensor Network	172.31.16.1
For re-setting the unit	Gateway Network	Enter the IP address of the gateway or sensor network according to the Equipment ID used in the system. See the Equipment ID list at the back of this manual.
	Sensor Network	

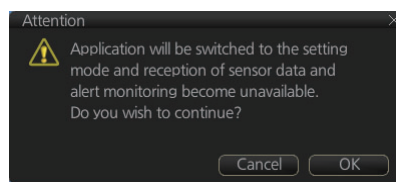
When entering the IP address on the address bar, you are asked to enter ID and password.



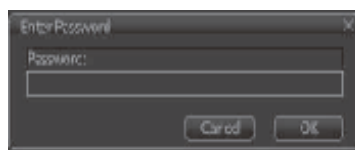
5. Enter ID and password, then click [Login] to access the [Common Installation Setting] menu.

1.1.2 Trackball Control Unit (RCU-030) access

1. Click the [] icon on the Status bar, then select [Settings]. The pop-up message shown below appears.



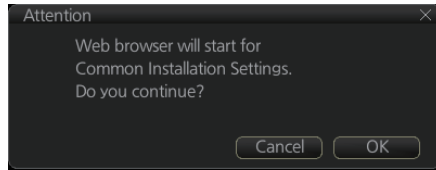
2. Click [OK] to show the [Settings] menu.
3. Click [SERVICE MODE] on the Status bar, then select [Service Login]. A dialog box for password entry appears.



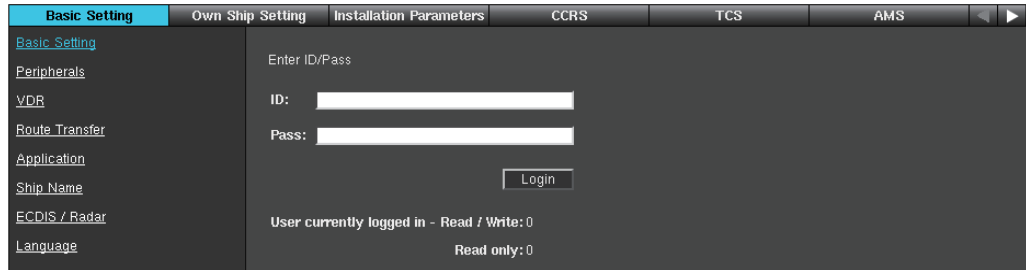
4. Use the software keyboard to enter the password and click [OK]. "Service Mode" is now displayed at the bottom left of the Settings window.

Note: You can use the optional hardware keyboard to enter the password if you have one installed.

- Click [SERVICE MODE] on the Status bar, then select [Common Installation Settings]. The message shown below appears.

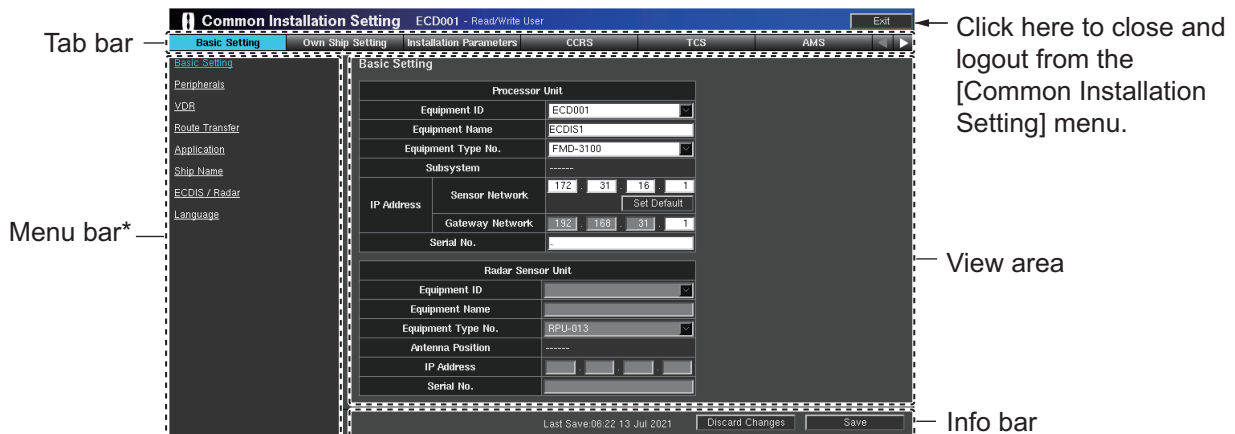


- Click [OK] to activate the web browser and show the dialog box asking for ID and password.



- Enter the ID and password, then click [Login] to access the [Common Installation Setting] menu.

1.1.3 Common installation setting menu contents



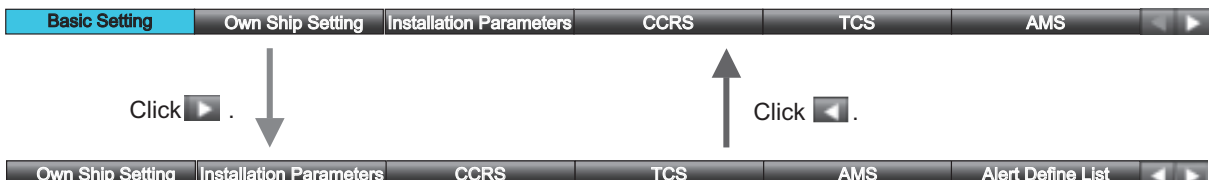
*: Selected item is highlighted in blue.

Click [Exit] to close and logout from the [Common Installation Setting] menu. You can close and logout by clicking on the web browser. However the menu can not be re-accessed for a while.

The selected tab is highlighted in blue on the tab bar. The view area and menu bar change according to the tab selected.

Click [(or)] at the tab bar to shift the tab to the left (or right).

Note: If the tab bar does not move when clicking either [(or)], clear the browser cache.



1. INITIAL SETTINGS AND ADJUSTMENTS

Tab bar menu item	Description
[Basic setting]	Sets the equipment ID, monitor, printer and own ship information.
[Own Ship Setting]	Enters the ship's parameters and sensor positions.
[Installation parameters]	Sets the system configuration and input/output data.
[CCRS]	Sets the priority of the sensors and NMEA sentences.
[TCS]	Sets route output-related settings.
[AMS]	Sets the AMS and relevant settings.
[Alert Define List]	Sets the alerts.
[Save and Sync]	Saves and synchronizes the settings. Settings can also be saved to a removable medium.
[System Monitor]	Confirms the system condition.
[Software Update]	Updates the software.
[Factory Test and Default]	Performs the factory test or restores default settings.
[Conning]	Configures the mini-conning display.

1.2 [Basic Setting] Menu

1.2.1 [Basic Setting] window

1. Access the [Common Installation Setting] menu, then click [Basic Setting] on the tab bar.

2. Select the [Equipment ID] from the drop-down list (setting range: [ECD001] to [ECD016]).
The [Equipment Name], [Equipment Type No.], and [IP Address] are automatically entered according to the Equipment ID. For details, see the Equipment ID list at the back of this manual.

Note 1: For the first ECDIS, set [Equipment ID] to “ECD001”.

Note 2: Assign a different [Equipment ID] to each unit in the network.

Note 3: [Serial No.] is entered before shipment. If you change the SSD or delete [Serial No.] by mistake, click the [Serial No.] box to enter the serial number of the PCU (example: xxxx-xxxx).

Note 4: When the [Set Default] button in the [Sensor Network] field is clicked, the IP address of the network changes to "192.168.0.1". Normally, do not use this item.

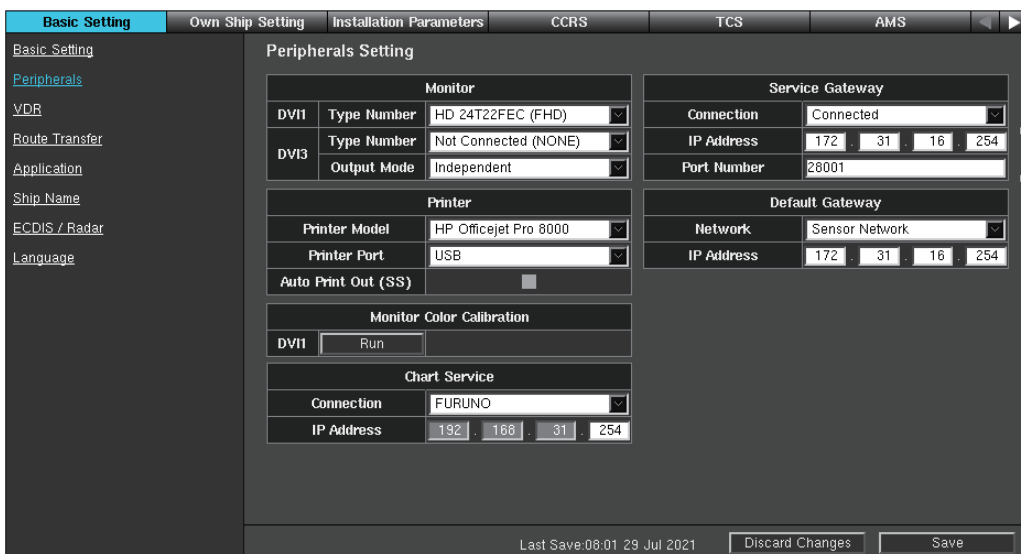
Note 5: The properties of data transmitted under IEC61162-450 protocol are changed according to the Equipment ID settings. The system's SFIDs, Device Nos. and Channels change as shown in the following table.

Equipment ID	SFID	Device No.	Channel
ECD001	EI0001	21	1, 2, 3
ECD002	EI0002	22	1, 2, 3
ECD003	EI0003	23	1, 2, 3
ECD004	EI0004	24	1, 2, 3
ECD005	EI0005	25	1, 2, 3
ECD006	EI0006	26	1, 2, 3
ECD007	EI0007	27	1, 2, 3
ECD008	EI0008	28	1, 2, 3
ECD009	EI0009	29	1, 2, 3
ECD010	EI0010	30	1, 2, 3
ECD011	EI0011	31	1, 2, 3
ECD012	EI0012	32	1, 2, 3
ECD013	EI0013	33	1, 2, 3
ECD014	EI0014	34	1, 2, 3
ECD015	EI0015	35	1, 2, 3
ECD016	EI0016	36	1, 2, 3

3. Confirm that [FMD-3100] is shown for [Equipment Type No.]. If not, select [FMD-3100] from the [Equipment Type No.] drop-down menu.
4. Click [Save] on the info bar. Several confirmation messages appear. Click [OK] to reboot the system. To discard all changes, click [Discard Changes].

1.2.2 [Peripherals] window

1. Access the [Common Installation Setting] menu and click [Basic Setting] on the tab bar.
2. Click [Peripherals] on the menu bar.

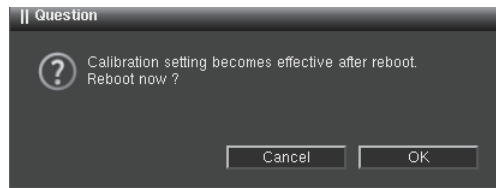


*: Shown when [Connected] is selected in [Connection] of [Service Gateway].

1. INITIAL SETTINGS AND ADJUSTMENTS

3. Confirm that the menu items for [Monitor] are entered as follows.
 - [DVI1] [Type Number]: [HD 24T22FEC (FHD)]
 - [DVI3] [Type Number]: [Not Connected (NONE)]
 - [Output Mode]: [Independent]
4. Click the [Run] button for [Monitor Color Calibration] to perform the color calibration.

“Processing” appears at the next to the [Run] button during the color calibration. After completing the calibration, check result appears ([Succeeded] or [Failed]). When the check result is [Succeeded], the following confirmation message appears. Click the [OK] button to reboot the system and apply the calibration setting. When the check result is [Failed], retry the color calibration. If the error is not rectified, contact your dealer.



Note: Be sure to perform the color calibration. If the calibration is not performed, you cannot adjust the monitor brilliance.

5. Access the [Common Installation Setting] menu and open the [Peripherals] window again.
6. Select the Printer type from the [Printer Model] drop-down menu.

Setting option	Remarks
[HP Officejet Pro 8000]	Connect the printer to LAN1 port or USB port, and then set the IP address of the printer to "192.168.31.241". For how to set the IP address of the printer, see the operator's manual of the printer.
[HP Officejet Pro 8100]	
[HP Officejet Pro 8210]	
[HP Color LaserJet Pro M255dw]	
[HP Officejet 100 Mobile]	Connect the printer to the USB port of the processor unit.
[HP Officejet 200 Mobile]	

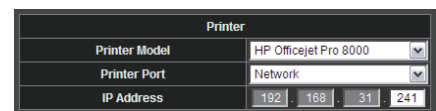
Note 1: For no printer, set [Printer Mode] to [HP Officejet 100 Mobile].

Note 2: The printer HP Officejet Pro 8000 Enterprise Printer can not be connected to the PCU.

7. Select the port to which the printer is connected from the [Printer Port] drop-down menu.

Printer	Printer Port
HP Officejet 100 Mobile/HP Officejet 200 Mobile/ Not Connected	[USB]
HP Officejet Pro 8000/HP Officejet Pro 8100/ HP Officejet Pro 8210/HP Color LaserJet Pro M255dw	[USB], [Network]

- [USB]: Only the FMD-3100 connected to the printer can print.
- [Network]: FMD-3100s in the same network can print. The IP address of the printer is shown on the [Printer] screen. Do not change the IP address.

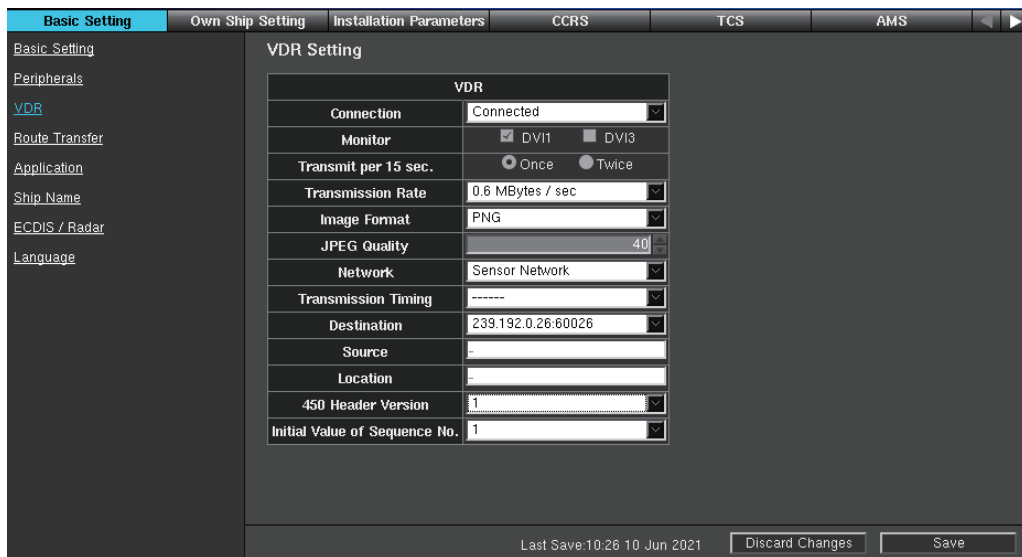


8. To automatically print images captured with [Screenshot] function, check the checkbox for [Auto Print out (SS)].
9. Select the chart data storage equipment from the [Connection] pull-down list in the [Chart Service] field. The IP address is automatically displayed. For [FURUNO] or [NAVTOR], do not change the IP address setting.
 - [Not Connected]: Not connected to the chart data storage equipment.
 - [FURUNO]: Connected to the FURUNO Gate-1.
 - [NAVTOR]: Connected to the NAVTOR NavBox.
 - [NeCST]: Not used.
 - [Cornes]: Connected to the ConnectNAS (Its IP address should be 192.168.31.231).
10. To connect a service gateway to the PCU-3010, select [Connected] at [Service gateway] then the IP address and the port number appear below the [Connected] item. Do not change these settings.
11. In the [Network] field of [Default Gateway], select the network to be specified as the default gateway. Data output to the external network is sent via the default gateway.
 - [Sensor Network]: Set the sensor network as the default gateway.
 - [Gateway Network]: Set the gateway network as the default gateway.
12. In the [IP Address] field of [Default Gateway], set the IP address of the default gateway.
13. Click [Save] on the info bar. Several confirmation messages appear. Click [OK] to reboot the system. To discard all changes, click [Discard Changes].

1. INITIAL SETTINGS AND ADJUSTMENTS

1.2.3 [VDR] window

1. Access the [Common Installation Setting] menu and click [Basic Setting] on the tab bar.
2. Click [VDR] on the menu bar.



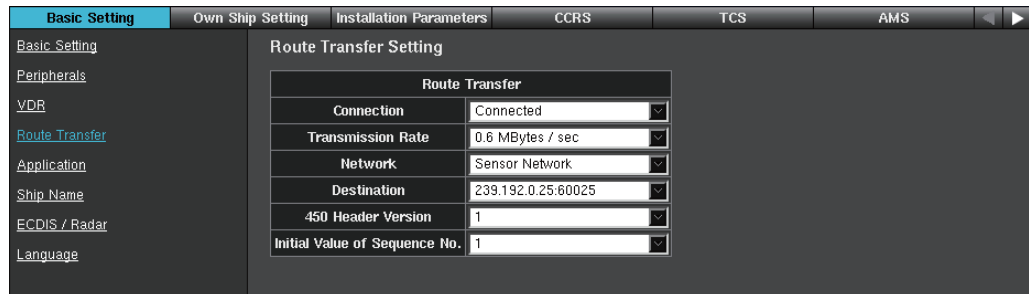
3. If a VDR is connected, select [Connected] from the [Connection] pull-down list. Refer to the table below to set the items in the menu.

Menu item/ interactive field	Description
[Monitor]	Select the DVI port connected with the VDR.
[Transmit per 15 sec.]	Set the number of transmissions in 15 seconds.
[Transmission Rate]	Set the transmitting rate.
[Image Format]	Set the image format.
[JPEG Quality]	Set the quality of JPEG data. (Available when [JPEG] is selected for [Image Format].)
[Network]	Select the network connected with the VDR
[Transmission Timing]	Set the delay timing.
[Destination]	Set the IP address and port of the destination.
[Source]	Set the status and information text, max. 16 characters.
[Location]	Set the status and information text, max. 32 characters.
[450 Header Version]	Set the header version of IEC 61162-450. <ul style="list-style-type: none"> • [1]: Set the initial value of the sequence number for binary transmission with [Initial Value of Sequence No.], below. • [2]: Binary transmission sequence number is fixed at "1".
[Initial Value of Sequence No.]	Set the initial value of the sequence number used for binary transmission (image transmission to VDR) of the IEC 61162-450 standard. Set above item [450 Header Version] to [1].

4. Click [Save] on the info bar. Several confirmation messages appear. Click [OK] to reboot the system. To discard all changes, click [Discard Changes].

1.2.4 [Route Transfer] window

1. Access the [Common Installation Setting] menu and click [Basic Setting] on the tab bar.
2. Click [Route Transfer] on the menu bar.



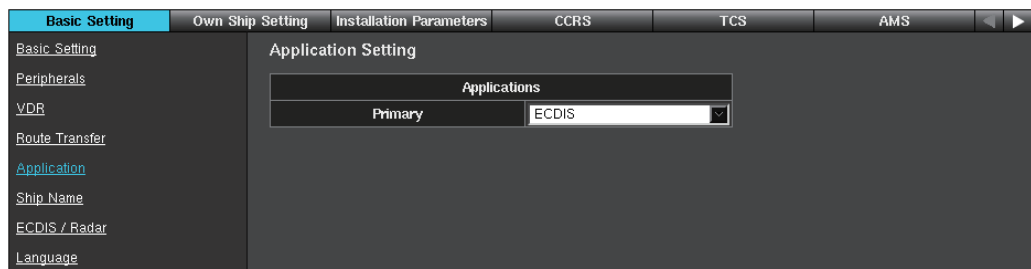
3. To transfer data to a specified network, select [Connected] from the [Connection] pull-down list.

Menu item	Description
[Connection]	Select [Connected] to transfer the data.
[Transmission Rate]	Set the transmission rate.
[Network]	Select the destination network for route data.
[Destination]	Set the IP address and port of the destination.
[450 Header Version]	Set the header version of IEC 61162-450. <ul style="list-style-type: none"> • [1]: Set the initial value of the sequence number for binary transmission with [Initial Value of Sequence No.], below. • [2]: Binary transmission sequence number is fixed at "1".
[Initial Value of Sequence No.]	Set the initial value of the sequence number used for binary transmission (image transmission to VDR) of the IEC 61162-450 standard. Set above item [450 Header Version] to [1].

4. Click [Save] on the info bar. Several confirmation messages appear. Click [OK] to reboot the system. To discard all changes, click [Discard Changes].

1.2.5 [Application] window (setting is not required)

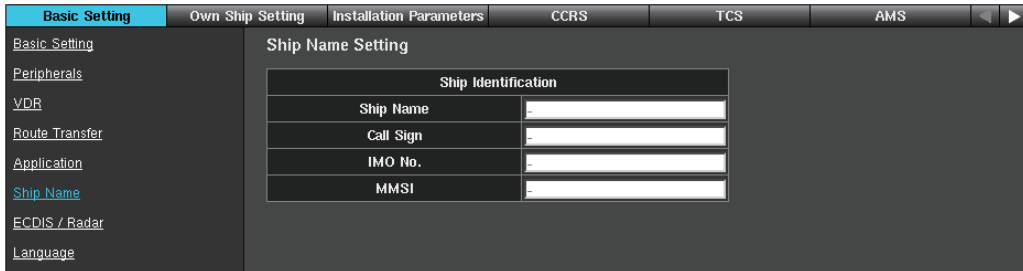
Do not change the setting on the [Application] window of the [Basic Setting] menu. Confirm that [Primary] is set to [ECDIS], if the setting is not [ECDIS], change it to [ECDIS].



1. INITIAL SETTINGS AND ADJUSTMENTS

1.2.6 [Ship Name] window

1. Access the [Common Installation Setting] menu and click [Basic Setting] on the tab bar.
2. Click [Ship Name] on the menu bar.

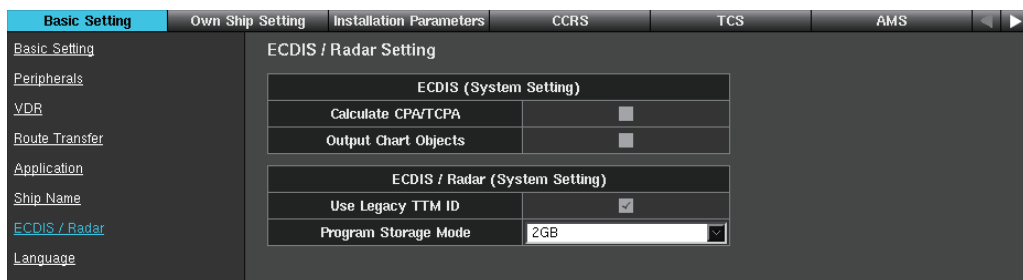


3. Enter your ship information. The data entered here is included in any printing.
 [Ship Name]: Own ship's name. [Call Sign]: Own ship's call sign
 [IMO No.]: Own ship's IMO no. [MMSI]: Own ship's ID

Note: The FMD-3100 can display own ship's data input from AIS, on the [Own Ship] page in the [Nav Status] menu. The data entered here is not reflected to the AIS data.

4. Click [Save] on the info bar. Several confirmation messages appear. Click [OK] to reboot the system. To discard all changes, click [Discard Changes].

1.2.7 [ECDIS/Radar] window



Item	Description
[Calculate CPA/TCPA]	Setting cannot be changed. Keep "unchecked."
[Output Chart Objects]	Turn output of AR-100M chart objects on or off. Check the box to output. Note: If checked, set [Output Route Data Setting] ([TCS] menu→[Other Setting] tab) to [File and RMB].

Item	Description																	
[Use Legacy TTM ID]	<p>Sets the behavior when the TTM sentence contains "ID = 0". Set according to the range of TTM ID of the connected device.</p> <table border="1" data-bbox="746 309 1358 656"> <thead> <tr> <th>Radar manufacturer</th> <th>TTM ID Setting range</th> <th>Recommended setting</th> </tr> </thead> <tbody> <tr> <td rowspan="2">FURUNO</td> <td>00~99</td> <td>Checked</td> </tr> <tr> <td>01~200</td> <td>N/A</td> </tr> <tr> <td rowspan="4">Other</td> <td>00~99</td> <td>Checked</td> </tr> <tr> <td>01~99</td> <td>N/A</td> </tr> <tr> <td>00~999</td> <td>Unchecked</td> </tr> <tr> <td>01~999</td> <td>N/A</td> </tr> </tbody> </table> <p>Note 1: "N/A" means setting has no influence on system. Note 2: There is no problem if item is "checked" when a FURUNO radar is used.</p>	Radar manufacturer	TTM ID Setting range	Recommended setting	FURUNO	00~99	Checked	01~200	N/A	Other	00~99	Checked	01~99	N/A	00~999	Unchecked	01~999	N/A
Radar manufacturer	TTM ID Setting range	Recommended setting																
FURUNO	00~99	Checked																
	01~200	N/A																
Other	00~99	Checked																
	01~99	N/A																
	00~999	Unchecked																
	01~999	N/A																
[Program Storage Mode]	Set the storage size for storing the route information database. Select [2GB] or [4GB] according to the storage size of the equipped C-FAST.																	

1.2.8 [Language] window

The menu language for the everyday operating screens can be set to English or Japanese. The [Common Installation Setting] menu has English menus only.

Note: This language setting is synchronized with all units on the network. Reboot the synchronized unit(s) to use the selected menu language.

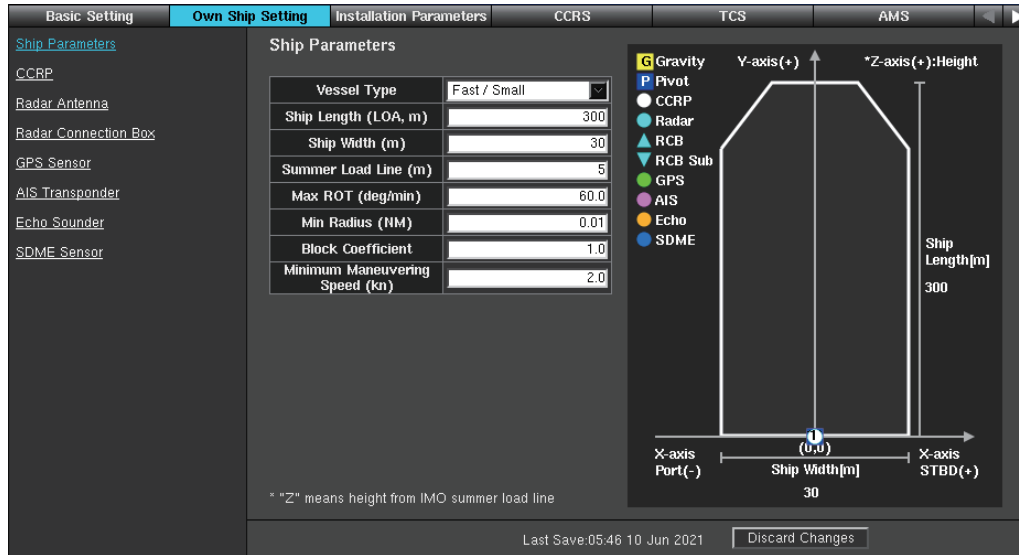
1. Access the [Common Installation Setting] menu and click [Basic Setting] on the tab bar.
2. Click [Language] on the menu bar.



3. Select [English] (default) or [Japanese].
4. Click [Save] on the info bar. Several confirmation messages appear. Click [OK] to reboot the system. To discard all changes, click [Discard Changes].

1.3 [Own Ship Setting] Menu

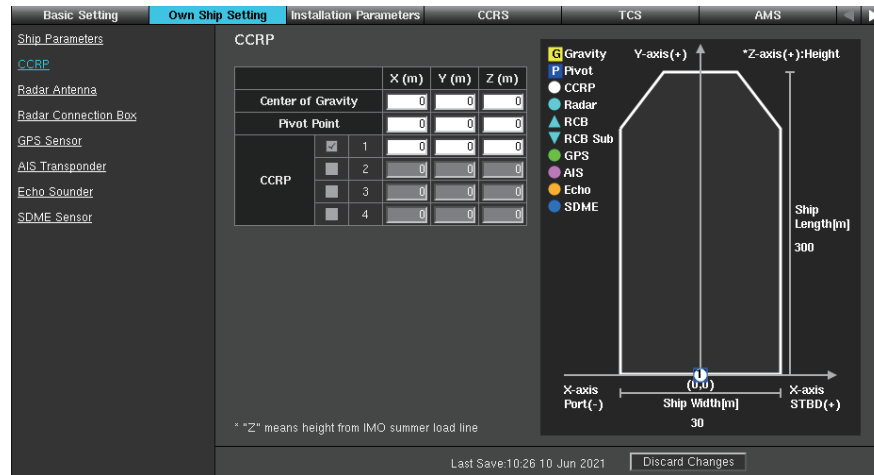
Enter the information for ship parameters/CCRP, antenna unit, GPS sensor, AIS transponder, echo sounder (E/S), and SDME sensor. Sensor symbols are displayed on the right half of the screen. There are six colors to show their priority: white (CCRP), cyan (radar), green (GPS), magenta (AIS), orange (E/S) and blue (SDME) in that order.



1. Access the [Common Installation Setting] menu and click [Own Ship Setting] on the tab bar.
2. Activate each field and enter own ship's data, using the table below for reference.

Menu item/interactive field	Description
[Vessel Type]	Own ship type among [Fast/Super Small], [Fast/Small], [Slow/Big] and [Super Tanker].
[Ship Length (LOA, m)]	Own ship's length, in meters.
[Ship Width (m)]	Own ship's width, in meters.
[Summer Load Line (m)]	Distance between own ship's hull and the summer load line, in meters.
[MAX ROT (deg/min)]	Own ship's maximum angular velocity (Rate of turn).
[Min Radius (NM)]	Own ship's minimum turning radius.
[Block Coefficient]	Own ship's block coefficient.
[Minimum Maneuvering Speed (kn)]	The minimum maneuvering speed of your ship.

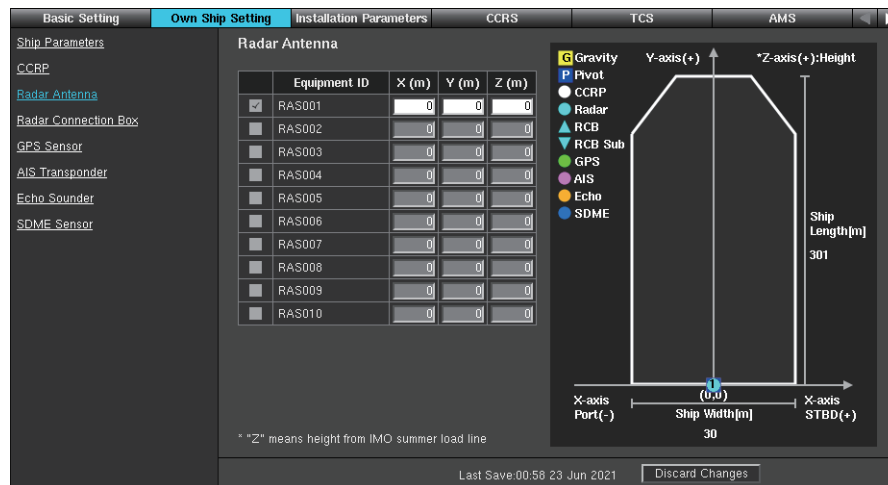
3. Click [CCRP] on the menu bar.



4. Set the following items referring to the descriptions in the table below.

Menu item/interactive field	Description
[Center of Gravity]	Own ship's center of gravity, in meters, set by X, Y and Z axis.
[Pivot Point]	Own ship's pivot point, in meters, set by X, Y and Z axis. Approximately 80% of the ship's length is recommended for the pivot point. For example, the ship's length is 350 m, enter "280 m" to [Y (m)]. For TCS, the XTE is calculated on the value set at here.
[CCRP]	Select the [CCRP] you wish to setup by left-clicking the check box to the left of each CCRP number. You can set up a maximum of four CCRP positions. Set up of [CCRP1] is required.

5. Click [Radar Antenna] on the menu bar.



Note: When you set the value for [Antenna Position] on the [Installation Parameters] menu, the setting value is shown at the right of [Equipment ID].

6. According to the number of antenna units connected to the PCU, check applicable checkbox to activate the antenna unit(s). You can activate up to four antenna units. Setting range: [RAS001] to [RAS004]. Do not select [RAS005] to [RAS010]. Setup the antenna units activated here on the [Installation Parameters] menu (see section 1.4.5).

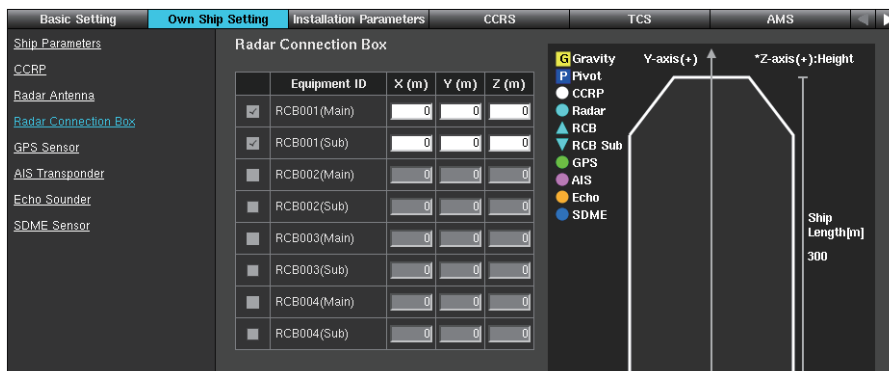
Note 1: Activate all antenna units connected to the FMD-3100.

1. INITIAL SETTINGS AND ADJUSTMENTS

Note 2: For an FAR-2xx7 and FAR-2xx8 series radar antenna, set the antenna no. (Equipment ID), taking care not to duplicate the Equipment ID of other radars. For how to set the antenna no., see the installation manual of the radar.

- Enter the position data of antenna unit(s) in the boxes [X (m)], [Y (m)], and [Z (m)].
- Enter the information for the GPS sensor, AIS transponder, echo sounder, and SDME sensor in a similar manner.

Note: When using the Radar Connection Box (RCB-002), make sure you input the location information for the external radar antenna. Also, when multiple RCB-002s are connected to the same network, change the IP address of the RCB-002s, referring to "SUBSYSTEM" on page AP-3.



- [RCB00x (Main)] (x: 1 to 4): Input the location information of the external radar antenna that is connected to the [RADAR SIGNAL IN No.1] port.
 - [RCB00x (Sub)] (x: 1 to 4): Input the location information of the external radar antenna that is connected to the [RADAR SIGNAL IN No.2] port. Set parameters for the [RCB00x (Main)] before setting parameters for the [RCB00x (Sub)].
- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

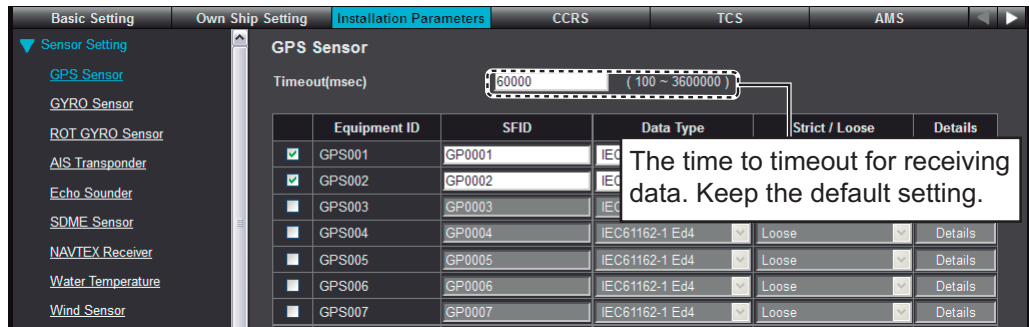
1.4 [Installation Parameters] Menu

The [Installation Parameters] menu sets the signals and input data of the sensors. First, select the sensor data at the [Sensor Setting] window. Then select the sensor from which the units (radar sensor (antenna unit), MFD, ECDIS, radar, and sensor adapter) obtain the sensor data.

1.4.1 Sensor setting

- Access the [Common Installation Setting] menu and click [Installation Parameters] on the tab bar.

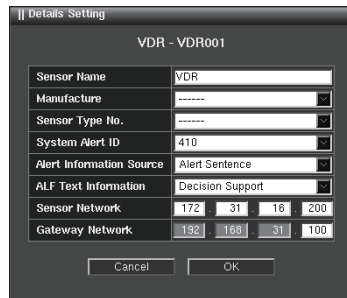
- Click [Sensor Setting] on the menu bar, then click [GPS Sensor].



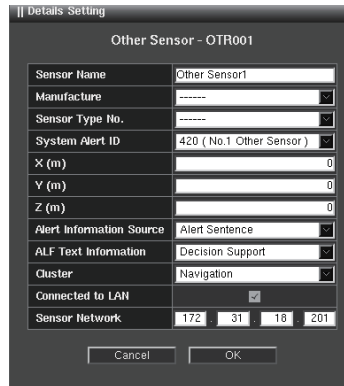
- Check applicable check boxes according to the number of GPS receivers connected.
- Set the following items for the units activated at step 3.

Data field	Comments
[SFID]	Keep the default setting. Do not use the "AI" prefix (AIS excluded) or the "II" prefix.
[Data Type]	Sets the RX sentence data format. Setting options: [IEC 61162-1 Ed3], [IEC 61162-1 Ed4], [IEC 61162-1 Ed5], [ASCII], [BINARY], [MODBUS], [PSU]. Do not select [ASCII] or [BINARY].
[Strict/Loose]	Sets the integrity of sentence data. [Strict]: Confirm the validity of checksum, then receive sentence. [Loose]: Receive sentence regardless of checksum invalidity.

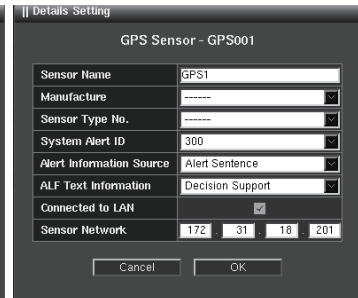
- Click the [Details] button to set the following items, referring to the table shown below.



For [VDR]



For [Other Sensor]



For other units

Item	Remarks
[Sensor Name]	Enter the appropriate sensor name.
[Manufacture]	Select the manufacturer of sensor from the pull-down list. Note: If the required manufacturer does not appear, add it manually (see section 1.4.9).
[Sensor Type No.]	Select the type of sensor from the pull-down list. Note: If the required type does not appear, add it manually (see section 1.4.9).
[System Alert ID]	The identification number that is assigned in the system is shown in this field. Do not change the setting.
[X (m)], [Y (m)], [Z (m)]	Set the location of X, Y and Z for [Other Sensor] only.

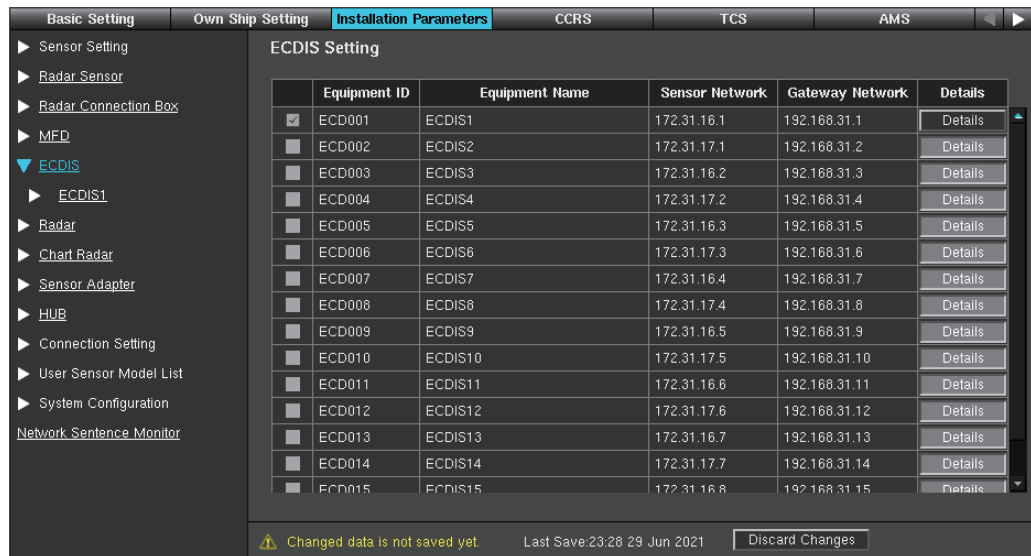
1. INITIAL SETTINGS AND ADJUSTMENTS

Item	Remarks
[Alert Information Source]	Set the source of alert definition to show on the display when the alert message is received in an ALF sentence. <ul style="list-style-type: none"> • [Alert Definition]: Show the alert definition registered to the PCU. • [Alert Sentence]: Show the alert definition included in the ALF sentence.
[ALF Text Information]	Select the type of the 2/2 packet text information of ALF sentence. <ul style="list-style-type: none"> • [All Alert Name]: Select this item if all alert text is included in the 2/2 packet of the ALF sentence. The text information on the 2/2 packet of the ALF sentence is shown as the alert name in the alert list/log. • [Remaining Alert Name]: Select this item if the alert text is divided in 1/2 and 2/2 packets of the ALF sentence. The text information for both the 1/2 and 2/2 packets of the ALF sentence is shown as the alert name in the alert list/log. • [Decision Support]: Select this item if the alert details information (Decision Support) is included in the 2/2 packet of the ALF sentence. The text information for the 2/2 packet of the ALF sentence is shown as the alert details in the alert list/log.
[Cluster]	Select which cluster the connected sensor corresponds to among the clusters defined in IEC62923-2. Note: Only [Other Sensor] is displayed.
[Connected to LAN]	Check if the IEC61162-450 compatible sensor is connected to the LAN. Note: Only [VDR] is displayed.
[Sensor Network]	Set the IP address of sensor network.
[Gateway Network]	Set the IP address of gateway network. Note: Only [VDR] is displayed.

6. Set [Gyro Sensor], [ROT GYRO Sensor], [AIS Transponder], [Echo Sounder], [SDME Sensor], [NAVTEX Receiver], [Water Temperature], [Wind Sensor], [Magnet Compass Sensor], [Current Sensor], [Rudder Sensor], [HCS], [VDR], [BN-WAS], and [Other Sensor] similarly.
Note: Only sensors connected to the PCU should be set.
7. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

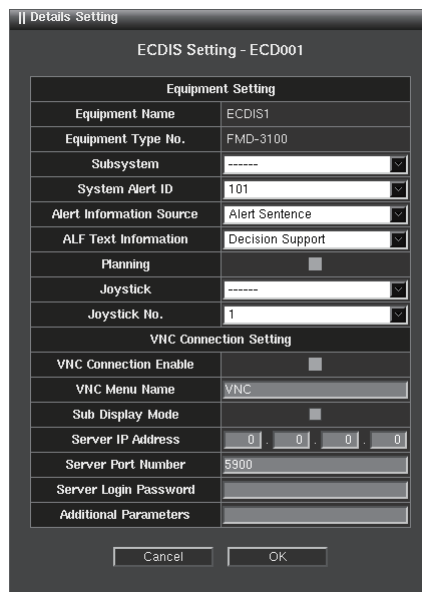
1.4.2 PCU-3010 configuration

1. Select [ECDIS] on the menu bar.



2. Check applicable checkbox to activate the corresponding PCU-3010. The Equipment ID checked on this step is shown on the menu bar. The maximum number of PCU-3010s that can be connected is three.

Note: Do not check PCU-3010s not used, to prevent trouble. Check only the PCU-3010s to be used.
3. Click the [Details] button and set the items referring to the table shown below.



Item	Remarks
[Subsystem]	Set this menu item to share the sensor data through HUB-3000. For subsystem details, see page AP-3. When sharing the sensor data: Set the value. Setting range: "A" to "Z". To not share the sensor data: Keep the default setting ("---").
[System Alert ID]	The identification number that assigned in the system is shown in this field. Do not change the setting.

1. INITIAL SETTINGS AND ADJUSTMENTS

Item	Remarks
[Alert Information Source]	Set the source of alert definition to show on the display when the alert message is received in an ALF sentence. <ul style="list-style-type: none"> [Alert Definition]: Show the alert definition registered to the processor unit. [Alert Sentence]: Show the alert definition included in the ALF sentence.
[ALF Text Information]	Select the type of the 2/2 packet text information of ALF sentence. <ul style="list-style-type: none"> [All Alert Name]: Select this item if all alert text is included in the 2/2 packet of the ALF sentence. The text information for the 2/2 packet of the ALF sentence is shown as the alert name in the alert list/log. [Remaining Alert Name]: Select this item if the alert text is divided in 1/2 and 2/2 packets of the ALF sentence. The text information for both the 1/2 and 2/2 packets of the ALF sentence is shown as the alert name in the alert list/log. [Decision Support]: Select this item if the alert details information (Decision Support) is included in the 2/2 packet of the ALF sentence. The text information for the 2/2 packet of the ALF sentence is shown as the alert details in the alert list/log.
[Planning]	Check the checkbox to assign the planning ECDIS. Note: Alerts are not displayed on the planning ECDIS.
[Joystick]	If a joystick is connected, select [Joystick] from the drop-down list. Set the joystick in [Other Sensor] in advance (see section 1.4.1).
[Joystick No.]	Set the joystick number.
[VNC Connection Enable]	Not used.
[VNC Menu Name]	
[Sub Display Mode]	
[Server IP Address]	
[Server Port Number]	
[Server Login Password]	
[Additional Parameters]	

- Click [Serial Input/Output] of [ECDIS1] on the menu bar.
The PCU-3010 has four serial interface ports ([Serial 01] to [Serial 04]).

The screenshot shows the 'Installation Parameters' menu for 'ECDIS1'. The 'Serial Input/Output' sub-menu is expanded, showing a table of serial ports. The 'Digital Input' and 'Digital Output' options are highlighted with a dashed box and labeled 'Not used'.

Serial No.	Equipment ID	Details	I/F monitor	Output	Input
<input checked="" type="checkbox"/> Serial 01	GPS001 (GP0001) (GPS1)	Details	Start	Output	Input
<input type="checkbox"/> Serial 02	-----	Details	Start	Output	Input
<input type="checkbox"/> Serial 03	-----	Details	Start	Output	Input
<input type="checkbox"/> Serial 04	-----	Details	Start	Output	Input
<input type="checkbox"/> Serial 05	-----	Details	Start	Output	Input
<input type="checkbox"/> Serial 06	-----	Details	Start	Output	Input
<input type="checkbox"/> Serial 07	-----	Details	Start	Output	Input
<input type="checkbox"/> Serial 08	-----	Details	Start	Output	Input

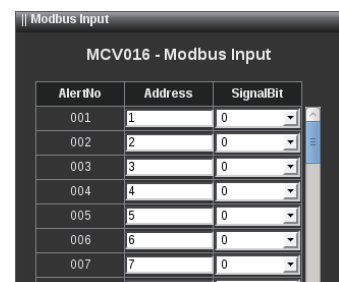
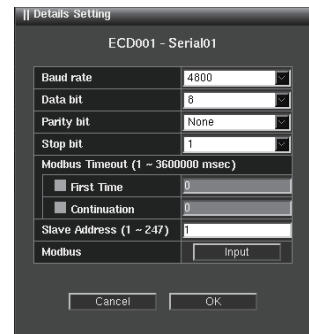
On FMD-3100, Serial 05 to 08 are not available.

[Serial 01] and [Serial 02] can input/output at 38,400 bps. For high-speed signal input (such as AIS and Gyro), click [Details] to set the baud rate as 38,400 bps. The connector no. on the I/O board of the panel computer unit PCU-3010 and the corresponding serial port no. are shown in following table.

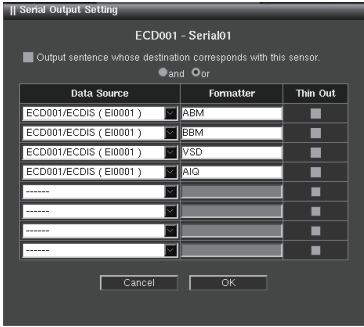
Connector No.	Serial Port No.	Connector No.	Serial Port No.
COM1 (C1)	Serial 01	COM3 (C3)	Serial 03
COM2 (C2)	Serial 02	COM4 (C4)	Serial 04

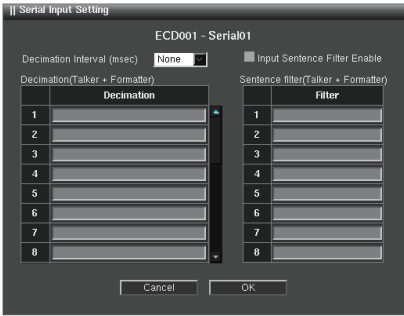
5. Check the applicable checkboxes of [Serial No.] according to sensor connection.
6. Set the items referring to the table shown below.

Item	Remarks
[Equipment ID]	Select the Equipment ID from the drop-down list. The drop-down list options depend on the setting at [Sensor Setting].
[Details]	<p>Sets the serial communication format.</p> <ul style="list-style-type: none"> • [Baud rate]: Sets the baud rate. For high-speed signal input (such as AIS and Gyro), set the baud rate as 38,400 bps. The available serial ports with communication in 38,400 bps are [Serial 01] and [Serial 02] (For sensor adapters, [Serial 01] to [Serial 04]). • [Data bit]: Sets the number of the data bit. • [Parity bit]: Select [Odd] or [Even] for the parity bit. The parity bit is used in parity error checking to find errors that may occur during data transmission. When you do not use the parity bit, select [None]. • [Stop bit]: Sets the stop bit (last data bit location). • [Timeout (sec)]^{*1}: When the data is not input during the time set here, timeout alert occurs. • [First Time]^{*2}: Check to activate and change setting. Set the amount of timeout until the sensor's first signal is detected after startup. • [Continuation]^{*2}: Check to activate and change setting. Set the timeout time until discovering that the signal is lost, after detecting the initial signal. • [Slave Address]^{*2}: Sets the slave address for the Modbus communication. • [Input] button^{*2}: Sets the address and the signal bit for each alert on the [Modbus Input] window. On this window, alerts whose [Input Type] is set for [MODBUS] when setting alert definition (see section 1.8.2) appear. • [Forward sensor data]^{*3}: Check the checkbox to forward data input from the serial port to the sensor adapter. Normally keep the default setting (unchecked). <p>^{*1} Not shown for ECDIS, sensor adapter serial input/output setting whose [Data Type] is selected to [MODBUS] (see section 1.4.1). ^{*2} Shown for the ECDIS, sensor adapter serial input/output setting whose [Data Type] is selected to [MODBUS] (see section 1.4.1). ^{*3} Not shown for the sensors whose [Data Type] is selected to [MODBUS] (see section 1.4.1).</p>
[I/F monitor]	Click [Start] to monitor the input signal sentences from the interface.



1. INITIAL SETTINGS AND ADJUSTMENTS

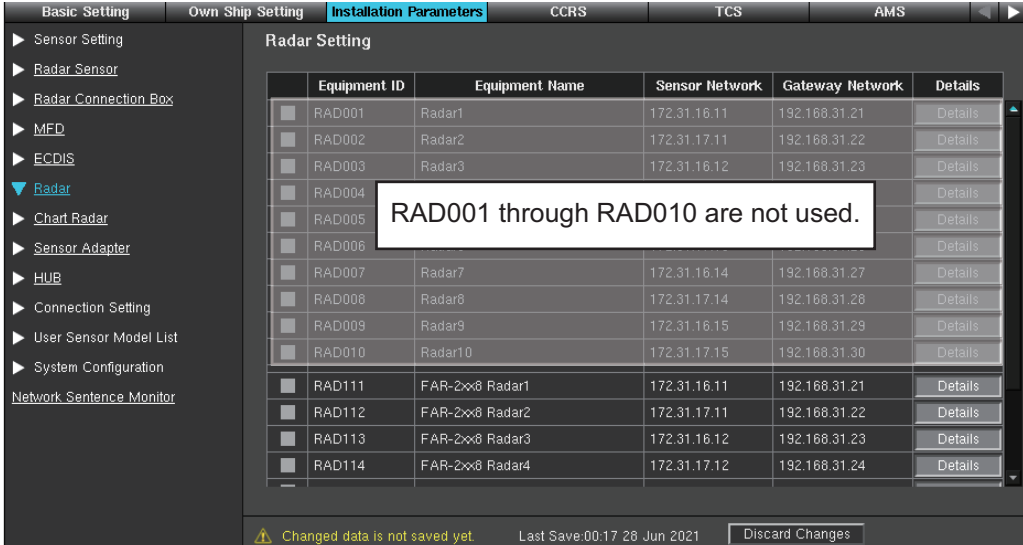
Item	Remarks
[Output]	<p>Sets the output sentence formats from the serial port.</p> <ul style="list-style-type: none"> [Output sentence whose destination corresponds with this sensor.]: Check the checkbox to activate any of the following items. <ul style="list-style-type: none"> To output the ACK and HBT sentences in response to the ALR sentence from the external sensor. To output the ACN and HBT sentences in response to the ALF sentence from the external sensor. [and]/[or] radio buttons: Select the output condition for a sentence. <ul style="list-style-type: none"> [and]: Outputs a sentence that matches both [Output sentence whose destination corresponds with this sensor.] and the output settings at the bottom. [or]: Outputs a sentence that matches [Output sentence whose destination corresponds with this sensor.] and one of the output settings at the bottom. [Data Source]: Select the serial source from the pull-down list. [Formatter]: Input the formatter for serial output. Up to eight sentences can be input for one source. For example, input "HDT,ROT" to set the HDT and ROT sentences. [Thin Out]: Check the checkbox to output with a lower transmission rate when forwarding data. <p>Note 1: The ECDIS can send NAV STATUS (ship's condition) and messages to an AIS transponder. Output the sentences VSD, ABM, AIQ and BBM, when an AIS transponder is connected.</p> <p>Note 2: Output the CRQ sentence to show the NAVTEX receiver mask information. For details about the NAVTEX receiver mask information, see the operator's manual.</p> <p>Note 3: When the following setting is entered, the ECDIS outputs the EVE sentence. In this case, the maximum transmission cycle is one second.</p> <ul style="list-style-type: none"> [Data Source]: ECD***/ALERT or CRA***/ALERT [Formatter]: EVE <p>***: Changed according to the equipment ID.</p> 

Item	Remarks
[Input]	<p>Set input sentence decimation and filter.</p>  <ul style="list-style-type: none"> • [Decimation Interval]/[Decimation]: Enables/disables the input sentence decimation function. To enable the decimation function, set the decimation interval to something other than [None]. If multiple sentences entered in the [Decimation] field are within the time set for the decimation interval, the sentences will not be processed until the decimation interval has elapsed. Note: Wildcards (*) can be used to enter the decimation settings ([Decimation]). • [Input Sentence Filter Enable]/[Sentence filter]: Enables/disables the input sentence filter. If you have multiple sentences entered and you want to use only specific sentences, enable the filter. For example, if HDT and ROT sentences are input and you want to use the signal of the HDT sentence, check [Input Sentence Filter Enable] then enter [HDT] in the [Filter] field. Note: If it is not possible to input limit to the Talker, enter **, before sentence name. For example, "***HDT".

7. Repeat the procedures from step 3 to enter the settings to another ECDIS unit.
8. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.4.3 Activating the connection with the processor unit of the FAR-2xx8 series radar

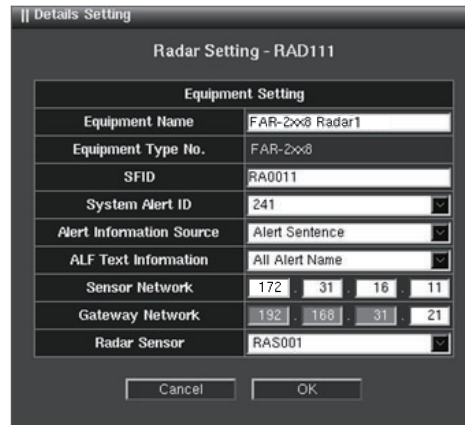
1. Click [Radar] on the menu bar.



Equipment ID	Equipment Name	Sensor Network	Gateway Network	Details
RAD001	Radar1	172.31.16.11	192.168.31.21	Details
RAD002	Radar2	172.31.17.11	192.168.31.22	Details
RAD003	Radar3	172.31.16.12	192.168.31.23	Details
RAD004				Details
RAD005				Details
RAD006				Details
RAD007	Radar7	172.31.16.14	192.168.31.27	Details
RAD008	Radar8	172.31.17.14	192.168.31.28	Details
RAD009	Radar9	172.31.16.15	192.168.31.29	Details
RAD010	Radar10	172.31.17.15	192.168.31.30	Details
RAD111	FAR-2xx8 Radar1	172.31.16.11	192.168.31.21	Details
RAD112	FAR-2xx8 Radar2	172.31.17.11	192.168.31.22	Details
RAD113	FAR-2xx8 Radar3	172.31.16.12	192.168.31.23	Details
RAD114	FAR-2xx8 Radar4	172.31.17.12	192.168.31.24	Details

1. INITIAL SETTINGS AND ADJUSTMENTS

- Check the check for each FAR-2xx8 series radar processor unit to be connected.
Setting range: [RAD111] to [RAD118]
The Equipment ID checked on this step is shown on the menu bar.
Note: Do not use [RAD001] to [RAD010].
- Click the [Details] button to set the following items, referring to the table shown below.



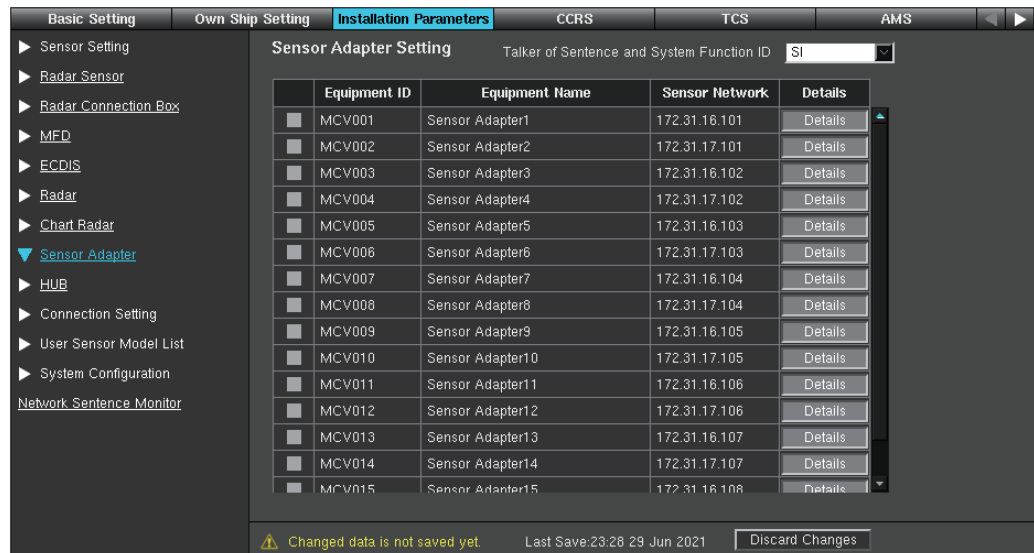
Item	Remarks
[Equipment Name]	Enter the name of the equipment.
[Equipment Type No.]	Shows the equipment type number.
[SFID]	Keep the default settings.
[System Alert ID]	The identification number that is assigned in the system is shown in this field. Do not change the setting.
[Alert Information Source]	Select source of alert definition information to be displayed on the screen when alert occurrence is received in the ALF sentence. <ul style="list-style-type: none"> [Alert Definition]: Display according to the alert definition stored in this equipment. [Alert Sentence]: Displays based on alert definitions included in the ALF sentences.
[ALF Text Information]	Select the text information type of 2/2 packet of ALF sentence. <ul style="list-style-type: none"> [All Alert Name]: The 2/2 packet of the ALF sentence contains all information of alert text. The text information of 2/2 packet of the ALF sentence is displayed as an alert name in the alert list/log. [Remaining Alert Name]: Alert text is split into 1/2 packet and 2/2 packet of the ALF sentence. The text information of the 1/2 packet and 2/2 packet of the ALF sentence is displayed as an alert name in the alert list/log. [Decision Support]: The 2/2 packet of the ALF sentence includes the detailed information (Decision Support) of the alert. Text information of the 2/2 packet of the ALF sentence is displayed as alert details of alert list/log.
[Sensor Network]	Shows the IP address of the sensor network. Do not change the setting.
[Gateway Network]	Shows the IP address of the gateway network. Do not change the setting.
[Radar Sensor]	Select the Equipment ID of the antenna unit connected with the processor unit.

- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.4.4 Sensor adapter configuration

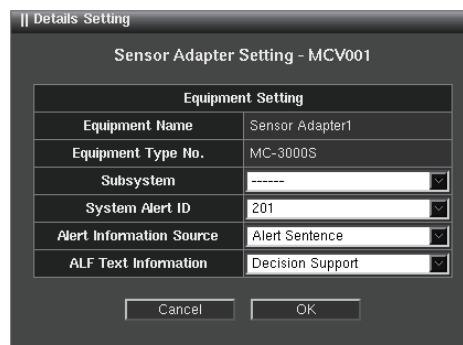
A maximum of eight MC-3000S Sensor Adapters can be connected to the sensor network. In case of the redundant configuration, sixteen sensor adapters can be connected to the network. The MC-3000S can connect a max. ten additional units (MC-3020D/MC-3030D).

1. Click [Sensor Adapter] on the menu bar.



*: Select the talker ID for sentences output from the Sensor Adapter (II or SI). Normally, keep the default setting ("II"). Select "SI", only when the talker ID must be changed.

2. Check the check box of [MCV001] to activate.
3. Click [Details] to display the window as shown below. For the descriptions of the each items, see step 3 of section 1.4.2.

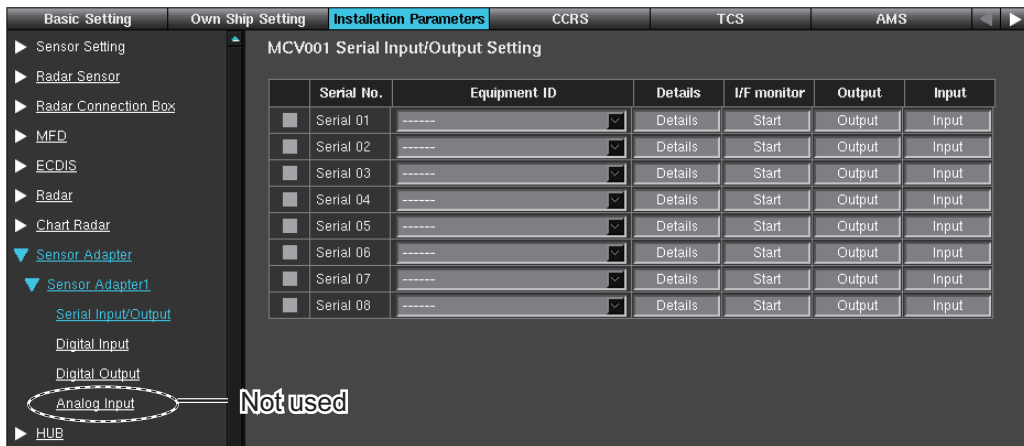


4. Click [Sensor Adapter1] on the menu bar.
The sensor adapter consists of four sub units: [Serial Input/Output], [Digital Input]*, [Digital Output]*, and [Analog Input]*. [Analog Input] is not used on the FMD-3100.

* Not displayed when the MC-3000S is connected directly to LAN. If it is necessary to change the setting, connect the MC-3000S via the PCU-3010.

1. INITIAL SETTINGS AND ADJUSTMENTS

- Click [Serial Input/Output]. There are eight ports in the Serial Input/Output. [Serial 01] to [Serial 04] can input/output at 38,400 bps for the AIS and Gyro.



The connector no. on the MC-3000S board and the corresponding serial port no. are shown in the following table.

Connector No.	Serial Port No.	Connector No.	Serial Port No.
J4	Serial 01	J8	Serial 05
J5	Serial 02		Serial 06
J6	Serial 03	J9	Serial 07
J7	Serial 04		Serial 08

- Set the items referring to step 6 of section 1.4.2.
- Click [Digital Input] on the menu bar.



[Channel 01-01] to [Channel 01-08] are shown on the display. Each sensor adapter MC-3020D has eight input ports. When one sensor adapter MC-3020D is connected to the MC-3000S, [Channel 01-01] to [Channel 01-08] can be used. When ten sensor adapters MC-3020D are connected, [Channel 01-01] to [Channel 10-08] can be used.

The connector no. on the MC-3020D board and the corresponding channel port no. are shown below.

No.1 sensor adapter MC-3020D

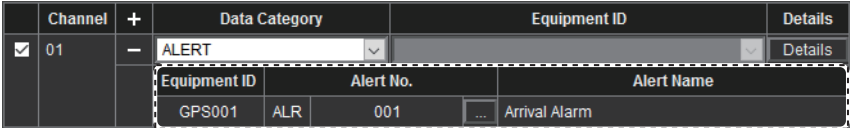
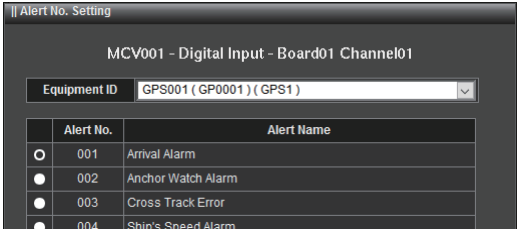
Connector No.	Channel No.	Connector No.	Channel No.
J3	Channel 01-01	J5	Channel 01-05
	Channel 01-02		Channel 01-06

Connector No.	Channel No.	Connector No.	Channel No.
J4	Channel 01-03	J6	Channel 01-07
	Channel 01-04		Channel 01-08

No.2 sensor adapter MC-3020D

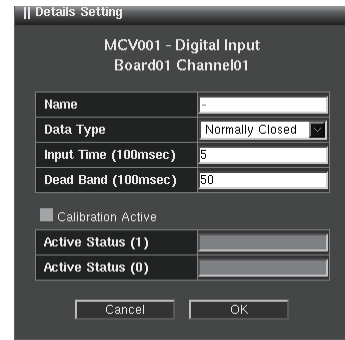
Connector No.	Channel No.	Connector No.	Channel No.
J3	Channel 02-01	J5	Channel 02-05
	Channel 02-02		Channel 02-06
J4	Channel 02-03	J6	Channel 02-07
	Channel 02-04		Channel 02-08

8. Check the checkbox for [Channel No.] to set the items referring to the table shown below.

Item	Remarks
[Data Category]	Sets the data category. Settings: [ALERT], [ACK], [BUZZER STOP], [OPERATOR FITNESS], [OTHER], [GYRO SELECTOR], [MOB], [MAGNETIC COMPASS], [SILENCE].
[+] button	<p>This appears when the [Data Category] is set to [ALERT]. Click to show the configuration of the alert input.</p>  <p style="text-align: center;"><u>Example: ALR is the alert notification sentence.</u></p> <ul style="list-style-type: none"> • [Equipment ID]: The Equipment ID is shown. • [Alert ID]: The alert notification sentence* (ALF or ALR) and alert number are shown. When the alert notification sentence is ALF, the instance ID is shown. *: According to the connected sensors. • [⋮] button: Opens the [Alert No. Setting] window to select the input alert. The following example uses the alert notification sentence ALR. Select the Equipment ID for the connected sensors from the [Equipment ID] pull-down list. Then check the radio button of the desired alert and click the [OK] button.  <ul style="list-style-type: none"> • [Alert Name]: The alert name is shown.
[Equipment ID]	Select the Equipment ID from the pull-down list. This appears when the [Data Category] is set to [ACK] or [BUZZER STOP]. The pull-down list options change according to the setting at [Sensor Setting].

1. INITIAL SETTINGS AND ADJUSTMENTS

Item	Remarks
[Details]	<ul style="list-style-type: none"> [Name]: Enter the appropriate sensor name. [Data Type]: Set the contact input ([Normally Open] or [Normally Closed]). [Input Time (100msec)]: Set the input time. [Dead Band (100msec)]: Set the dead band after input. [Calibration Active]: Keep the default setting. (Default: without check) [Active Status (1)], [Active Status (0)]: Keep the default setting.



9. Click [Digital Output] on the menu bar.



[Channel 01-01] to [Channel 10-08] are shown on the display. Each sensor adapter MC-3030D has eight input ports. When one sensor adapter MC-3030D is connected to the MC-3000S, [Channel 01-01] to [Channel 01-08] can be used. When ten sensor adapters MC-3030D are connected, [Channel 01-01] to [Channel 10-08] can be used.

The connector no. on the MC-3030D board and the corresponding channel no. are shown below.

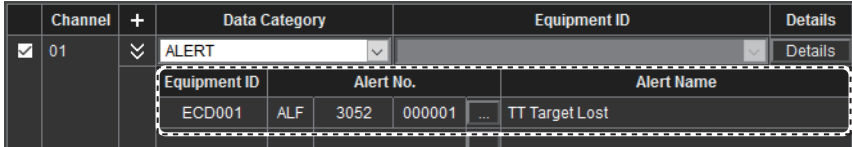
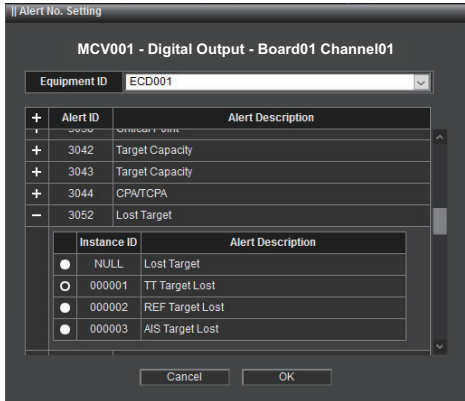
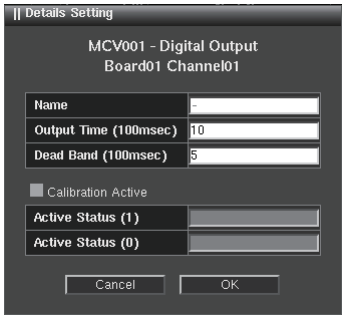
No.1 sensor adapter MC-3030D

Connector No.	Channel No.	Connector No.	Channel No.
J3	Channel 01-01	J5	Channel 01-05
	Channel 01-02		Channel 01-06
J4	Channel 01-03	J6	Channel 01-07
	Channel 01-04		Channel 01-08

No.2 sensor adapter MC-3030D

Connector No.	Channel No.	Connector No.	Channel No.
J3	Channel 02-01	J5	Channel 02-05
	Channel 02-02		Channel 02-06
J4	Channel 02-03	J6	Channel 02-07
	Channel 02-04		Channel 02-08

10. Check the checkbox for [Channel No.] to set the items referring to the table shown below.

Item	Remarks
[Data Category]	Sets the data category. Settings: [ALERT], [ACK], [BUZZER STOP], [OPERATOR FITNESS], [OTHER], [TRANSFER], [BACKUP NAVIGATOR], [TCS], [SILENCE].
[+] button	<p>This appears when the [Data Category] is set to [ALERT]. Click to show the configuration of the alert output.</p>  <p style="text-align: center;">Example: ALF is the alert notification sentence.</p> <ul style="list-style-type: none"> [Equipment ID]: The Equipment ID is shown. [Alert ID]: The alert notification sentence* (ALF or ALR) and alert number are shown. When the alert notification sentence is ALF, the instance ID is shown. *: According to setting of [Output Data Type for INS] in the [AMS] menu (see section 1.7). [...] button: Opens the [Alert No. Setting] window to select the output alert. The following example uses the alert notification sentence ALF. Check the radio button of the desired alert and click the [OK] button.  <ul style="list-style-type: none"> [Alert Name]: The alert name is shown.
[Equipment ID]	Select the Equipment ID from the pull-down list. The pull-down list options change according to the setting at [Sensor Setting].
[Details]	<ul style="list-style-type: none"> [Name]: Enter the appropriate sensor name. [Output Time (100msec)]: Set the output time. [Dead Band (100msec)]: Set the dead band after output. [Calibration Active]: Keep the default setting. (Default: without check) [Active Status (1)], [Active Status (0)]: Keep the default setting. 

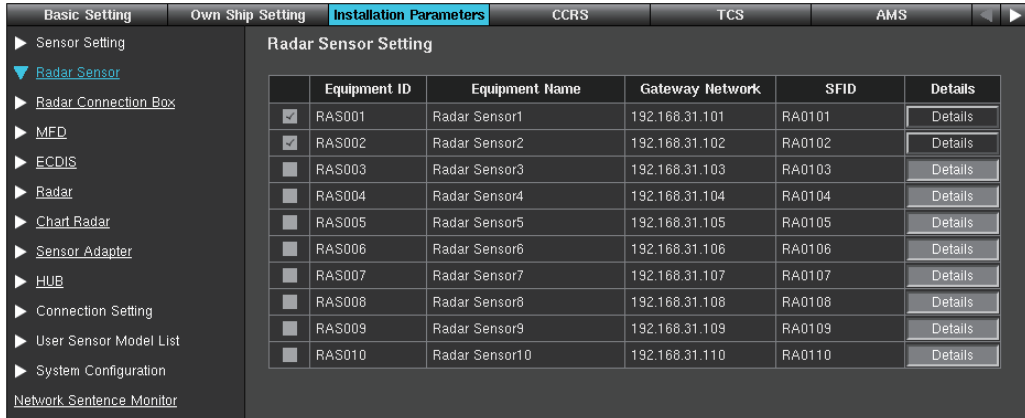
11. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1. INITIAL SETTINGS AND ADJUSTMENTS

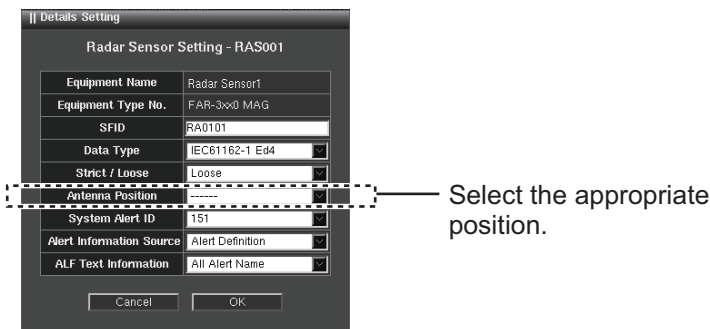
1.4.5 Antenna unit configuration

Do the procedure here to set the antenna unit.

1. Click [Radar Sensor] on the menu bar.
2. Confirm that the Equipment ID checked at the [Own Ship Setting] menu (see section 1.3) is activated.



3. Click the [Details] button to show the [Details Setting] window.
4. Set the appropriate antenna position from the [Antenna Position] pull-down list. The interswitch function requires correct input of the antenna position.



5. Click the [OK] button.
6. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.
7. For FCR-2xx9 or FAR-2xx7 series antenna unit, perform the self test to confirm that the SPU program version and DIP switch setting are as shown below.

For FCR-2xx9 series

Open the [System Monitor] menu (see section 1.10), then click the [Self-test] button → [Radar Sensor (FCR-2xx9)] → [Sensor Status].

[SPU Software Version]: 0359204-03.50, or after

[SPU DIP switch (SW16-SW1)]: 0100

For FAR-2xx7 series

Perform the self test, referring the operator's manual of FAR-2xx7 series radar.

[SPU PROGRAM NO.]: 0359204-03.50, or after

[DIP SW]: 1000 or 1001

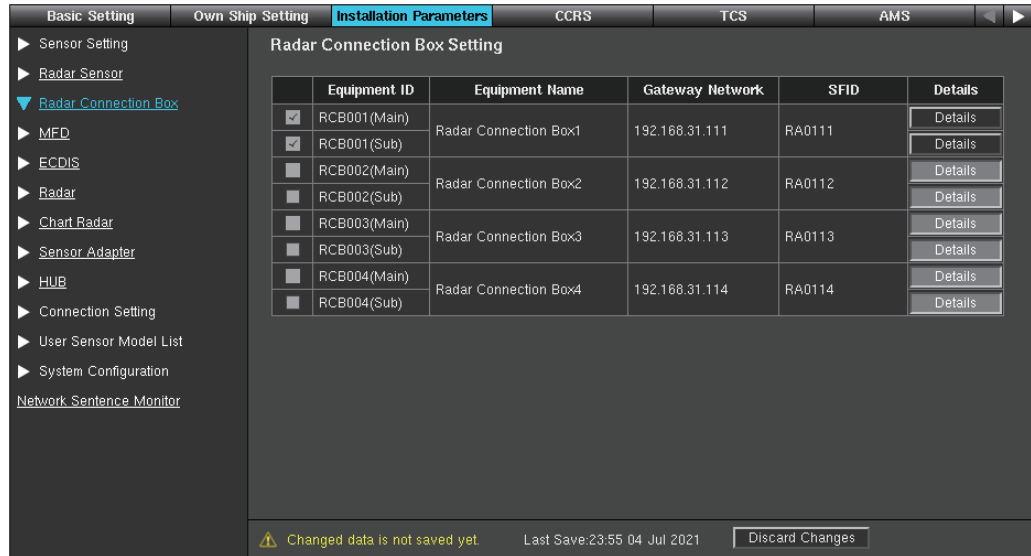
1.4.6 Radar connection box configuration

You can display echoes from non-FURUNO radars by connecting them to the ECDIS through the Radar Connection Box RCB-002. A maximum of four Radar Connection Boxes can be connected to this system.

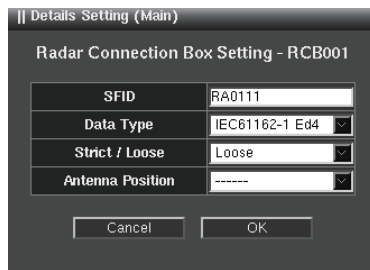
Set the location information of the external radar antenna on the [Own Ship Setting] menu (see page 1-12) before doing the following procedure.

Note: When multiple RCB-002s are connected to the same network, change the IP address of the RCB-002s, referring to "SUBSYSTEM" on page AP-3.

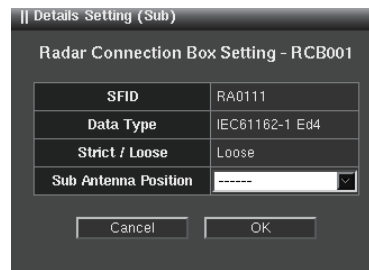
1. Click [Radar Connection Box] on the menu bar.



2. Click the check box for [RCB00× (Main)] (×: 1 to 4). This box must be checked to use the radar connection box.
3. When you connect two external radars to the radar connection box, click the check box for [RCB00× (Sub)] (×: 1 to 4).
4. Click the [Details] button and set the following items.



For "Main" radar



For "Sub" radar

Item	Remarks
[SFID]	Keep the default setting.
[Data Type]	Sets the RX sentence data format. Setting options: [IEC 61162-1 Ed3], [IEC 61162-1 Ed4], [IEC 61162-1 Ed5].
[Strict/Loose]	Sets the integrity of sentence data. [Strict]: Confirm the validity of checksum, then receive sentence. [Loose]: Receive sentence regardless of checksum invalidity.

1. INITIAL SETTINGS AND ADJUSTMENTS

Item	Remarks
[Antenna Position/] [Sub Antenna Position]	Set the location for the antenna units of the external radar that is connected to the radar connection box. Setting options: [Fore], [Main Top], [Main 2nd], [Main 3rd], [Aft], [Port], [Starboard].

- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.4.7 Monitoring of HUB

To monitor the HUB, do as follows.

- Click [HUB] on the menu bar.

The screenshot shows the 'HUB Setting' configuration window. The left sidebar has 'HUB' selected. The main area contains the following settings:

- Status polling interval (1 ~ 300 sec): 10
- Status polling timeout (1000 ~ 10000 ms): 2000
- Status polling retries (1 ~ 10 times): 2
- Threshold to alert (1 ~ 10 times): 3
- Monitoring Type: [Dropdown]
- Monitor Ports: [Dropdown]

	Equipment ID	Equipment Name	IP Address	Details
<input type="checkbox"/>	HUB001	HUB1	192.168.31.252	Details
<input type="checkbox"/>	HUB002	HUB2	192.168.31.252	Details
<input type="checkbox"/>	HUB003	HUB3	192.168.31.252	Details
<input type="checkbox"/>	HUB004	HUB4	192.168.31.252	Details
<input type="checkbox"/>	HUB005	HUB5	192.168.31.252	Details
<input type="checkbox"/>	HUB006	HUB6	192.168.31.252	Details
<input type="checkbox"/>	HUB007	HUB7	192.168.31.252	Details
<input type="checkbox"/>	HUB008	HUB8	192.168.31.252	Details
<input type="checkbox"/>	HUB009	HUB9	192.168.31.252	Details
<input type="checkbox"/>	HUB010	HUB10	192.168.31.252	Details

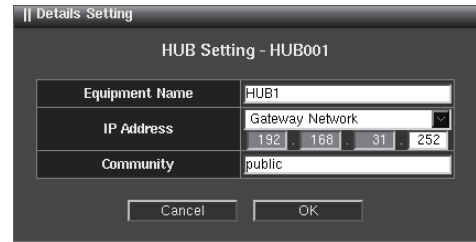
At the bottom, there is a warning: 'Changed data is not saved yet' and a 'Discard Changes' button.

- Set the items referring to the table shown below.

Item	Remarks
[Status polling interval (1~300 sec)]	Polling interval for the HUB connection status request.
[Status polling timeout (1000~10000 ms)]	Time to wait for the HUB connection status response.
[Status polling retries (1~10 times)]	Retry times to request the HUB connection status.
[Threshold to alert (1~10 times)]	The number of times the HUB link is lost to wait before generating an alert.
[Monitoring Type]	Set the alert location when a connection error with the HUB-3000 occurs. <ul style="list-style-type: none"> [Monitor Ports]: The device connected to the HUB-3000 detects disconnect between it and the HUB-3000 and generates an alert. [Monitor Units]: The device disconnected from the HUB-3000 generates an alert.

- Check the checkbox for the HUB(s) to activate.

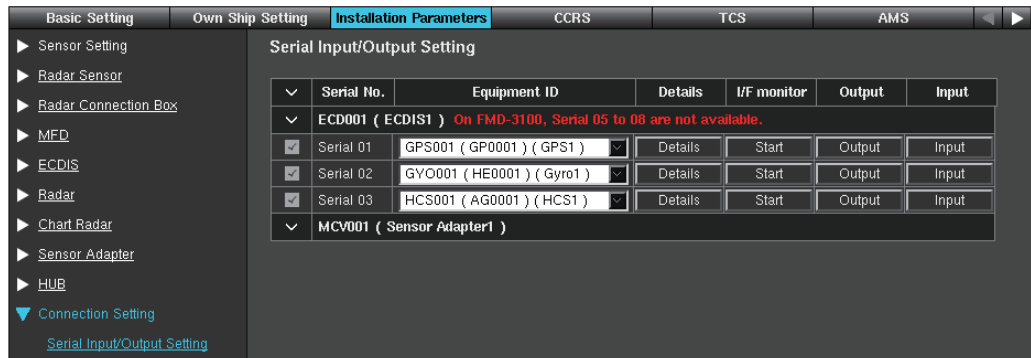
4. Click the [Details] button to open the [Details Setting] window and enter the appropriate items.
 - [Equipment Name]: Enter the name of the HUB.
 - [IP Address]: Select the network and IP Address of the HUB from the pull-down list.
 - [Community]: Set the parameters for SNMP protocol. This setting must be the same as set at the HUB.
5. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.



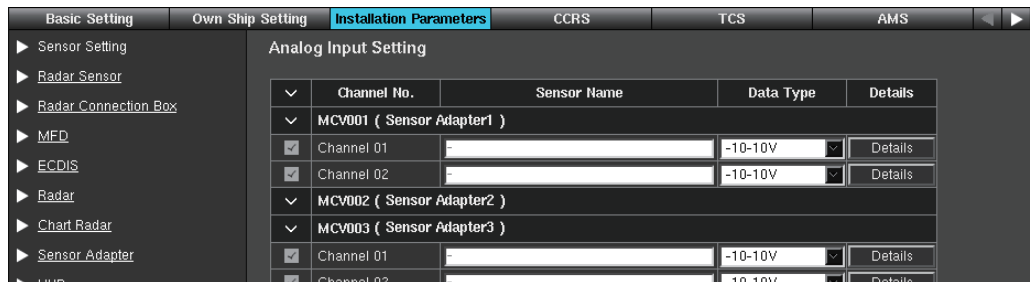
1.4.8 Signal and Port setting for external equipment

This connection setting menu can set the serial I/O for external equipment, the analog input for sensor adapter, and HUB port.

1. Click [Connection Setting] on the menu bar.
2. Click [Serial Input/Output Setting] on the menu bar.
The serial input/output settings are shown. The settings can be changed, referring to step 6 of subsection 1.4.2.

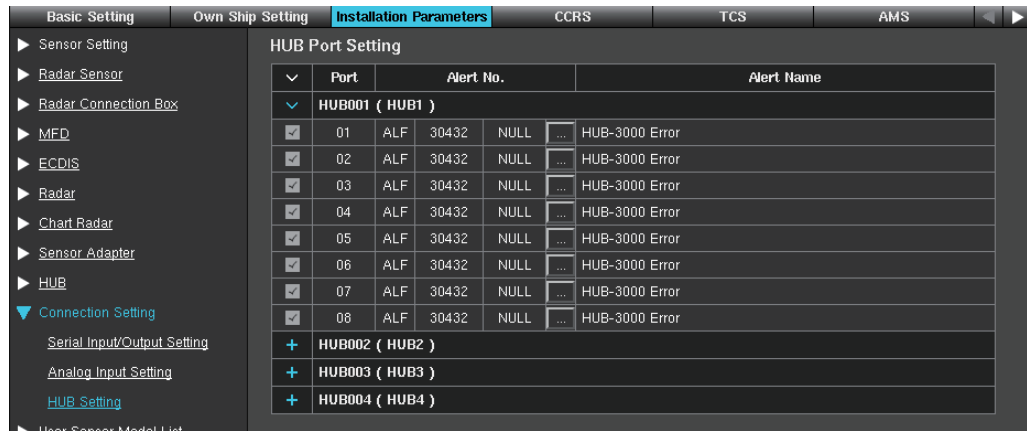


3. Click [Analog Input Setting] on the menu bar, and the analog settings appear.



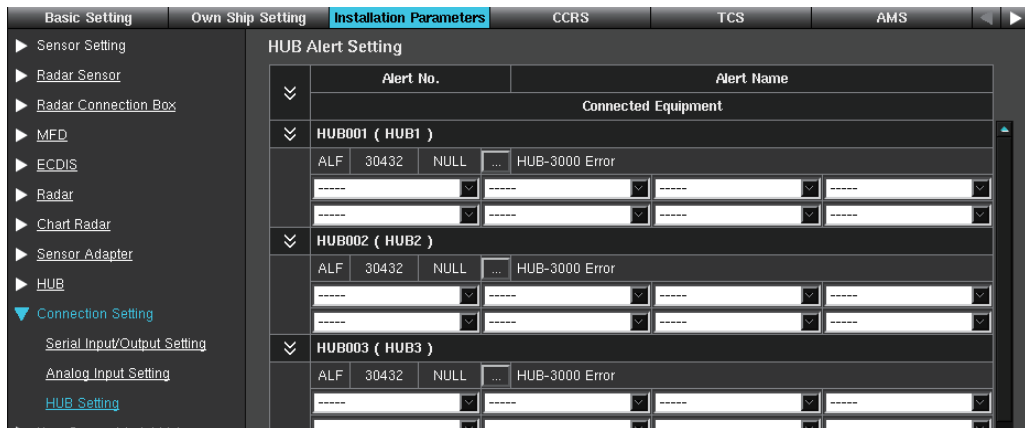
4. Click [HUB Setting] on the menu bar. The alert settings of each port of HUBs are shown. The display changes according to the setting for [Monitoring Type] (see page 1-30).
 - [HUB Port Setting] window ([Monitoring Type] = [Monitor Ports])

1. INITIAL SETTINGS AND ADJUSTMENTS



Item	Remarks
Checkbox	Check the checkbox for the port which generates the alert when the connection is interrupted.
[Port]	HUB port number.
[Alert No.]	When the alert notification sentence is ALR, the alert number is shown. When the alert notification sentence is ALF, the alert number and the Instance ID are shown. Click the [...] button to open the [Alert No. Setting] window. Set the output alert on the [Alert No. Setting] window. Check the radio button for the desired alert and click the [OK] button.
[Alert Name]	Alert name of each HUB port.

- [HUB Alert Setting] window ([Monitoring Type] = [Monitor Units])



Item	Remarks
[Alert No.]	When the alert notification sentence is ALR, the alert number is shown. When the alert notification sentence is ALF, the alert number and the Instance ID are shown. Click the [...] button to open the [Alert No. Setting] window. Set the output alert on the [Alert No. Setting] window. Check the radio button for the desired alert and click the [OK] button.
[Alert Name]	Name of the alert set for each port.
Drop-down list	Select Equipment ID of device connected to HUB-3000.

- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

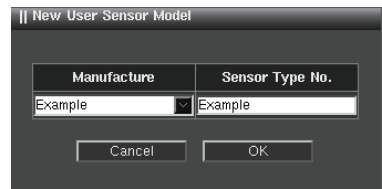
1.4.9 Customized sensor setting

Set the sensor types and manufacturers in the [Sensor Setting] menu.

1. Click [User Sensor Model List] on the menu bar.
2. Click the appropriate sensor to edit. The figure below shows an example where the [GPS Sensor] is selected.



Item	Remarks
[Built-in Sensor Model List]	Displays the sensor types and manufacturers preset already. [Manufacture]: Manufacturer of sensor [Sensor Type No.]: Type of sensor
[User Sensor Model List]	Click the [New] button to add a new type or manufacturer of sensor. Enter the desired manufacturer name and the desired type of sensor, then click the [OK] button. Click the [Delete] button to delete the added contents. The confirmation message appears, then click the [OK] button. Note: The contents added or deleted in this setting are applied to the [Sensor Setting] menu. See section 1.4.1.

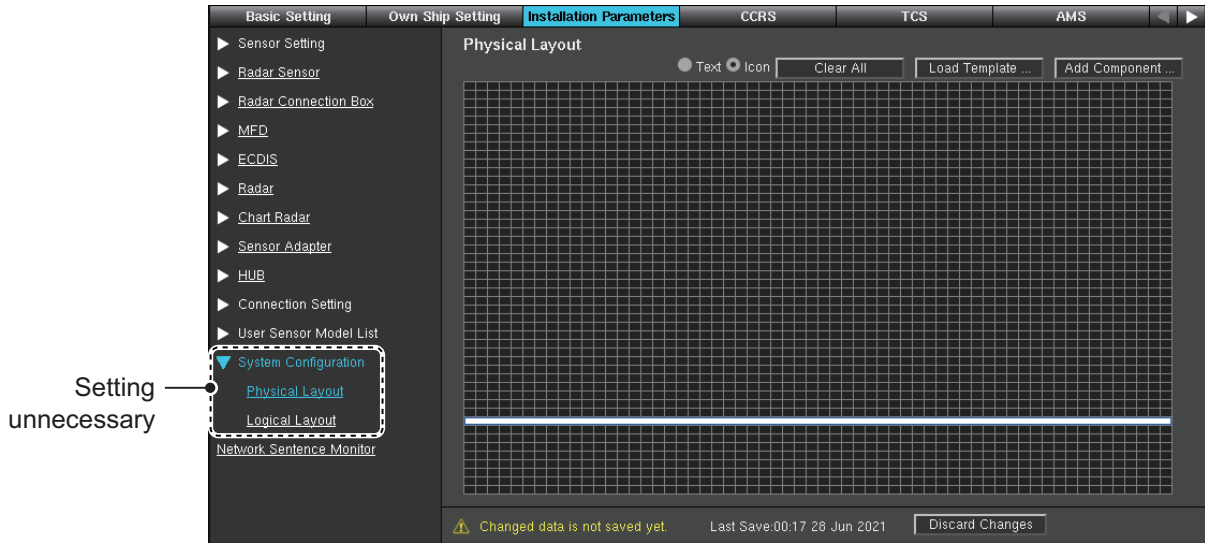


3. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1. INITIAL SETTINGS AND ADJUSTMENTS

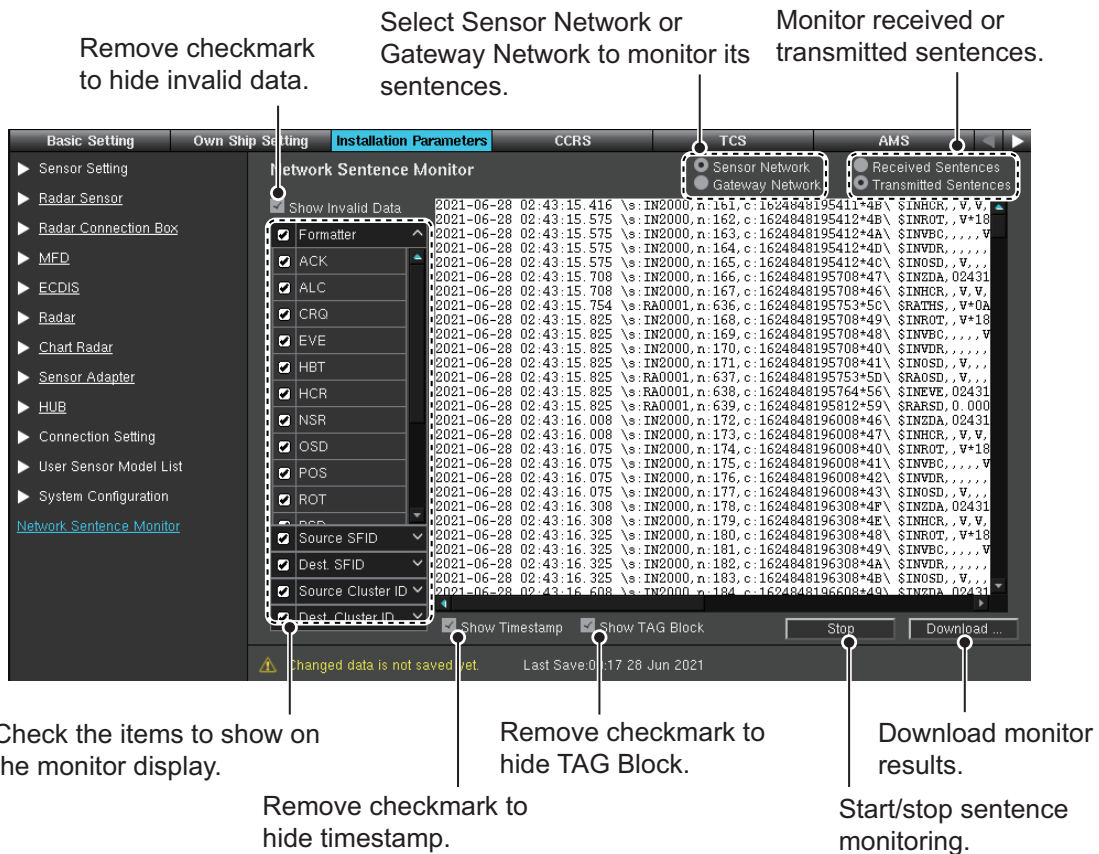
1.4.10 System Configuration menu

The System Configuration menu is not used with this equipment. Setting is unnecessary.



1.4.11 Network sentence monitor

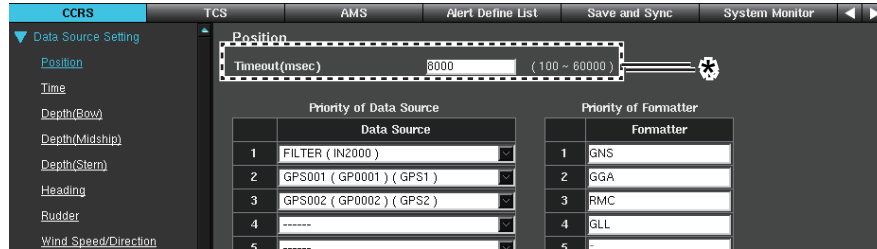
The Network Sentence Monitor allows you to see the sentences that are input and output on the sensor network and gateway network. To open the Network Sentence Monitor, select [Network Sentence Monitor] from the menu bar.



1.5 [CCRS] Menu

1.5.1 How to select the [Data Source]

1. Access the [Common Installation Setting] menu and click [CCRS] on the tab bar.
2. Click [Position] of [Data Source Setting] on the menu bar.



*: Keep the initial values for the items below.

- [Position]/[STW]/[COG/SOG]: Initial value 8000
- [Heading]/[Rate of Turn]: Initial value 5000

For all others, set to [30000] (30 seconds).

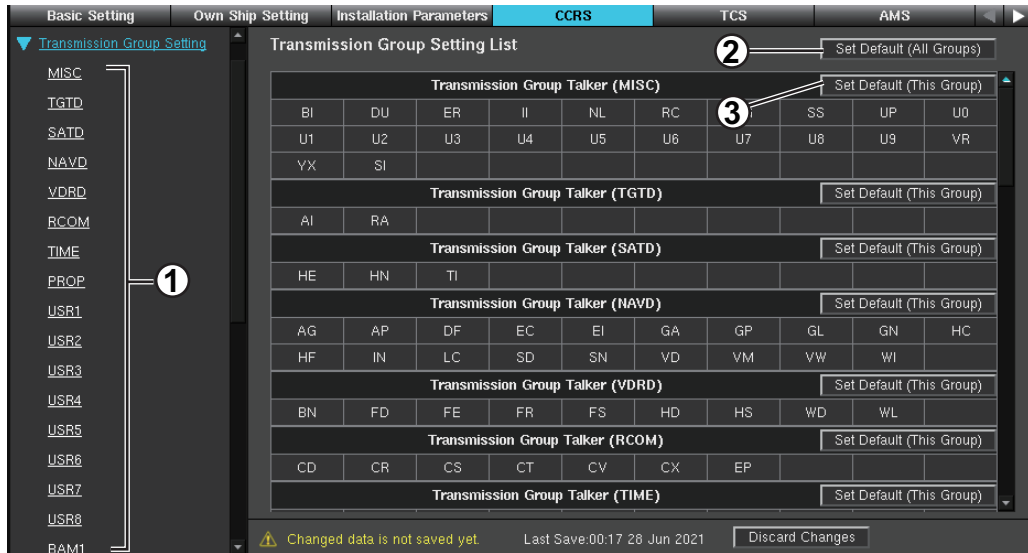
3. From the [Data Source] drop-down list, select the Equipment ID of the sensor unit for which you want to retrieve data. When connecting multiple sensors, set from the sensor with the highest priority.
The setting items in the drop-down list reflect the settings made in the [Installation Parameters] menu.
4. To change the priority of the sentences to be used, sort the sentences displayed in the [Formatter] field in order of priority.
5. Set [Time], [Depth(Bow)], [Depth(Midship)], [Depth(Stern)], [Heading], [Rudder], [Wind Speed/Direction], [STW(absolute)] (speed through the water), [STW(position)] (speed through the water), [COG/SOG], [Heading Magnetic], [Water Temperature], [Current], and [Rate of Turn] in a similar manner.
6. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1. INITIAL SETTINGS AND ADJUSTMENTS

1.5.2 How to set [Transmission Group]

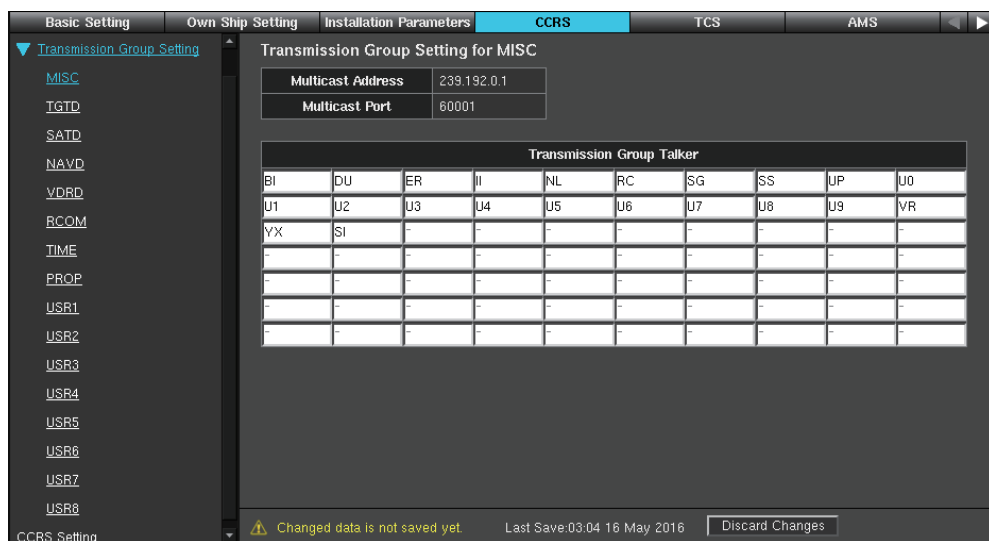
When connecting IEC61162-450 compatible sensors, you may need to adjust [Transmission Group Setting]. Under normal circumstances, you do not need to adjust these settings. When adjusting items in [Transmission Group Setting], you will need to configure for all devices in the configuration.

1. Access the [Common Installation Setting] menu, then click [CCRS] on the tab bar.
2. Select [Transmission Group Setting] from the menu bar.



No.	Item	Description
1	[Transmission Group name]	Click the Transmission Group name to show the Setting List.
2	[Set Default (All Groups)]	Revert all Transmission Groups to default settings.
3	[Set Default (This Group)]	Revert the selected Transmission Group to default settings.

3. Select a Transmission Group from the menu bar.



Example: Transmission Group Settings for MISC.

4. In the [Transmission Group Talker] fields, remove or add entries as appropriate.
5. Select and adjust other Transmission Group settings as appropriate.

6. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

Default settings for each Transmission Group

Transmission Group	Talker	Multicast Address	Multicast Port
MISC	BI	239.192.0.1	60001
	DU		
	ER		
	II		
	NL		
	RC		
	SG		
	SS		
	UP		
	U0		
	U1		
	U2		
	U3		
	U4		
	U5		
	U6		
U7			
U8			
U9			
VR			
YX			
SI			
TGTD	AI	239.192.0.2	60002
	RA		
SATD	HE	239.192.0.3	60003
	HN		
	TI		

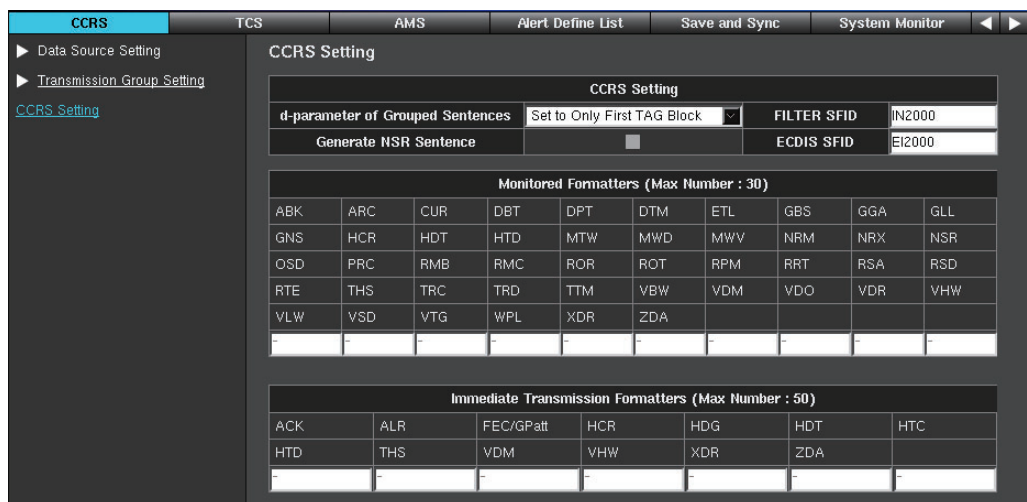
1. INITIAL SETTINGS AND ADJUSTMENTS

Transmission Group	Talker	Multicast Address	Multicast Port
NAVD	AG	239.192.0.4	60004
	AP		
	DF		
	EC		
	EI		
	GA		
	GP		
	GL		
	GN		
	HC		
	HF		
	IN		
	LC		
	SD		
	SN		
	VD		
VM			
VW			
WI			
VDRD	BN	239.192.0.5	60005
	FD		
	FE		
	FR		
	FS		
	HD		
	HS		
	WD		
	WL		
RCOM	CD	239.192.0.6	60006
	CR		
	CS		
	CT		
	CV		
	CX		
	EP		
TIME	ZA	239.192.0.7	60007
	ZC		
	ZQ		
	ZV		
PROP	-	239.192.0.8	60008
USR1	-	239.192.0.9	60009
USR2	-	239.192.0.10	60010
USR3	-	239.192.0.11	60011
USR4	-	239.192.0.12	60012
USR5	-	239.192.0.13	60013
USR6	-	239.192.0.14	60014
USR7	-	239.192.0.15	60015
USR8	-	239.192.0.16	60016
BAM1	-	239.192.0.17	60017

Transmission Group	Talker	Multicast Address	Multicast Port
BAM2	-	239.192.0.18	60018
CAM1	CA	239.192.0.19	60019
CAM2	-	239.192.0.20	60020
NETA	ND	239.192.0.56	60056
PGP1	-	239.192.0.57	60057
PGP2	-	239.192.0.58	60058
PGP3	-	239.192.0.59	60059
PGP4	-	239.192.0.60	60060
PGB1	-	239.192.0.61	60061
PGB2	-	239.192.0.62	60062
PGB3	-	239.192.0.63	60063
PGB4	-	239.192.0.64	60064

1.5.3 [CCRS Setting] window

Set if the NSR sentence is output from the CCRS in the [CCRS Setting] window of the [CCRS] menu. This setting is currently unavailable. Confirm that the box has no check mark.



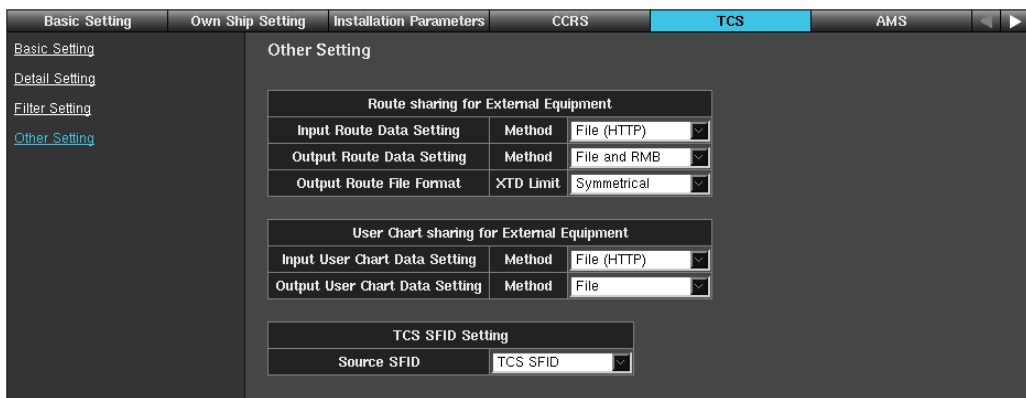
Item	Description
[d-parameter of Grouped Sentence]	Sets how to attach d-parameters to grouped sentences. Normally, select [Set to Only First TAG Block]. <ul style="list-style-type: none"> • [Set to Only First TAG Block]: Adds d-parameter only to the beginning of a TAG Block. • [Set to All TAG Blocks]: Adds d-parameter to all TAG Blocks.
[Generate NSR Sentence]	Sets whether to output NSR sentences from CCRS. Normally, remove the checkmark.
[FILTER SFID]	Set a common FILTER SFID for use throughout the system. Normally, it is not necessary change the setting.
[ECDIS SFID]	Set a common ECDIS SFID for use throughout the system. Normally, it is not necessary change the setting.
[Monitored Formatters]	Sets the formatter that CCRS refers to to determine whether a sensor is enabled or disabled. Disabling a formatter not listed here does not affect the enabling or disabling of the sensor.

Item	Description
[Immediate Transmission Formatters]	Sets the formatter to send immediately to the network. To reduce the load on the network, formatters not listed here are sent to the network in batches every 250 ms.

1.6 [TCS] Menu

The [Other Setting] window in the [TCS] menu is used to setup output of routes created on the ECDIS. The route data can be output to the external equipment (GP-170 etc). The [Basic Setting], [Detail Setting] and [Filter Setting] items in the [TCS] menu are not used on the FMD-3100.

1. Access the [Common Installation Setting] menu, then select [TCS] from the tab bar.
2. Select [Other Setting] on the menu bar.



Item	Description
[Input Route Data Setting]	<p>Select the input method for route data received from other equipment.</p> <ul style="list-style-type: none"> • [None]: Route data from other equipment is not used. • [File (HTTP)]: Uses data uploaded via the HTTP protocol. The connected equipment must support the FMD-3100's upload function. <p>Note 1: After changing this setting, reboot the system to apply the setting.</p> <p>Note 2: Do not select [File (HTTP)] when the manufacturer does not sign the non-disclosure agreement with FURUNO. Detailed specification depends on the disclosed information between FURUNO and manufacturer.</p>
[Output Route Data Setting]	<p>Select the route data format.</p> <ul style="list-style-type: none"> • [File and RMB]: Output the route data with the file format and RMB sentence. The LAN connection with the external equipment is required. • [RTE and WPL]: Output the route data with the RTE and WPL sentences. The serial connection with the external equipment is required. <p>Note: When the AR-100M is connected, select [File and RMB].</p>
[Output Route File Format]	<p>Select whether the channel limit is symmetrical or asymmetrical. This setting is available when [Output Route Data Setting] is set to [File and RMB].</p> <ul style="list-style-type: none"> • [Symmetrical]: The channel limit is symmetrical. • [Asymmetrical]: The channel limit is asymmetrical.

Item	Description
[Input User Chart Data Setting]	Select the input format of user chart data from other devices. <ul style="list-style-type: none"> [None]: No support for user chart data input from other devices. [File (HTTP)]: Supports uploading user chart data, using the HTTP protocol. The connected device must support the upload function of this unit. <p>Note 1: Restart the equipment whenever this setting is changed. Note 2: [File (HTTP)] cannot be used with devices unless the manufacturer of the device has an NDA (non-disclosure agreement) contract with FURUNO. In addition, detailed usage and operation will differ depending on the information disclosed between FURUNO and the contract manufacturer.</p>
[Output User Chart Data Setting]	Select the output format of user chart data. <ul style="list-style-type: none"> [None]: User chart is not output. [File]: Outputs user chart data in file format. A network connection with the output destination device is required.
[Source SFID]	Select the additional SFID when CCRS outputs the sentence from the TCS ([ECDIS SFID] or [TCS SFID]). However, do not change from the default setting [TCS SFID].

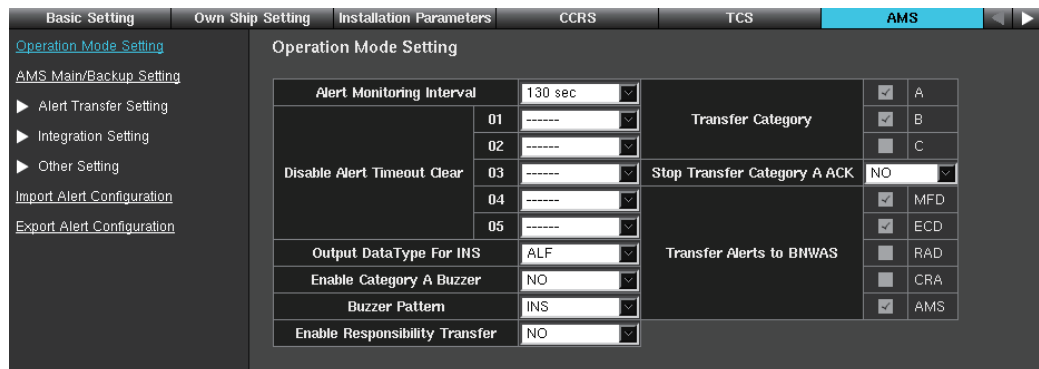
1.7 [AMS] Menu

In the [AMS] menu, set the interface with AMS - operation mode of AMS (Alert Management System), etc.

Note: For how to set the alert definition of AMS, see the FURUNO information.

1.7.1 AMS mode operation

1. Access the [Common Installation Setting] menu, then select [AMS] from the tab bar.
2. Select [Operation Mode Setting] on the menu bar.



Item	Remarks
[Alert Monitoring Interval]	Set the time to wait before clearing the corresponding alert when communication with a sensor is interrupted.
[Disable Alert Timeout Clear] (01 to 05)	Select the units where the alert is not to be cleared.
[Output Data Type For INS]	Select the data type of alert notification, ALR or ALF. However, use the default setting ALF.
[Enable Category A Buzzer]	Select if the alert buzzer sounds when the alert of Category A occurs.

1. INITIAL SETTINGS AND ADJUSTMENTS

Item	Remarks
[Buzzer Pattern]	Sets the buzzer sound pattern to output when an alert occurs. [INS]: <ul style="list-style-type: none"> Alert priority = "Alarm": Three short beeps, four seconds mute, then repeat. Alert priority = "Warning": Two short beeps, four seconds mute, then repeat. [Legacy]: <ul style="list-style-type: none"> Alert priority = "Alarm" or "Warning": Alarm sounds continuously.
[Enable Responsibility Transfer]	Not used. Keep the default setting ([NO]).
[Transfer Category] (A~C)	Check the checkbox of the appropriate Category (A to C) to transfer the alerts.
[Stop Transfer Category A ACK]	Select [YES] to enable stopping of the alert transfer for Category A alerts by ACK operation. In this case, the alert is not acknowledged.
[Transfer Alerts to BNWAS]	Set the permissions for the alert transmission to BNWAS (Bridge Navigational Watch Alarm System). The unit(s) checked here are allowed to output the alert signal to the BNWAS. <ul style="list-style-type: none"> [MFD]: Multifunction Display [ECD]: ECDIS [RAD]: Radar [CRA]: Chart Radar

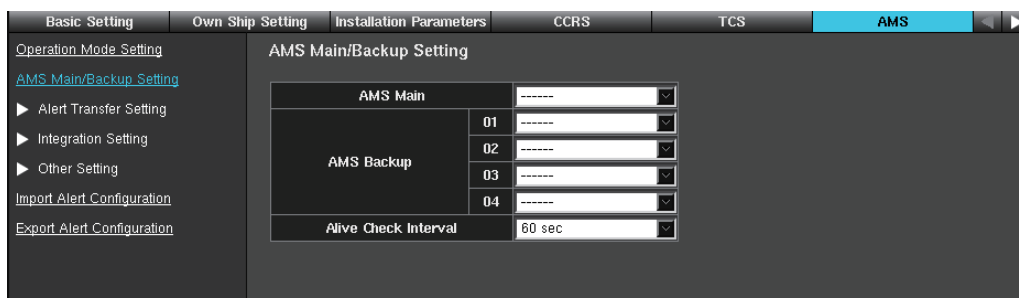
- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.7.2 Main/Backup AMS setting

Follow the steps below to select the processor units which are to serve as the main AMS and backup AMS.

- Main:** The main unit communicates alert information and its data to the AMS.
Note: Select the processor unit which is to act as the main unit even if only one AMS is present.
- Backup:** When communication with the main unit is lost, the backup unit outputs the alert data to the AMS instead of the main AMS.

- Access the [Common Installation Setting] menu, then select [AMS] from the tab bar.
- Select [AMS Main/Backup Setting] on the menu bar.



3. Select the Equipment ID from the pull-down list for [AMS Main] to assign the main AMS.
Note: The FMD-3100 cannot be assigned as main or backup AMS. Assign an EC-DIS other than the FMD-3100 as the main and backup AMS.
4. Select the Equipment ID from the pull-down list for [AMS Backup] to assign the backup AMS.
 A maximum of four units can be assigned as backup AMS. The topmost entry has the highest priority.
5. Select the communication check interval for the main AMS from the pull-down list for [Alive Check Interval].
6. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.7.3 Alert transfer setting

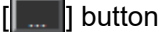
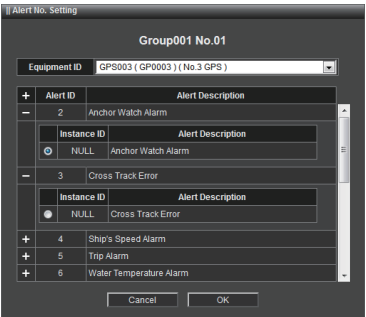
1. Access the [Common Installation Setting] menu, then select [AMS] from the tab bar.
2. Select [Alert Transfer Setting] → [IAS Setting] on the menu bar.
 You can create the alert group and transfer the alert to the navigational equipment. A maximum of ten alert groups ([Group001] to [Group010]) can be created, and a maximum of 99 alerts can be registered to one alert group.



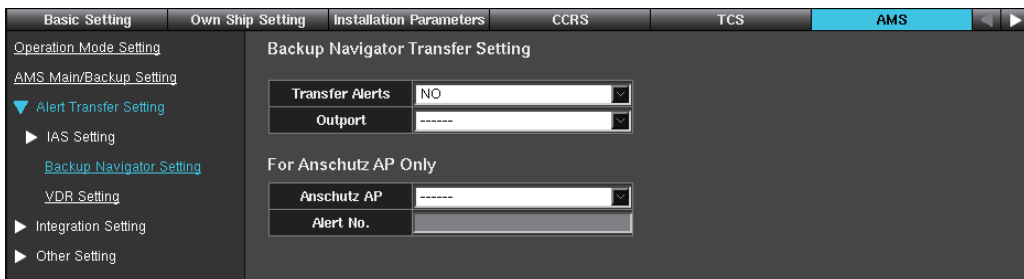
3. Select the appropriate alert group number ([Group001] to [Group010]) to transfer, then set the following items.

Item	Remarks
[Event Transmission]	Select the alert to be transferred. <ul style="list-style-type: none"> • [Change Status Alert]: Transfer the alert whose status is changed. For example, when alert problem is rectified and alert status is changed from unrectified to rectified, alert is transferred. • [all target Alerts]: All alerts in the group are transferred.
[Fixed Transmission]	Select the alert to be transferred periodically. <ul style="list-style-type: none"> • [all target Alerts]: All alerts in the group are transferred periodically. • [send “all occurred Alerts” or “ALR <null>, V,V”]: Transfer only active alert periodically.

1. INITIAL SETTINGS AND ADJUSTMENTS

Item	Remarks
[Periodic Interval (1 - 60 sec)]	Set the interval to transfer the alert data.
[Sentence]	Select the data type of alert notification, ALR or ALF.
[Output 01(02)]	Select Equipment ID of the destination equipment to transfer the alert data. A maximum of two equipments can be assigned to the destination.
[] button	<p>Opens the [Alert No. Setting] dialog box to register the alert to the group. Select the alert source equipment from the [Equipment ID] pull-down list. Activate the radio button of the appropriate alert(s), then [OK] button to register the alert. The right figure is the example when alert notification sentence is ALF. The alert notification sentence is dependent on the specification of the equipment connected to this ECDIS. After clicking the [OK] button, Equipment ID, alert no. and alert description appear in the alert registration field.</p> 

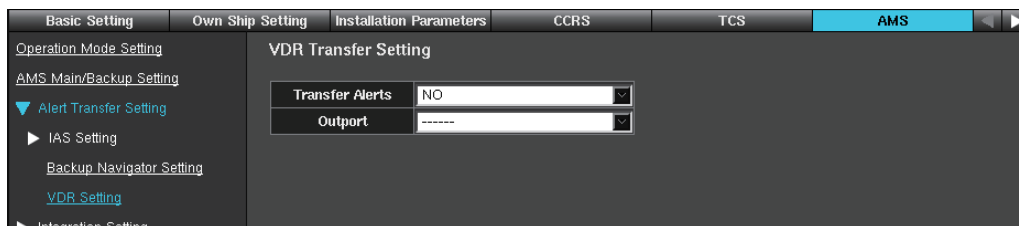
4. Select [Alert Transfer Setting] and [Backup Navigator Setting] on the menu bar.



5. Set the following items.

Item	Remarks
[Transfer Alerts]	Select [YES] to transfer the alert to the backup navigator equipment when an alarm is not acknowledged for 30 seconds.
[Output]	Select the backup navigator equipment to be used for alert data transfer.
[Anschutz AP]	Not used.
[Alert No.]	

6. Select [VDR Setting] on the menu bar.



7. Set the following items.

Item	Remarks
[Transfer Alerts]	Select [YES] to transfer the alert to VDR.
[Output]	Select the VDR to be used for alert data transfer.

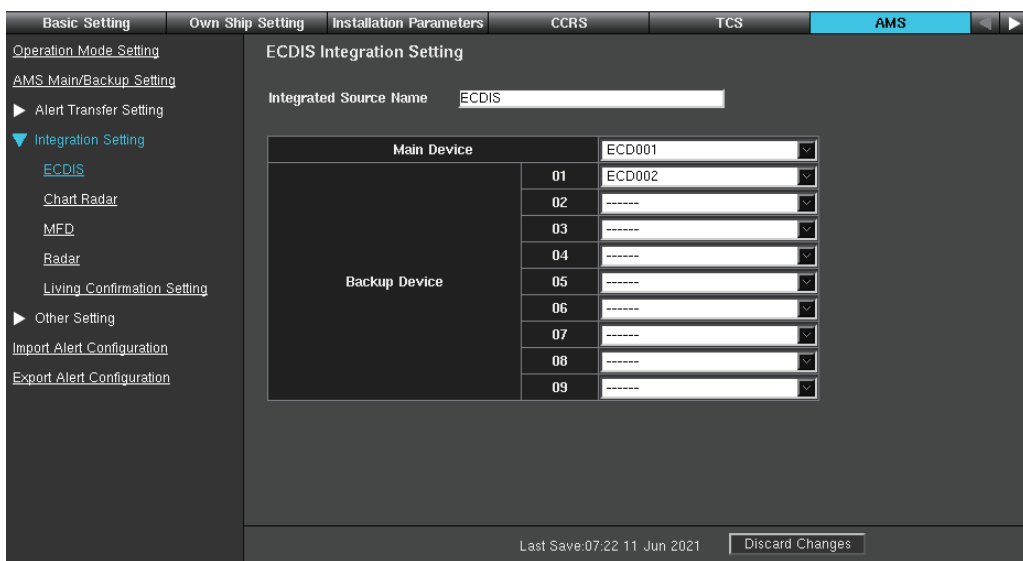
- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.7.4 Alert integration setting

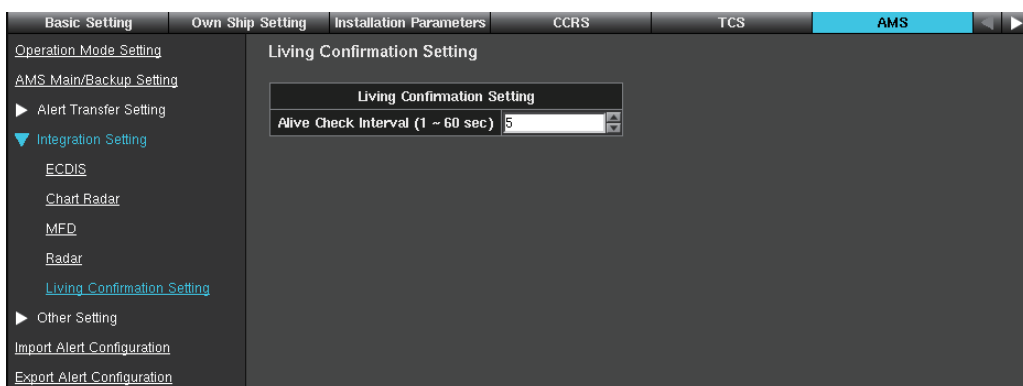
When multiple units are connected on the same network and multiple units generate an alert for the same cause, an alert is released for each generating unit. You can configure the alert integration settings to make a single alert appear to be occurring system-wide. To integrate alerts, do as follows.

Note: Alert integration settings are required for units used as ECDIS.

- Open the [Common Installation Setting] menu, then select [AMS] from the tab bar.
- Click [Integration Setting] on the menu bar.
- Click [ECDIS] on the menu bar.



- At [Integrated Source Name], enter the system name to use when integrating alerts.
- From the [Main Device] and [Backup Device] drop-down lists, select the Equipment ID of the main and backup units for alert output.
 - [Main Device]: Select the main unit for the integrated alert output.
 - [Backup Device]: Outputs an alert as a backup when the main unit loses communication.
- Click [Living Confirmation Setting] on menu bar.

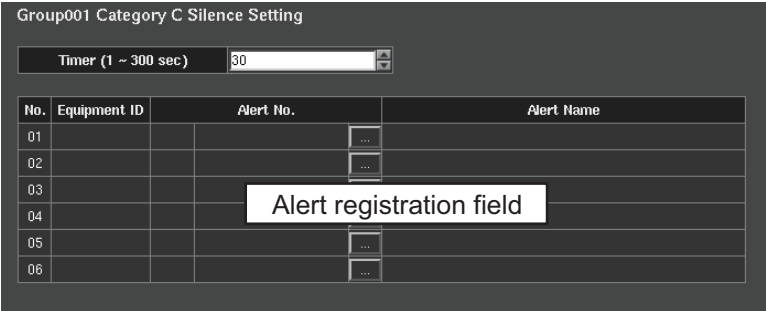


1. INITIAL SETTINGS AND ADJUSTMENTS

7. At the [Alive Check Interval] field, select the communication check cycle of the main unit.
8. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.7.5 Other setting window

This section provides a description for the contents of the [Other Setting] window. Open the [AMS] menu and select [Other Setting] on the menu bar, then select an appropriate setting item.

Item	Remarks
[Category C Silence Setting]	<p>Set the alert silence time for Category C alerts and register alerts. A maximum of ten groups ([Group001] to [Group010]) can be created, and a maximum of six alerts can be registered to one group. Different alert silence time can be set for each group.</p>  <ul style="list-style-type: none"> • [Timer]: Set the time for which the alert is silent. Aural alerts are not generated during the time set here (setting range: 1 to 300 sec). • [⋮] button: Opens the [Alert No. Setting] dialog box to register an alert to a group. For how to register the alert on the [Alert No. Setting] dialog box, see page 1-43. After registering the alert, Equipment ID, alert no. and alert name appear on the alert registration field. <p>Note: The text in the alert registration field is changed to red when a registered alert is not Category C or the alert is registered to another group.</p>
[BR-2000 Connection Setting]	<p>Set this item when a FEA-21x7 is replaced with a FMD-3x00 and the BR-2000 is connected to the FMD-3x00. Set the FMD-3x00 with the same setting selected in [Message Type] in the [Alarm Inputs+Outputs/AMWSS] dialog box of the FEA-21x7. When a BR-2000 is not installed, select [Not Connected].</p> <p>Note: When a BR-2000 is to be used, connect it to the serial port of the PCU-3010. Do not connect it to a serial adapter; data cannot be output.</p>
[ACK Send/Receive Setting]	<p>Set the options for the alert ACK signal.</p> <p>[Send Setting]</p> <ul style="list-style-type: none"> • [ACK Type]: Select the sentence to use when transmitting the alert ACK signal (ACN, ACM, ACN/ACM). • [Periodic Interval ACK sentence]: Select the transmission interval for the alert ACK signal. <p>[Receive Setting]</p> <ul style="list-style-type: none"> • [Monitoring Interval]: Keep the default setting.
[Silence Time Setting]	<p>Set the time for which the alert is silent. Aural alerts are not generated during the time set here.</p>

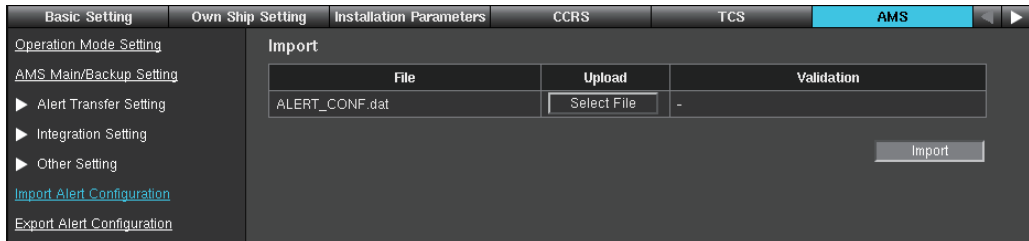
Item	Remarks
[Responsibility Transfer Setting]	Keep the default setting.
[Alert Managed Log Setting]	Keep the default setting.
[Change Active Alert Setting]	Select [YES] to switch to the [ACTIVE ALERT] window automatically when a new alert occurs.
[Enable Silence Button Setting]	Keep the default setting.
[Redraw Interval Setting]	Keep the default setting.
[Unknown Alert Notify Setting]	Keep the default setting.
[HBT Sentence Setting]	<p>Set the options for the HBT sentence.</p> <p>[Send Setting]</p> <ul style="list-style-type: none"> • [Periodic Interval]: Set the transmission interval for the HBT sentence. • [Broadcast]: Select [YES] to transmit the HBT sentence to all equipment in the same network. <p>[Receive Setting]</p> <ul style="list-style-type: none"> • [Timeout Count]: Communication lost alert occurs when HBT sentence is not received after the time set here. • [Additional Time]: Set a time “gap” from the [Timeout Count] setting to when the communication lost alert is actually sent.
[FELCOM-18 ACK Port Setting]	<p>Select the item according to [Transmission Group Setting] of FELCOM18. For how to set [Transmission Group Setting] of FELCOM18, see the installation manual of FELCOM18.</p> <ul style="list-style-type: none"> • [MISC (60001)]: Select when [Transmission Group Setting] of FELCOM18 is set [MISC]. • [Depend on Talker]: Select when [Transmission Group Setting] of FELCOM18 is set [RCOM].
[INS Alert Setting]	Setting unnecessary.
[Wildcard Setting]	Set only when connecting an alert source that does not conform to IEC62923-1 / 2. When making a silence request or retransmission request from CAM, the unit specified in this item is requested by the ACN sentence specified with the individual alert number.
[Source Name Setting]	Sets the display name of the alert source. Enter the talker and display name of the device for which you want to set the display name.
[CAM Interface Setting]	<p>Select the connection format when connecting a third-party CAM.</p> <ul style="list-style-type: none"> • [Serial]: Select when connecting to a third-party CAM via serial connection. If the CAM sends an ACN sentence addressed to the Wildcard, it will be rejected (ignored). • [LAN]: Select when connecting to a third-party CAM via LAN. The system allows CAM-sent ACN sentence addressed to the Wildcard.

1.7.6 How to import and export [AMS] menu settings

You can import and export the [AMS] menu settings.

Import the [AMS] menu settings

1. Access the [Common Installation Setting] menu, then select [AMS] from the tab bar.
2. Select [Import Alert Configuration] on the menu bar.



3. Click the [Select File] button, then select the setting file to import. After selecting the setting file, the check result of the setting file appears at [Validation] field. When the check result is "OK", the [Import] button is available.
4. Click the [Import] button to import the setting file.
5. To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

Export the [AMS] menu settings

1. Access the [Common Installation Setting] menu, then select [AMS] from the tab bar.
2. Select [Export Alert Configuration] on the menu bar.



3. Click the [Export File] button to export the setting file.

1.8 [Alert Define List] Menu

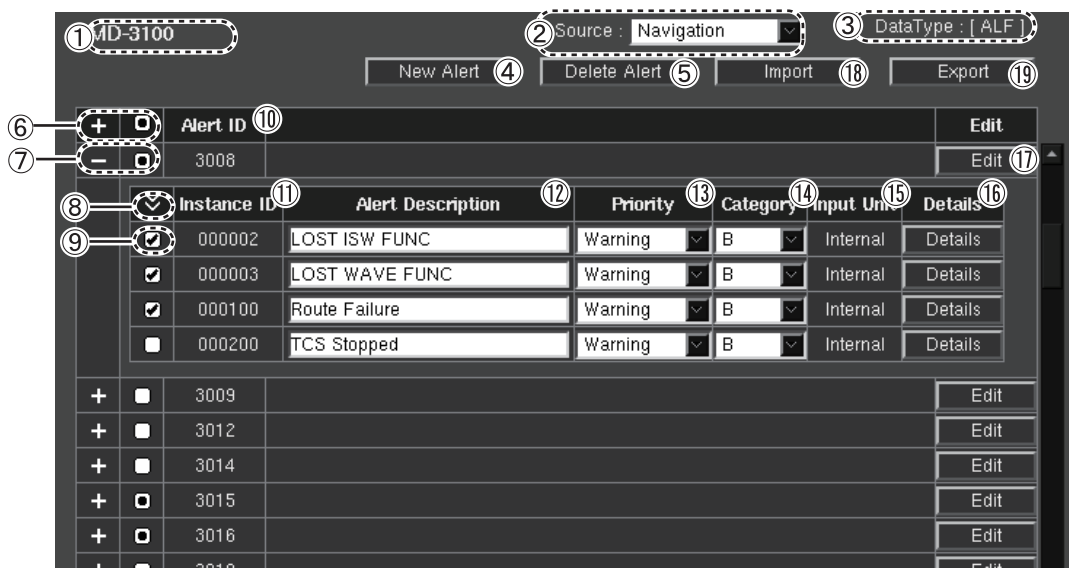
The [Alert Define List] menu sets alert definitions.

1.8.1 Alert Definition setting for each equipment

You can create alert definitions and activate/deactivate the alert(s) for each external equipment or sensor.

1. Access the [Common Installation Setting] menu, then select [Alert Define List] on the tab bar.
2. Select the appropriate equipment type on the menu bar. For example, select [EC-DIS] → [FMD-3100] to set the alert definitions for FMD-3100.

Note: The equipment and sensors shown on the menu bar depend on the [Installation Parameters] menu settings.



3. Set the appropriate options referring to the table shown below.

Item	Remarks
1	Equipment type Selected equipment type.
2	[Source] Define the source category to which the alert is assigned for display in the AMS mode's alert list window ([Navigation], [Communication] or [External]).
3	[Data Type] Alert sentence format (ALF or ALR). For sensors, select the alert notification sentence from the pull-down list.
4	[New Alert] button Add a new alert definition. See section 1.8.2.
5	[Delete Alert] button Delete the alert definition. See section 1.8.4.
6	Alert extension button/ All selection checkbox <ul style="list-style-type: none"> • [+]/[-]: Click to open/close all alerts ([+]: Open, [-]: Close). This appears when the alert notification sentence is ALF. • Check the checkbox to select all alert instances. This appears when the alert notification sentence is ALF.
7	Separate change button <ul style="list-style-type: none"> • [+]/[-]: Click to open/close the detail window for the alert ([+]: Open, [-]: Close). • Check the checkbox to select the alert, and all instances are selected for ALF sentence. This only appears when the alert notification sentence is ALF.

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Item		Remarks
8	Switching check-box (for alert instance)	Show all instances or show only valid state instances. This only appears when the alert notification sentence is ALF. <ul style="list-style-type: none"> • [☑]: Show the data for all instances. • [☑]: Show the data for activated instances.
9	Checkbox to activate/deactivate	Check the checkbox to activate the alert.
10	[Alert No.] (ALR) [Alert ID] (ALF)	Alert number
11	[Instance ID]	Instance number. This appears when the alert notification sentence is ALF.
12	[Alert Name] (ALR) [Alert Description] (ALF)	Alert name (editing possible)
13	[Priority]	The priority of the alert group ([Alarm]/[Warning]/[Caution]/[Indication]), possible to edit.
14	[Category]	The category of the alert group (A to C), possible to edit.
15	[Input Unit]	The unit which input the alert.
16	[Details] button	Show the detail window for the alert. See section 1.8.3.
17	[Edit] button	Edit the alert number. This appears when the alert notification sentence is ALF.
18	[Import] button	Import the alert definition for currently displayed equipment.
19	[Export] button	Export the alert definition for currently displayed equipment.

- Select the appropriate equipment on the menu bar to activate the alert for each equipment. For example, the alert number “3003” is activated for ECDIS1 and deactivated for ECDIS2. The following figure is the sample when the ECDIS1 is selected. The alerts are listed based on the alert definition of the equipment.

Alert ID						
+	<input type="checkbox"/>					
-	<input type="checkbox"/>	3003				
	<input checked="" type="checkbox"/>	Instance ID	Alert Description	Priority	Category	Input Unit
	<input type="checkbox"/>	NULL	Lost Interface	Caution	B	Internal
	<input checked="" type="checkbox"/>	000001	AIS MSG Send ERR	Caution	B	Internal
	<input type="checkbox"/>	000002	AP Receive Error	Caution	B	Internal
+	<input type="checkbox"/>	3005				
+	<input type="checkbox"/>	3006				

- Check the checkbox of the alert to activate.
- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

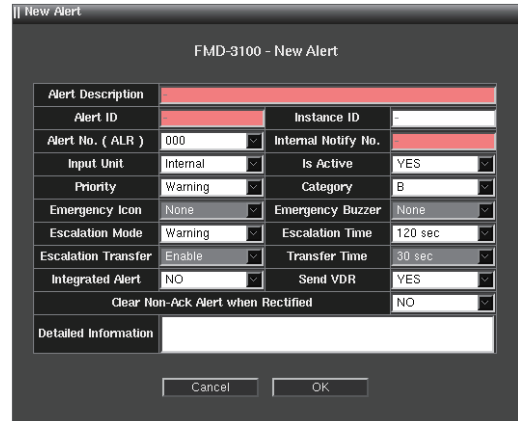
1.8.2 How to add an alert definition

An alert definition can be added newly. The maximum number of alert definition is 1,000.

1. Click the [New Alert] button on the alert definition window referring to the figure in step 2 of section 1.8.1. The [New Alert] window is shown.

Note: The 1,000 alert definitions have been registered, the message "Too many alert. Please delete any alert." is shown. If this occurs, delete any alert definition to make space for the new alert definition.

2. Set the options referring to the table shown below.



Item	Remarks
[Alert Name] (ALR) [Alert Description] (ALF)	Enter the alert name (max. 64 characters).
[Alert ID] (For ALF)	Enter the alert number for the ALF sentence.
[Instance ID] (For ALF)	Enter the Instance ID.
[Internal Notify No.]	Enter the notify number of the equipment. For sensors, this is automatically numbered.
[Input Unit]	Select the input source for the alert. <ul style="list-style-type: none"> • For other than sensors: [Internal], [Digital] • For sensors: [CCRS], [Digital], [MODBUS]
[Is Active]	Activate/Deactivate the alert. [YES]: activated, [NO]: deactivated.
[Priority]	The priority of the alert group ([Emergency]/[Alarm]/[Warning]/[Caution]/[Indication]).
[Category]	The category of the alert group (A to C).
[Emergency Icon]	Select the icon for the emergency alert. Available only for alerts with [Priority] set to [Emergency].
[Emergency Buzzer]	Select the buzzer sound for the emergency alert. Available only for alerts with [Priority] set to [Emergency].
[Escalation Mode]	Select the priority that escalates the status of an alert, [Alarm] or [Warning]. Available only for alerts with [Priority] set to [Warning]. <ul style="list-style-type: none"> • [Alarm]: When the alert is left unacknowledged, the priority is changed to [Alarm]. • [Warning]: When the alert is left unacknowledged, the priority remains as [Warning]. Then, the alert buzzer sounds again.
[Escalation Time]	Set the time to wait before activating the escalation function against an alert. Available only for alerts with [Priority] set to [Warning].
[Escalation Transfer]	Enable or disable transfer of an Alarm priority alert in the transfer escalation mode. Available only for alerts with [Escalation Mode] set to [Alarm].
[Transfer Time]	Set the time to wait before transferring an Alarm priority alert in the transfer escalation mode. Available only for alerts with [Escalation Mode] set to [Alarm].
[Integrated Alert]	Keep the default setting.

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Item	Remarks
[Send VDR]	Select [YES] to transfer the ALR sentence to the VDR.
[Clear Non-Ack Alert when Rectified]	Select [YES] to delete the non-acknowledged alerts automatically when they are rectified.
[Detailed Information]	Enter the detail information (max. 1023 characters) of the alert.

- Click the [OK] button to close the [New Alert] window.
- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.8.3 How to edit an alert definition

- Click the [Details] button on the alert definition window of equipment type, referring to the figure in step 2 of section 1.8.1. The [Alert Details] window is shown.
- Edit the options referring to step 2 of section 1.8.2.
- Click the [OK] button to close the [Alert Details] window.
- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.8.4 How to delete an alert definition

- Click the [Delete Alert] button on the alert definition window of equipment type, referring to the figure in step 2 of section 1.8.1. The [Delete Alert] window is shown.

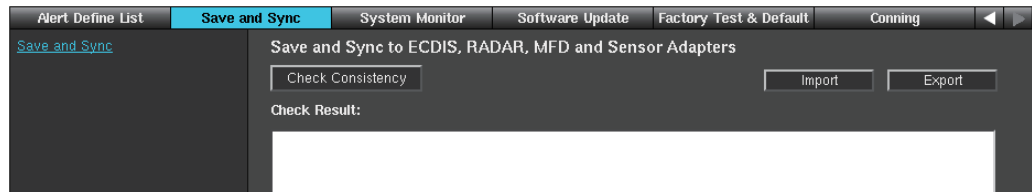
- Check the checkbox to delete the alert. If all alerts are deleted, check the “Select all” checkbox.
- Click the [OK] button.
- To save the configuration, perform a consistency check, then save the configuration data on the [Save and Sync] menu.

1.9 [Save and Sync] Menu

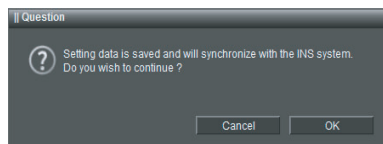
After completing the settings on the [Own Ship Setting], [Installation Parameters], [CCRS], [TCS], [AMS] and [Alert Define List] menus, confirm the consistency of the configuration and save it on this menu. By saving the configuration, the configuration data can be copied to other units connected to the network. The configuration data can be saved to a medium and loaded to a unit.

1.9.1 Consistency check and save the configuration

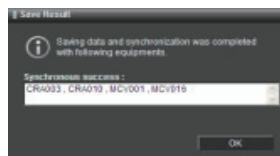
1. Access the [Common Installation Setting] menu and click [Save and Sync] on the tab bar.



2. Click [Consistency Check] to confirm the consistency of the setting. When the consistency check is completed, the result of the check is shown. If an inconsistency is detected, an error message appears. You can not save the configuration until the inconsistency is corrected. Check the setting and correct the inconsistency, then perform the consistency check again.
3. When the message "Check consistency completed, you can save data. Please push the "Save" button" is shown, click [Save] in the Info bar. The pop-up message shown below appears.



4. Click [OK] to save the configuration. If other ECDIS units and Sensor Adapters are connected to the network, a confirmation message similar to the one shown below appears. The message does not appear if a unit in the network is not powered. Click [OK] to save the configuration.



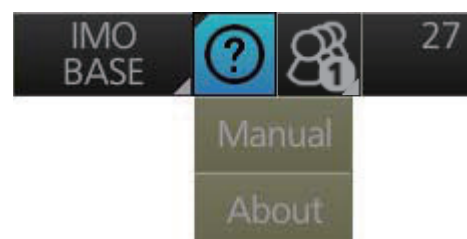
Note: If you did the consistency check and save after entering settings on [Own Ship Setting], reboot the unit.

5. After saving the configuration, confirm that the Equipment ID of all units are correct.

- **Panel PC PCU-3010**

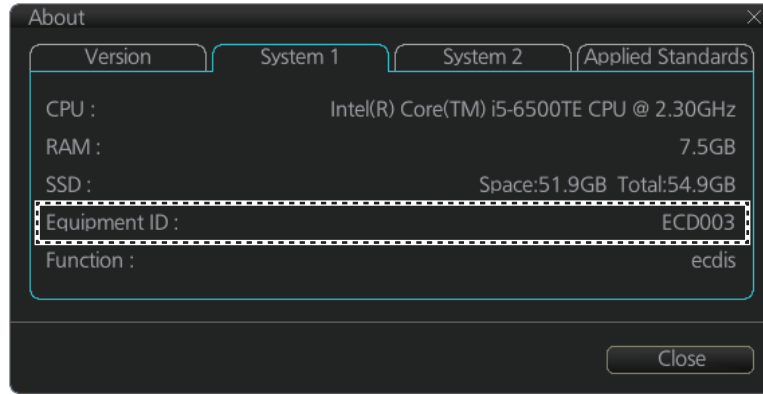
Check the Equipment ID as shown below.

- 1) Click the [?] button on the Status bar.
- 2) Click [About].



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- 3) Check [Equipment ID] on the [System1] tab.



- **Sensor adapter**

If the Equipment ID of the sensor adapter is not correct, the alert shown below appears.

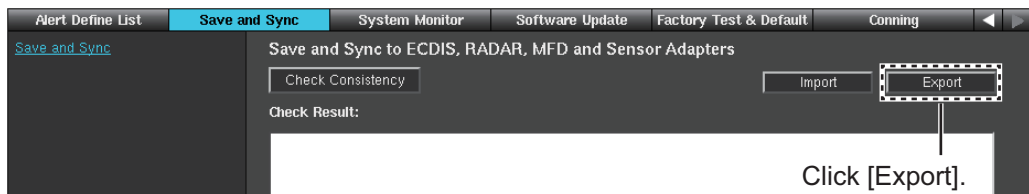
"Sensor adapter: Sensor Adapter * COM Timeout" (* = 1 to 16)

If the Equipment ID is not correct, set the Equipment ID on the [Basic Setting] menu (see section 1.2). At this time, turn off all units except the unit to be set, or disconnect all LAN cables except the cable for PC.

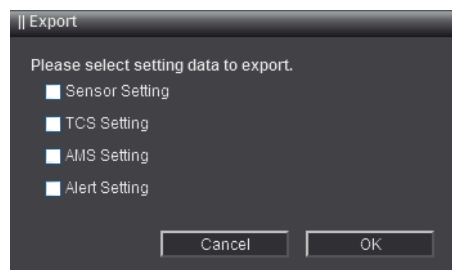
1.9.2 How to save the configuration data to a medium

This function is only available through a LAN-connected PC. You can save the configuration data to USB memory. Set the medium and then do as follows:

1. Select [Export] at the upper right of the [Save and Sync] menu.



The window shown below appears.

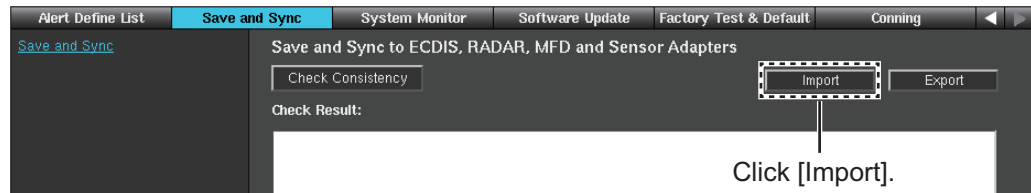


2. Select the configuration data type that you want to save, and then click [OK].
 - [Sensor Setting]: Configuration data on the [Own Ship Setting], [Installation Parameters] and [CCRS] menu.
 - [TCS Setting]: Configuration data on the [TCS] menu. Not used on FMD-3100.
 - [AMS Setting]: Configuration data on the [AMS] menu.
 - [Alert Setting]: Configuration data on the [Alert Define List] menu.
3. Select where to save the configuration data.
The file name "SettingFiles.tar" is created.

1.9.3 How to load the configuration data

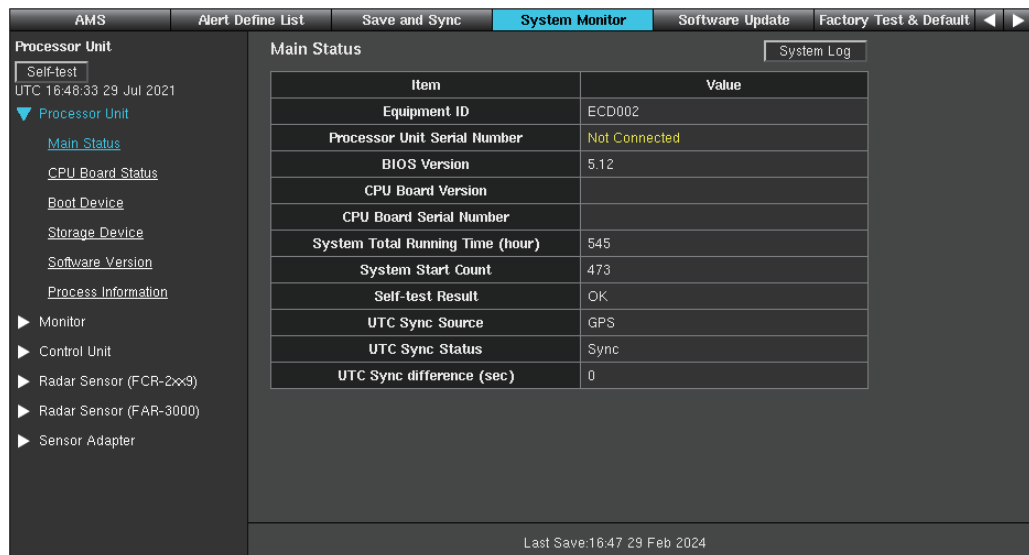
This function is only available through a LAN-connected PC. You can load the configuration data from USB memory. Set the medium and then do as follows:

1. Click [Import] at the upper right of the [Save and Sync] menu.



2. Select the configuration data file (“SettingFiles.tar”).
3. Select the configuration data type that you want to load, and then click [OK].
 - [Sensor Setting]: Configuration data on the [Own Ship Setting], [Installation Parameters] and [CCRS] menu.
 - [TCS Setting]: Configuration data on the [TCS] menu. Not used on FMD-3100.
 - [AMS Setting]: Configuration data on the [AMS] menu.
 - [Alert Setting]: Configuration data on the [Alert Define List] menu.
4. After loading the data, perform the consistency check and save the configuration data on the [Save and Sync] menu.

1.10 [System Monitor] Menu



This menu displays system information of units as shown below.

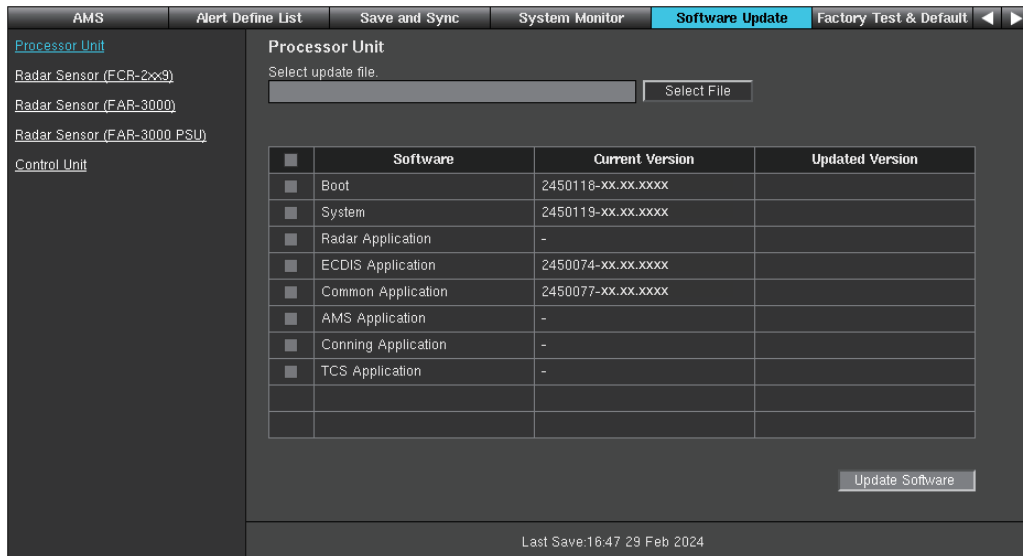
- Panel Computer Unit (PCU-3010)
- Trackball Control Unit
- Sensor Adapter

Click [System Log] to save the log data to the connected PC.

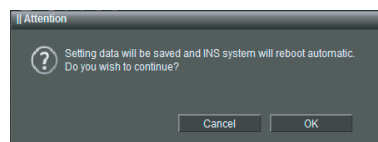
1.11 [Software Update] Menu

You can update the software for the PCU-3010 and Trackball Control Unit RCU-030 on the [Software Update] menu. To update sensor adapter software, see section 2.2.

Note: To update the software with the update file, access the [Common Installation Setting] menu via LAN connection. To update the software with the DVD, access the [Common Installation Setting] menu with the Trackball Control Unit.



1. For LAN connection, connect the USB memory which has the update file to the PC connected via LAN. For access with the Trackball Control Unit, insert the update DVD in the DVD drive.
2. Access the [Common Installation Setting] menu and click [Software Update] on the tab bar.
For the IP address of the unit to update, see the Equipment ID list at the back of this manual.
3. Select the unit to update from the menu bar.
4. Click [Select File] to select the update, and then click [OK].
The current software version and updated software version are displayed.
5. Check the checkbox for the software to update.
6. Click [Update Software]. A confirmation message appears.



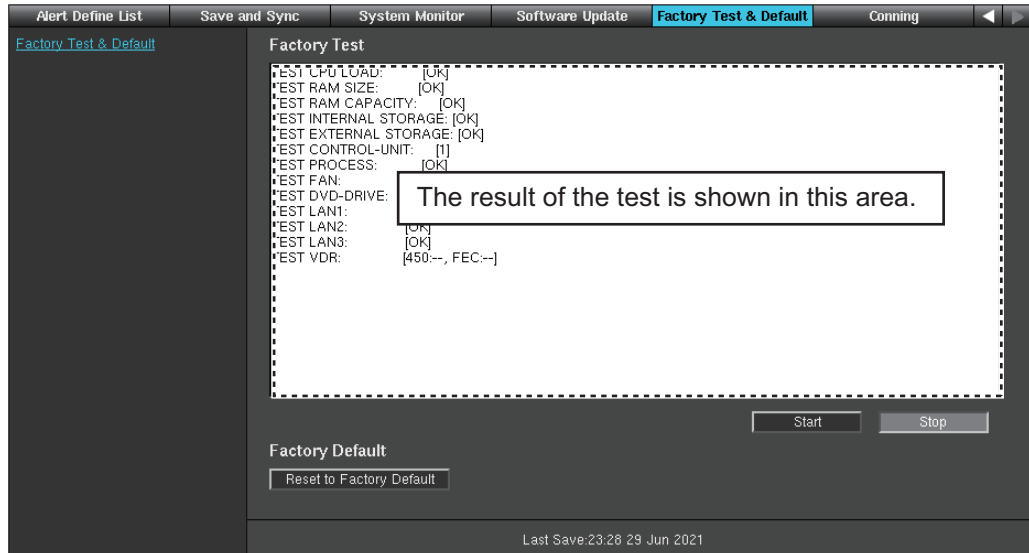
7. Click [OK] to update the software.
The progress bar shows the update progress. After completing the update, the system is automatically rebooted.
8. **If connected to the gateway network via LAN**, the link is shown on the display after completing the system reboot. Click the link on the display to access the [Common Installation Setting] menu.
If connected to the sensor network, enter the IP address of the sensor network to access the [Common Installation Setting] menu after completing the system reboot.

1.12 [Factory Test & Default] Menu

The [Factory Test & Default] menu does the factory test to check operation and restores the system default settings.

Factory Test

Click [Start] to perform the factory test. The result of the test is shown on the display.



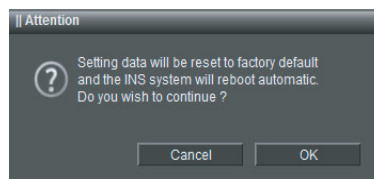
If "NG" appears, confirm the state of the unit on the [System Monitor] menu.

Factory Default

The factory default function restores all factory defaults (except the settings on the [Basic Setting] menu). In the default arrangement all ECDIS units powered in the network are restored to default condition.

Note: Restoring the unit to factory default will not erase user chart data or route data.

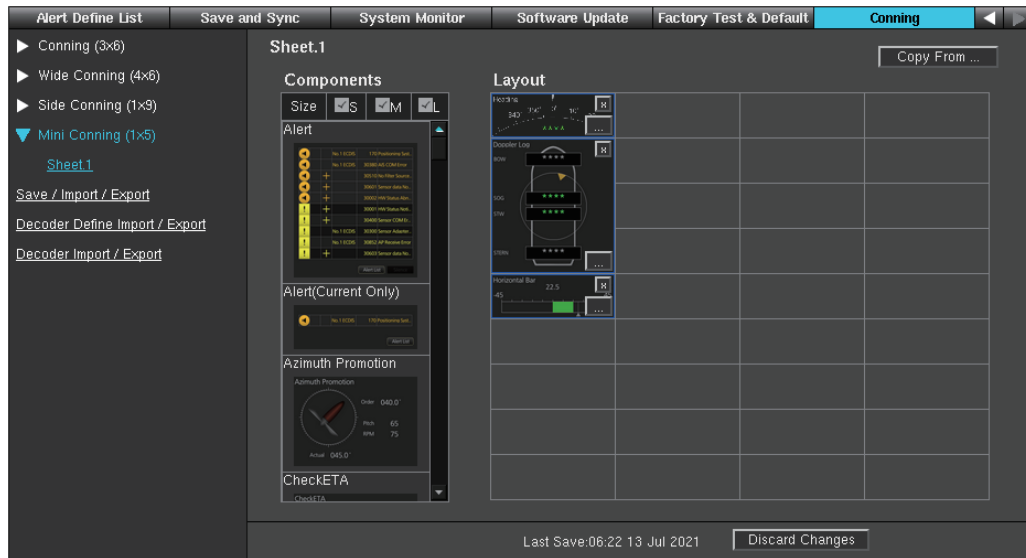
1. Click [Reset to Factory Default]. The following message appears on the screen.





2. Click [OK] to restore the system to the default setting. The progress bar shows update progress. When the restoration is completed, the system is automatically rebooted.
3. **If connected to the gateway network**, the link is shown on the display after completing the system reboot. Click the link on the display to access the [Common Installation Setting] menu. **If connected to the sensor network**, enter the IP address of the sensor network to access the [Common Installation Setting] menu after completing the system reboot.


1.13 [Conning] Menu

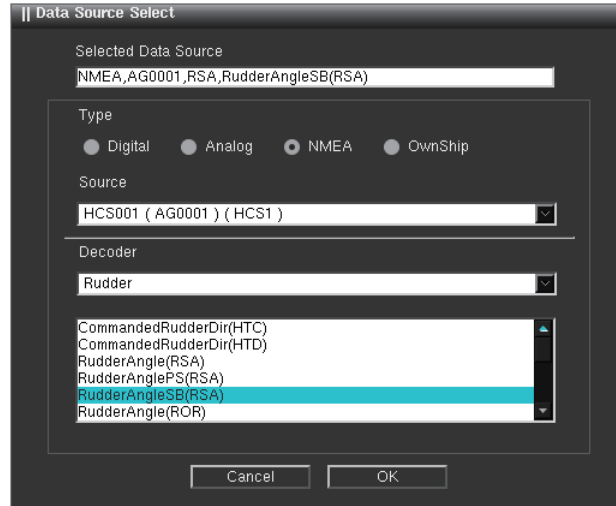
The [Conning] menu configures the layout and data to show on the conning display.



Menu item	Explanation
Items on the menu bar	
[Conning (3x6)]	Not used.
[Wide Conning (4x6)]	
[Side Conning (1x9)]	
[Mini Conning (1x5)]	Consists of 5 blocks (1x5).
[Save/Import/Export]	You can save the conning display data to a medium and load it on the network.
[Decoder Define Import/Export]	You can read a list of valid conning decoders, and save them to a storage medium.
[Decoder Import/Export]	Load the Conning Decoder, and save it to a storage medium.
Items in the view area	
[Name]	Not used.
[Show]	Not used.
[Copy From]	Not used.
[Components]	Select the components to show on the conning display. The components are available in three sizes: [Small], [Medium], [Large]. The [Small] components occupy one block. The [Medium] components occupy two blocks. The [Large] components occupy three or more blocks. Check the size of the component to show on the [Components] window. Select the component and click it to show the component on the [Layout] window.
[Layout]	You can configure the layout and data to show on the conning display. Drag and drop the components to configure the layout. Click  to delete a component from the [Layout] window. To select the data source for a component, click  to display the advanced settings window. See the procedure on section 1.13.1.

1.13.1 How to select the data source

You may select the data source for each component window in the layout. Click  on the advanced settings window (see section 1.13.2 for specific component details) to display the [Data Source Select] window. Select the data source in the [Data Source Select] window to show the respective data on the conning display.



- [Selected Data Source]: This is automatically generated when [Type], [Source] and [Decoder] are selected.
- [Type]: Select the data source type.

Setting	Description
[Digital]	Displays contact input data.
[Analog]	Displays analog input data.
[NMEA]	Displays data received directly from NMEA device.
[Own Ship]	Displays Own Ship data received from own ship management program.

- [Source]: Select the sensor from which the data will be sourced.
- [Decoder]: Select which data from the source sensor to use.

1. INITIAL SETTINGS AND ADJUSTMENTS

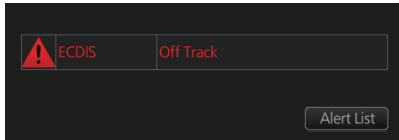
1.13.2 Advanced settings window

Note: Do not use the following components:

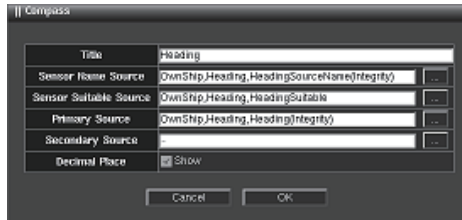
- CommonMP
- Fore & AFT bridge (Wide) U10662/10683/10782/1340
- Motion Sensor
- Steering Mode for GSI
- Fore & AFT bridge (Wide) Havyard122
- Fore & AFT bridge (Wide) NB802/818/830/832/857
- Nav. Information For GSI

[Small] components (one block)

- **[Alert (Current Only)]**



- **Compass**



[Title]: Enter the title of the component.

[Sensor Name Source]: Enter the sensor name.

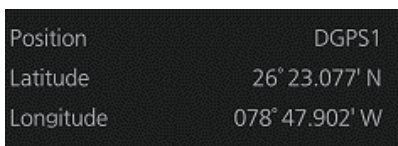
[Sensor Suitable Source]: Set the source to determine if the appropriate sensor is configured.

[Primary Source]: Select the data source of the upper pointer.

[Secondary Source]: Select the data source of the lower pointer.

[Decimal Place]: Check the checkbox to show the value after decimal point.

- **Data And Unit Display**



[Layout]: Check the checkbox of [Title] to show the title of the component. Check the checkbox of [Equal interval] to show only numeric data.

[Label]: Enter the data name of [Object 1] to [Object 5]. Example: "Heading", "Speed", etc.

[Source]: Select the data source of [Object 1] to [Object 5].

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Zero Padding]: Set the number of decimal points to show "0" in the [Source] for each object.

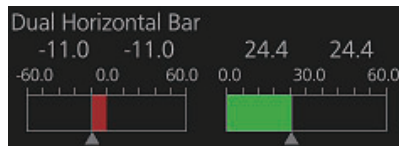
[Unit]: Enter the unit.

[Check Timeout]: When checked, data disconnection is immediately determined if the data from the signal source is interrupted.

[Suitable]: Set the source to determine if the appropriate sensor ([Source]) is configured.

[5 lines]: Check the checkbox to show five lines of data on the component.

• **Dual Horizontal Bar**



The image shows the configuration dialog for the 'Dual Horizontal Bar' component. The dialog has a title bar 'Dual Horizontal Bar' and a 'Title' field containing 'Dual Horizontal Bar'. It is divided into two columns: 'HorizontalBar1' and 'HorizontalBar2'. Each column has fields for 'Primary Source', 'Secondary Source', 'Start Value', and 'End Value'. Below these are checkboxes for 'Decimal Place', 'Mathematical Sign', 'Mirror Vertically', and 'Average Value', each with a 'Show' button. At the bottom are 'Cancel' and 'OK' buttons.

[Title]: Enter the title of the component.

[Primary Source]: Select the data source of the bar.

[Secondary Source]: Select the data source of the triangle below the bar.

[Start Value]: Set the minimum value of the bar.

[End Value]: Set the maximum value of the bar.

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

[Mirror Vertically]: Check the checkbox to invert the position of the bar and value.

[Average Value]: Check [Show] to display the average value of the minimum and maximum values of the meter's memory.

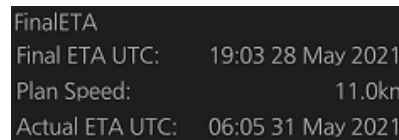
• **Empty**



The image shows the configuration dialog for the 'Empty' component. It has a title bar 'Empty' and a 'Title' field containing 'Empty'. At the bottom are 'Cancel' and 'OK' buttons.

[Title]: Enter the title of the component.

• **[Final ETA]**



The image shows the configuration dialog for the 'Final ETA' component. It has a title bar 'FinalETA' and a 'Title' field containing 'FinalETA'. At the bottom are 'Cancel' and 'OK' buttons.

[Title]: Enter the title of the component.

1. INITIAL SETTINGS AND ADJUSTMENTS

• Generator Engine

Generator Engine(DG1 - DG3)				
DG1	891 kW	Rated	990 kW	90.0 %
DG2	891 kW	Rated	990 kW	90.0 %
DG3	554 kW	Rated	615 kW	90.1 %

The dialog box is titled "Generator Engine". It contains a table with columns for "Label", "Actual Source", and "Rated Source". The rows correspond to DG1, DG2, and DG3. Below the table are "Cancel" and "OK" buttons.

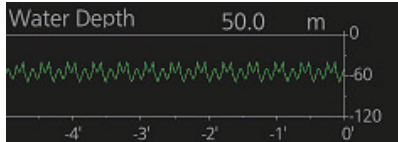
[Title]: Enter the title of the component.

[Label]: Enter the data name.

[Actual Source]: Select the data source of the actual engine generating power.

[Rated Source]: Select the data source of the rated engine generating power.

• Graph



The dialog box is titled "Graph". It contains various configuration options for the graph, including Title, Type (Time/Y-graph or X/Y-graph), Label Source, Mode Source, Primary (Y1) and Secondary (Y2) Source, Unit, Line Color, Smoothing, Scale | Range, Time Span, Sample Interval, Scale Resolution, Decimal Place, and Secondary (Y2) Scale. "Cancel" and "OK" buttons are at the bottom.

[Title]: Enter the title of the component.

[Type]: Set the graph type.

- [(2x)Time/Y-graph]: The [Primary (Y1)] and [Secondary (Y2)] are used as Y-coordinate for two independent graphs. The time is used as the X-coordinate for both graphs.
- [(1x)X/Y-graph]: The [Primary (Y1)] input is used for the X-coordinate and the [Secondary (Y2)] for the Y-coordinate.

[Label Source]: Not used.

[Mode Source]: Not used.

[Label]: Enter the title of [Primary (Y1)] and [Secondary (Y2)] graph.

[Source]: Select the data source of [Primary (Y1)] and [Secondary (Y2)].

[Unit]: Set the unit used in [Primary (Y1)] and [Secondary (Y2)] graphs.

[Line Color]: Select graph display color, [Primary (Y1)] or [Secondary (Y2)].

[Smoothing]: Select [Apply] to smooth the graph.

[Scale | Range]: Set the display range of the Y-coordinate. Three display ranges can be entered.

[Time Span]: Set the display range of the X-coordinate.

[Sample Interval]: Set the interval of [Primary (Y1)] and [Secondary (Y2)] graph plot.

[Scale Resolution]: Select the scale resolution of the graph.

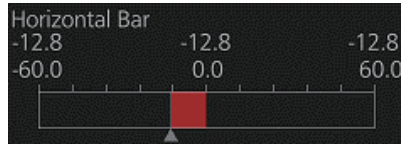
[Decimal Place]: Check the checkbox to show the value after decimal point.

[Decimal Num]: Select the number of digits after decimal point.

[Mathematical Sign (Scale)]: Check the checkbox to show the minus sign (-) when the value of the Y-coordinate is minus.

[Mathematical Sign (Value)]: Check the checkbox to hide the minus sign (-) when the value above graph is minus.

• **Horizontal Bar**



A screenshot of the 'Horizontal Bar' configuration dialog box. It contains the following fields and options:

Title	Horizontal Bar	
Left Source	-	
Center Source	OwnShip_ROT_ROT	
Right Source	-	
Primary Source	OwnShip_ROT_ROT	
Secondary Source	OwnShip_ROT_ROT	
Start Value	-60	
End Value	60	
Decimal Place	<input checked="" type="checkbox"/> Show	Mathematical Sign <input checked="" type="checkbox"/> Show
Mirror Vertically	<input checked="" type="checkbox"/> Apply	Average Value <input checked="" type="checkbox"/> Show

Buttons: Cancel, OK

[Title]: Enter the title of the component.

[Left Source]: Select the data source of the value shown at the upper left of the bar.

[Center Source]: Select the data source of the value shown above the bar.

[Right Source]: Select the data source of the value shown at the upper right of the bar.

[Primary Source]: Select the data source of the green bar.

[Secondary Source]: Select the data source of the triangle below the bar.

[Start Value]: Set the minimum value of the bar.

[End Value]: Set the maximum value of the bar.

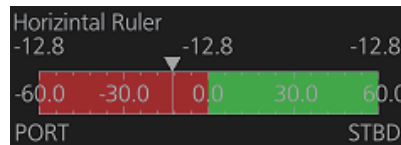
[Decimal Place]: Check the checkbox to show the value after decimal point.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

[Mirror Vertically]: Check the checkbox to invert the position of the bar and value.

[Average Value]: Check [Show] to display the average value of the minimum and maximum values of the meter's memory.

• **Horizontal Ruler**



A screenshot of the 'Horizontal Ruler' configuration dialog box. It contains the following fields and options:

Title	Horizontal Ruler	
Top Left	-	
Top Center	OwnShip_ROT_ROT	
Top Right	-	
Bottom Left	PORT	
Bottom Center	-	
Bottom Right	STBD	
Primary Source	OwnShip_ROT_ROT	
Secondary Source	OwnShip_ROT_ROT	
Start Value	-60	
End Value	60	
Decimal Place	<input checked="" type="checkbox"/> Show	Mathematical Sign <input checked="" type="checkbox"/> Show
Color Indication	<input checked="" type="checkbox"/> Enable	

Buttons: Cancel, OK

[Title]: Enter the title of the component.

[Top Left]: Select the data source of the value shown at the upper left of the bar.

[Top Center]: Select the data source of the value shown above the bar.

[Top Right]: Select the data source of the value shown at the upper right of the bar.

[Bottom Left]: Enter the text shown at the lower left of the bar.

[Bottom Center]: Enter the text shown below the bar.

[Bottom Right]: Enter the text shown at the lower right of the bar.

[Primary Source]: Select the data source of the indication shown with white triangle.

[Secondary Source]: Select the data source of the indication shown with gray triangle.

[Start Value]: Set the minimum value of the bar.

1. INITIAL SETTINGS AND ADJUSTMENTS

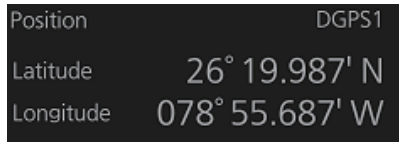
[End Value]: Set the maximum value of the bar.

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

[Color Indication]: Check [Enable] to set the background color in the meter to the default display color.

• Numeric Data Display



Numeric Data Display		
Title	Position	
Source	OwnShip_Position(Primary), PositionSourceName[Inte] ...	
Suitable	OwnShip_Position(Primary), PositionSuitable ...	
Object1	Label	Latitude
	Limit	12
	Source	OwnShip_Position(Primary) ...
	Zero Padding	1
	Unit	
Object2	Label	Longitude
	Limit	12
	Source	OwnShip_Position(Primary) ...
	Zero Padding	1
	Unit	

[Title]: Enter the title of the component.

[Source]: Select the data source same as [Object 1] or [Object 2] to show the abbreviated name of the data source unit.

[Suitable]: Set the source to determine if the appropriate sensor ([Source]) is configured.

[Label]: Enter the data name of [Object 1 (or 2)].

[Limit]: Set the digit number of the data of [Object 1 (or 2)].

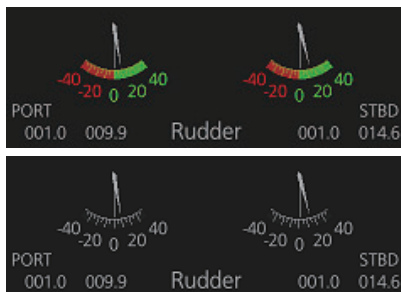
[Source]: Select the data source of [Object 1 (or 2)].

[Zero Padding]: Set the number of decimal points to show "0" in the [Source] for each object.

[Unit]: Set the unit of data for [Object 1 (or 2)].

[Suitable]: Set the source to determine if the appropriate sensor ([Source] of [Object1], [Object2]) is configured.

• Rudder



Rudder		
Title	Rudder	
Location	AFT	
	Rudder1	Rudder2
Rudder Title	PORT	STBD
Primary Source	NMEA_0183_001_RSA_RudderAngle(SRSA)	NMEA_0183_001_RSA_RudderAngle(SRSA)
Secondary Source	NMEA_0183_001_RCR_RudderAngle(RCR)	NMEA_0183_001_RCR_RudderAngle(RCR)
Max Angle	30	30
Scale Resolution	COARSE	COARSE
Mathematical Sign	<input type="checkbox"/> Show	<input type="checkbox"/> Show
Color Indication	<input checked="" type="checkbox"/> Enable	

[Title]: Enter the title of the component.

[Location]: Select the rudder location from the pull-down list.

[Rudder Title]: Enter the title of the [Rudder 1 (or 2)] indicator.

[Primary Source]: Select the data source of the long pointer of [Rudder 1 (or 2)] indicator.

[Secondary Source]: Select the data source of the long pointer of [Rudder 1 (or 2)] indicator.

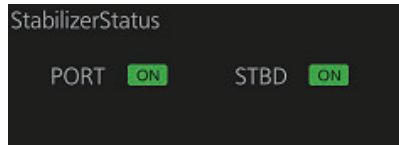
[Max Angle]: Set the maximum rudder angle of [Rudder 1 (or 2)] indicator.

[Scale Resolution]: Select the scale resolution.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is a negative figure.

[Color Indication]: Check [Enable] to set the background color in the meter to the default display color.

• **[Stabilizer Status]**



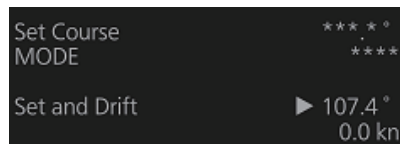
[Title]: Enter the title of the component.

[Object1 (to 4)]:

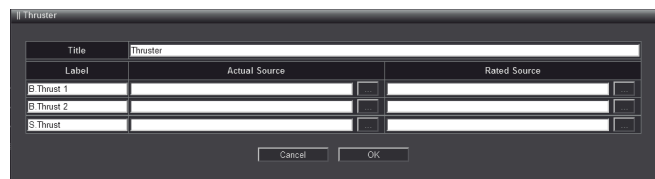
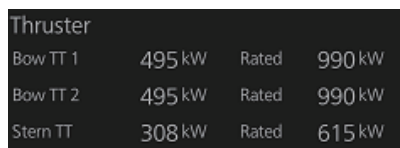
[Label]: Enter the data name of [Object 1 (or 2)].

[Source]: Select the data source of [Object 1 (or 2)].

• **[Steering Mode]**



• **Thruster**



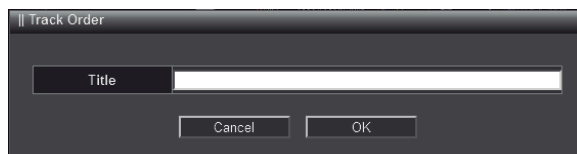
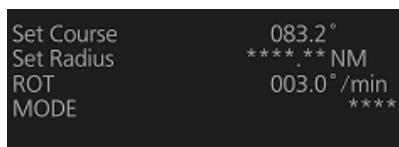
[Title]: Enter the title of the component.

[Label]: Enter the data name.

[Actual Source]: Select the data source of the actual thruster generating power.

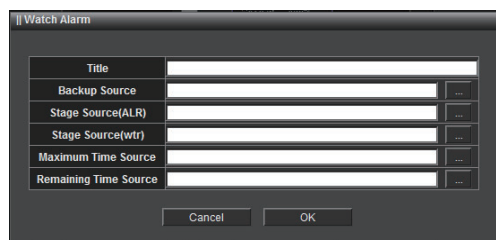
[Rated Source]: Select the data source of the rated thruster generating power.

• **Track Order**



[Title]: Enter the title of the component.

• **Watch Alarm**



[Title]: Enter the title of the component.

[Backup Source]: Select the data source of the backup officer name.

1. INITIAL SETTINGS AND ADJUSTMENTS

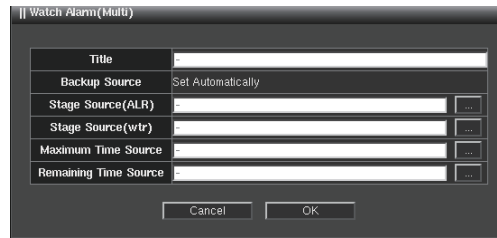
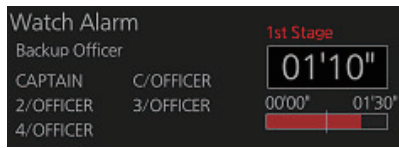
[Stage Source (ALR)]: Select the Stage Source (ALR).

[Stage Source (wtr)]: Select the Stage Source (wtr).

[Maximum Time Source]: Select the data source of the watch time setting.

[Remaining Time Source]: Select the data source of the remaining time.

- **[Watch Alarm (Multi)]**



[Title]: Enter the title of the component.

[Backup Source]: Cannot be changed. Set automatically.

[Stage Source (ALR)]: Select the Stage Source (ALR).

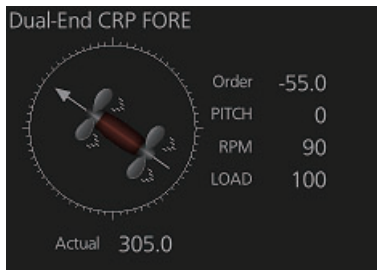
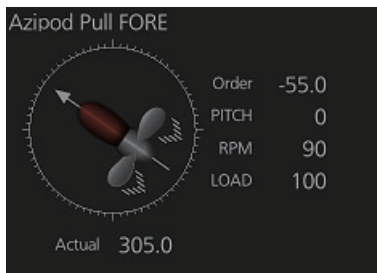
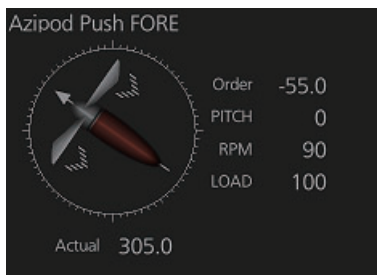
[Stage Source (wtr)]: Select the Stage Source (wtr).

[Maximum Time Source]: Select the Maximum Time Source.

[Remaining Time Source]: Select the Remaining Time Source.

[Medium] component (two blocks.)

- **Azimuth Propulsion**



[Title]: Enter the title of the component.

[Picture Type]: Select azimuth type (display image).

Azimuth

[Label]: Enter the data name shown at the bottom of the indicator.

[Source]: Select the data source of the azimuth propulsion.

[Unit]: Enter the unit for the azimuth propulsion.

[North Angle]: Enter the north angle relative to the screen. Normally, enter "0".

[Value Mapping]: When the checkbox is checked, if the input azimuth angle is other than 0° to 359°, this equipment calculates the input value so that the azimuth angle is within 0° to 359°. For example, the input azimuth angle is “-90°”, the displayed value is “270°”. When the checkbox is unchecked, this equipment shows the same value as the input data.

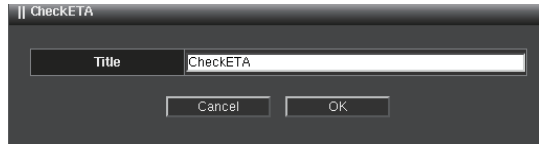
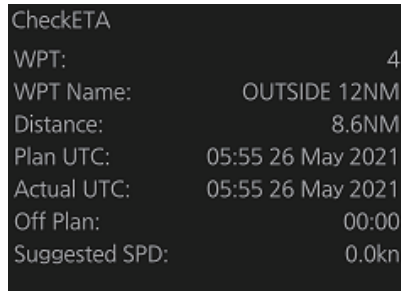
Object

[Label]: Enter the data name of [Object1 (to 4)].

[Source]: Select the data source of the numeric data for [Object1 (to 4)].

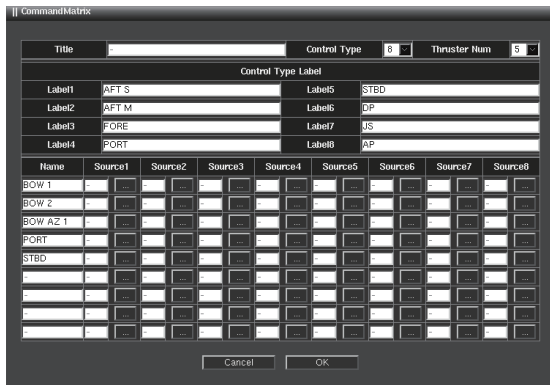
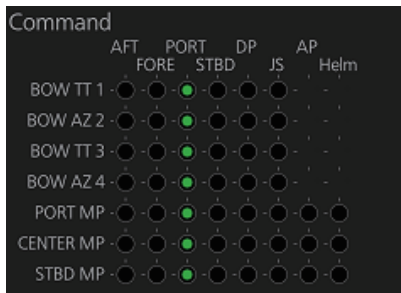
[Unit]: Enter the unit for [Object1 (to 4)].

• **[Check ETA]**



[Title]: Enter the title of the component.

• **Command Matrix**



[Title]: Enter the title of the component.

[Control Type]: Set the number of columns for the matrix.

[Thruster Num]: Set the number of rows for the matrix.

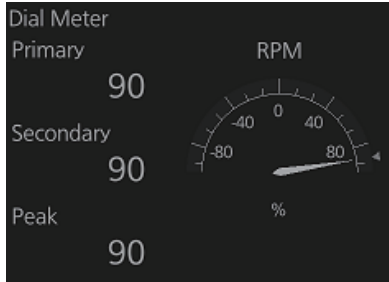
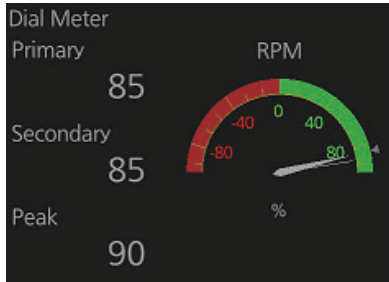
[Control Type Label]: Enter the text that appears at the top of the matrix.

[Name]: Enter the text that appears at the left side of the matrix.

[Source1] to [Source8]: Set the source for the thruster data for the matrix.

1. INITIAL SETTINGS AND ADJUSTMENTS

- **Dial Meter**



[Title]: Enter the title of the component.

[Dial Title]: Enter the text to show above the indicator.

[Primary Source]: Select the data source of the long pointer of the indicator.

[Secondary Source]: Select the data source of the outer pointer of the indicator.

[Peak Source]: Select the data source of the short pointer of the indicator.

[Unit]: Set the unit of the data.

[Start Value]: Set the minimum value of the indicator.

[End Value]: Set the maximum value of the indicator.

[Angle]: Define the extent of the dial.

[Rotation]: It can be rotate the direction of the indicator. Normally, set to "0".

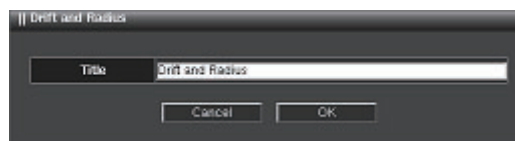
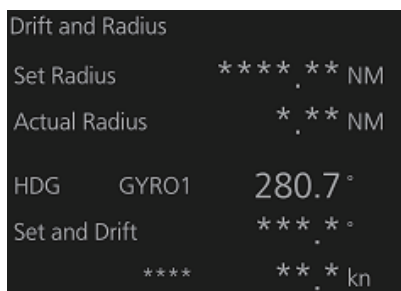
[Scale Resolution]: Select the scale resolution.

[Color Indication]: Check [Enable] to set the background color in the meter to the default display color.

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

- **Drift And Radius**



[Title]: Enter the title of the component.

• Dual Azimuth Promotion



[Title]: Enter the title of the component.

[Location]: Select the position of thruster ([FORE] or [AFT]).

[Color Indication]: Check [Enable] to set the background color in the meter to the default display color.

[Title]: Enter the title to show at the top of the indicator.

[Picture Type]: Select the azimuth type (display image) to be displayed in the indicator.

[Degree]

[Actual]: Set the source of the angle which the needle of the outer periphery points to (feedback angle of the thruster).

[Order]: Set the source of the angle which the needle of the inner periphery points to (actual azimuth of the thruster).

[Unit]: Enter the unit of measurement for the azimuth of the thruster.

[RPM]/[MW]/[Lever]

A maximum of three data can be displayed under the indicator.

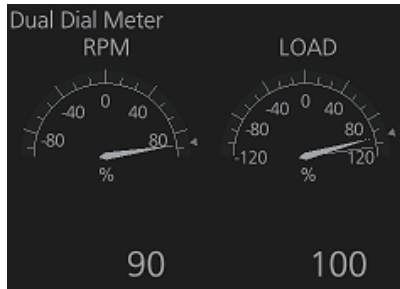
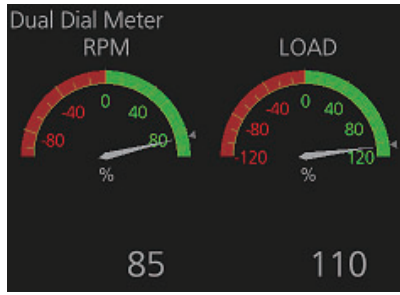
[Label]: Enter the name of the data shown beneath the analog indicator,

[Source]: Set the source of the data that appears beneath the analog indicator.

[Unit]: Enter the unit for the data that appears beneath the analog indicator.

1. INITIAL SETTINGS AND ADJUSTMENTS

• Dual Dial Meter



Title	DialMeter1	DialMeter2
Dial Title	RPM	LOAD
Primary Source	I_BOWAZ1_NC_0900_RprFeedback(PRRP)	IOWAZ1_NC_0900_Driversotor_Load(PRRP)
Secondary Source	I_BOWAZ1_NC_0900_RprFeedback(PRRP)	IOWAZ1_NC_0900_Driversotor_Load(PRRP)
Peak Source	I_BOWAZ1_NC_0900_RprFeedback(PRRP)	IOWAZ1_NC_0900_Driversotor_Load(PRRP)
Unit	%	%
Start Value	-100	-120
End Value	100	120
Angle	270	270
Rotation	-135	-135
Scale Resolution	COARSE	COARSE
Decimal Place	<input type="checkbox"/> Show	<input type="checkbox"/> Show
Mathematical Sign	<input type="checkbox"/> Show	<input type="checkbox"/> Show

[Title]: Enter the title of the component.

[Color Indication]: Check [Enable] to set the background color in the meter to the default display color.

[Dial Title]: Enter the title to show above [Dial Meter 1 (or 2)] indicator.

[Primary Source]: Select the data source of the long pointer of [Dial Meter 1 (or 2)] indicator.

[Secondary Source]: Select the data source of the outer pointer of [Dial Meter 1 (or 2)] indicator.

[Peak Source]: Select the data source of the short pointer of [Dial Meter 1 (or 2)] indicator.

[Unit]: Set the unit of the data.

[Start Value]: Set the minimum value of the [Dial Meter 1 (or 2)] indicator.

[End Value]: Set the maximum value of the [Dial Meter 1 (or 2)] indicator.

[Angle]: Define the extent of the dial.

[Rotation]: It can be rotate the direction of the [Dial Meter 1 (or 2)] indicator. Normally, set to "0".

[Scale Resolution]: Select the scale resolution of [Dial Meter 1 (or 2)] indicator.

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

• Generator Engine

Generator Engine				
DG1	891 kW	Rated	990 kW	90.0 %
DG2	891 kW	Rated	990 kW	90.0 %
DG3	554 kW	Rated	615 kW	90.1 %
DG4	554 kW	Rated	615 kW	90.1 %
DG5	554 kW	Rated	615 kW	90.1 %
DG6	554 kW	Rated	615 kW	90.1 %

Title	Generator Engine		
Label	Actual Source	Rated Source	
DG1	Igen_Electric_Systems_IAS_Gen_1_Power(PMSGEM)	990	
DG2	Igen_Electric_Systems_IAS_Gen_2_Power(PMSGEM)	990	
DG3	Igen_Electric_Systems_IAS_Gen_3_Power(PMSGEM)	615	
DG4	Igen_Electric_Systems_IAS_Gen_4_Power(PMSGEM)	615	
DG5	Igen_Electric_Systems_IAS_Gen_5_Power(PMSGEM)	615	
DG6	Igen_Electric_Systems_IAS_Gen_6_Power(PMSGEM)	615	

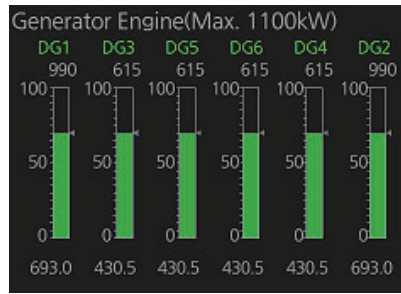
[Title]: Enter the title of the component.

[Label]: Enter the data name.

[Actual Source]: Select the data source of the actual engine generating power.

[Rated Source]: Select the data source of the rated engine generating power.

• **Generator Engine Bar**



Object	Label	EngineMode	Source	Source State	Max(kw)	Max Source	Max Range(%)
Object1	DG1	NMEA	NMEA,I400	ESPND		NMEA	100
Object2	DG3	NMEA	NMEA,I400	ESPND		NMEA	100
Object3	DG5	NMEA	NMEA,I400	ESPND		NMEA	100
Object4	DG6	NMEA	NMEA,I400	ESPND		NMEA	100
Object5	DG4	NMEA	NMEA,I400	ESPND		NMEA	100
Object6	DG2	NMEA	NMEA,I400	ESPND		NMEA	100
Object7							100
Object8							100
Object9							100

[Title]: Enter the title of the component.

[Number of Show]: Set the number of graphs.

[Label]: Enter the text on the upper of the graphs ([Object 1] to [Object 9]).

[Engine Mode]: Set the source of the character string or number that displays the operating mode of the generator.

[Source]: Enter the source of the graphs ([Object 1] to [Object 9]).

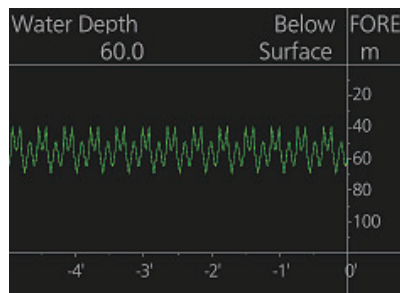
[Source State]: Set the source that outputs operating status. The green indication of the graph means the generator is working, the red indication means the generator has stopped.

[Max (kW)]: Enter the maximum value of the graph bar ([Object 1] to [Object 9]).

[Max Source]: Set the source of the maximum value of the graph bar (when the maximum value is variable).

[Max Range (%]): Enter the maximum value (%) of the graph bar ([Object 1] to [Object 9]).

• **Graph**



[Title]: Enter the title of the component.

[Type]: Set the graph type.

- [(2x)Time/Y-graph]: The [Primary (Y1)] and [Secondary (Y2)] are used as Y-coordinate for two independent graphs. The time is used as the X-coordinate for both graphs.
- [(1x)X/Y-graph]: The [Primary (Y1)] input is used for the X-coordinate and the [Secondary (Y2)] for the Y-coordinate.

[Label Source]: Set the source of the character string to be displayed at the top of [Unit] (in the example, the location of the "FORE" sensor).

[Mode Source]: Set the source of the character string to be displayed on the left side of [Unit] (in the example, "Surface" measurement reference position).

[Label]: Enter the title of [Primary (Y1)] and [Secondary (Y2)] graph.

[Source]: Select the data source of [Primary (Y1)] and [Secondary (Y2)].

[Unit]: Set the unit used in [Primary (Y1)] and [Secondary (Y2)] graphs.

1. INITIAL SETTINGS AND ADJUSTMENTS

[Smoothing]: Select [Apply] to smooth the graph.

[Line Color]: Select the display color for the [Primary (Y1)] or [Secondary (Y2)] graph.

[Scale | Range]: Set the display range of the Y-coordinate. Three display ranges can be entered.

[Time Span]: Set the display range of the X-coordinate.

[Sample Interval]: Set the interval of [Primary (Y1)] and [Secondary (Y2)] graph plot.

[Scale Resolution]: Select the scale resolution of the graph.

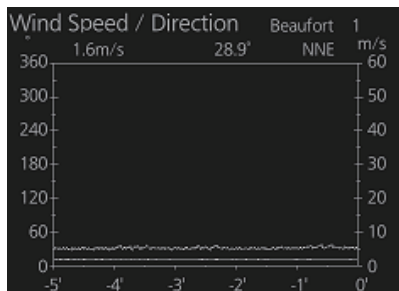
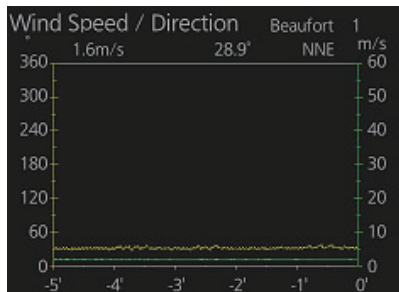
[Decimal Place]: Check the checkbox to show the value after decimal point.

[Secondary (Y2) Scale]: Check the check box to show the value input from the data source of [Secondary (Y2)].

[Mathematical Sign (Scale)]: Check the checkbox to show the minus sign (-) when the value of the Y-coordinate is minus.

[Mathematical Sign (Value)]: Check the checkbox to hide the minus sign (-) when the value above graph is minus.

• Graph (Wind Speed & Direction)



Graph (Wind Speed/Direction)

Wind Speed		Wind Direction	
Label			
Source	OwnShip.WindSpeed/Direction.Speed[m](North)		OwnShip.WindSpeed/Direction.Angle(North)
Unit	m/s		
Line Color	Green		Yellow
Smoothing	<input type="checkbox"/> Apply		<input type="checkbox"/> Apply
Scale Range	Min: 0 Max: 50 Y1 > Y1 < Y2 > Y2 <	Min: 0 Max: 350 Y1 > Y1 < Y2 > Y2 <	Min: 0 Max: 350 Y1 > Y1 < Y2 > Y2 <
Scale Range	> Y1 < < Y1 > > Y1 <	> Y1 < < Y1 > > Y1 <	> Y1 < < Y1 > > Y1 <
Scale Range	> Y1 < < Y1 > > Y1 <	> Y1 < < Y1 > > Y1 <	> Y1 < < Y1 > > Y1 <
Time Span	5min	Sample Interval	1sec
Scale Resolution	MEDIUM	True Wind Direction Indication	16 direction
Decimal Place	<input type="checkbox"/> Show	Mathematical Sign(Scale)	<input type="checkbox"/> Show
Secondary(Y2) Scale	<input type="checkbox"/> Show	Mathematical Sign(Value)	<input type="checkbox"/> Hide

Cancel OK

[Title]: Enter the title of the component.

[Label]: Enter the title of [Wind Speed] and [Wind Direction].

[Source]: Select the source of [Wind Speed] and [Wind Direction].

[Unit]: Enter the unit of [Wind Speed] and [Wind Direction].

[Line Color]: Select the display color for the [Wind Speed] and [Wind Direction] graphs.

[Smoothing]: Select [Apply] to smooth the graph.

[Scale | Range]: Set the display range of the Y-coordinate. Three display ranges can be entered.

[Time Span]: Set the display range of the X-coordinate.

[Sample Interval]: Set the interval of [Primary (Y1)] and [Secondary (Y2)] graph plot.

[Scale Resolution]: Select the scale resolution of the graph.

[True Wind Direction Indication]: Select the true wind indication method, 8-direction display, 16-direction display, or no indication.

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Secondary (Y2) Scale]: Check the check box to show the value input from the data source of [Secondary (Y2)].

[Mathematical Sign (Scale)]: Check the checkbox to show the minus sign (-) when the value of the Y-coordinate is minus.

[Mathematical Sign (Value)]: Check the checkbox to hide the minus sign (-) when the value above graph is minus.

• **Heading**



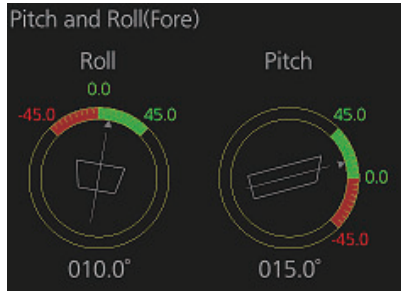
- [Compass Title]: Enter the title shown at the top of the compass meter.
- [Location]: Select the location of the heading sensor from the pull-down list.
- [Compass Sensor Name Source]: Enter the name of the heading sensor.
- [Compass Sensor Suitable Source]: Set the information to determine if the appropriate sensor is set.
- [Compass Primary Source]: Select the data source of the upper pointer.
- [Compass Secondary Source]: Select the data source of the lower pointer.
- [Primary Label]: Enter the title for the primary source.
- [Ruler Title]: Enter the title of the ruler.
- [Ruler Primary Source]: Select the data source of the white triangle pointer.
- [Ruler Secondary Source]: Select the data source of the gray triangle pointer.
- [Start Value]: Set the minimum value of the bar.
- [End Value]: Set the maximum value of the bar.
- [Decimal Place]: Check the checkbox to show the value after decimal point.
- [Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.
- [Color Indication]: Check [Enable] to set the background color in the ruler to the default display color.

• **Next Leg**

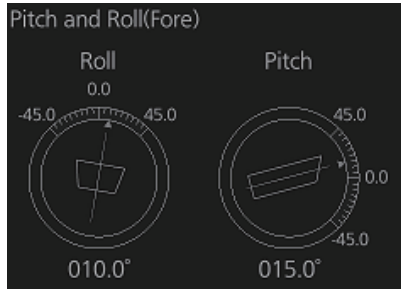
Next Leg	WPT No. 5
Next Course	083.2°
Next Leg Distance	15.19 NM
Next Leg Time	03:02'16"
Next Radius	1.00 NM
Remaining Distance	25.34 NM
Remaining Time	05:04'06"

1. INITIAL SETTINGS AND ADJUSTMENTS

- **Pitch And Roll**



Pitch And Roll																						
Title	Pitch and Roll(Alt)																					
Location	AFT																					
<table border="1"> <thead> <tr> <th></th> <th>Pitch And Roll1</th> <th>Pitch And Roll2</th> </tr> </thead> <tbody> <tr> <td>Title</td> <td>Roll</td> <td>Pitch</td> </tr> <tr> <td>Type</td> <td>Roll</td> <td>Pitch</td> </tr> <tr> <td>Primary Source</td> <td>NMEA,GP001_FEC/GPat_Rolling_Absolute</td> <td>NMEA,GP001_FEC/GPat_Pitching_Absolute</td> </tr> <tr> <td>Decimal Place</td> <td><input checked="" type="checkbox"/> Show</td> <td><input checked="" type="checkbox"/> Show</td> </tr> <tr> <td>Mathematical Sign</td> <td><input checked="" type="checkbox"/> Show</td> <td><input checked="" type="checkbox"/> Show</td> </tr> <tr> <td>Color Indication</td> <td><input checked="" type="checkbox"/> Enable</td> <td></td> </tr> </tbody> </table>			Pitch And Roll1	Pitch And Roll2	Title	Roll	Pitch	Type	Roll	Pitch	Primary Source	NMEA,GP001_FEC/GPat_Rolling_Absolute	NMEA,GP001_FEC/GPat_Pitching_Absolute	Decimal Place	<input checked="" type="checkbox"/> Show	<input checked="" type="checkbox"/> Show	Mathematical Sign	<input checked="" type="checkbox"/> Show	<input checked="" type="checkbox"/> Show	Color Indication	<input checked="" type="checkbox"/> Enable	
	Pitch And Roll1	Pitch And Roll2																				
Title	Roll	Pitch																				
Type	Roll	Pitch																				
Primary Source	NMEA,GP001_FEC/GPat_Rolling_Absolute	NMEA,GP001_FEC/GPat_Pitching_Absolute																				
Decimal Place	<input checked="" type="checkbox"/> Show	<input checked="" type="checkbox"/> Show																				
Mathematical Sign	<input checked="" type="checkbox"/> Show	<input checked="" type="checkbox"/> Show																				
Color Indication	<input checked="" type="checkbox"/> Enable																					
<input type="button" value="Cancel"/> <input type="button" value="OK"/>																						



[Title]: Enter the title of the component.

[Location]: Select the reference point for the pitch and roll from the pull-down list.

[Title (Pitch And Roll 1 / Pitch And Roll 2)]: Enter the text shown above [Pitch And Roll 1 (or 2)] indicator.

[Type]: Select the object to show in the [Pitch And Roll 1 (or 2)]. Setting range: [Roll], [Pitch].

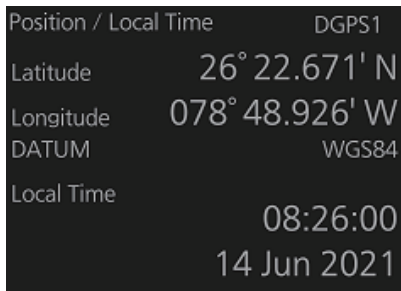
[Primary Source]: Select the data source of [Pitch And Roll 1 (or 2)] indicator.

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

[Color Indication]: Check [Enable] to set the background color in the meter to the default display color.

- **Position Local Time (Position, time display)**



Position Local Time	
Title	Position / Local Time
Latitude Label	Latitude
Longitude Label	Longitude
DATUM Label	DATUM
Local Time Label	Local Time
Latitude Source	OwnShip_Position(Primary).LAT(Integrity)
Longitude Source	OwnShip_Position(Primary).LON(Integrity)
DATUM Source	OwnShip_Position(Primary).DATUM
Local Time (Time) Source	OwnShip_Time_Time(Local)(Integrity)
Local Time (Date) Source	OwnShip_Time_Date(Local)(Integrity)
Sensor Name Source	OwnShip_Position(Primary).PositionSourceName(Integ)
Sensor Sutable Source	OwnShip_Position(Primary).PositionSutable
Check Time	<input checked="" type="checkbox"/> Enable
Time Check Source	
<input type="button" value="Cancel"/> <input type="button" value="OK"/>	

[Title]: Enter the title of the component.

[Latitude Label]: Enter the text to show at the left of the latitude value.

[Longitude Label]: Enter the text to show at the left of the longitude value.

[DATUM Label]: Enter the text that indicates the datum.

[Local Time Label]: Enter the text to show at the left of the time information.

[Latitude Source]: Select the data source of the latitude.

[Longitude Source]: Select the data source of the longitude.

[DATUM Source]: Select the data source of the datum.

[Local Time (Time) Source]: Select the data source of the time information.

[Local Time (Date) Source]: Select the data source of the date information.

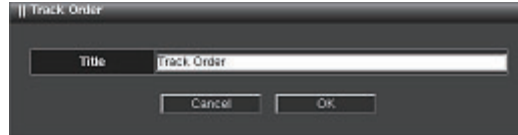
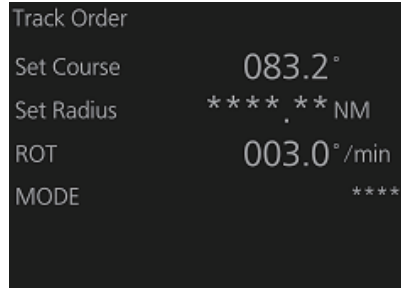
[Sensor Name Source]: Select the appropriate sensor name source.

[Sensor Suitable Source]: Set the source to determine if the appropriate sensor is configured.

[Check Time]: Check [Enable] to immediately judge data disconnection when the data from the signal source is interrupted.

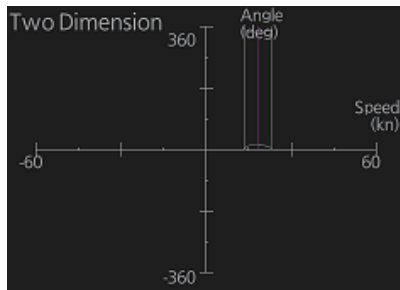
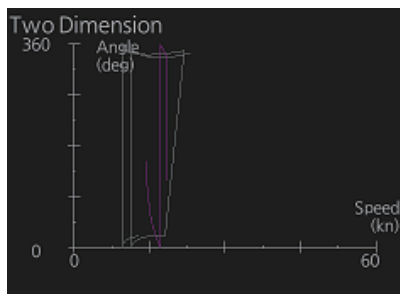
[Time Check Source]: Set the signal source that is to judge data disconnection.

• **Track Order**



[Title]: Enter the title of the component.

• **Two Dimension Plotter**



[Title]: Enter the title of the component.

[Source (X)]: Select the data source of the X-coordinate value.

[Source (Y)]: Select the data source of the Y-coordinate value.

[Label (Y)]: Enter the title of the Y-coordinate.

[Unit (Y)]: Set the unit of the Y-coordinate.

[Symbol]: Select the plot mark.

[Time Span]: Enter the time span for the plotter screen.

[Sample Interval]: Enter the sample interval for the plotter screen.

[Max Value (X)]: Enter the maximum value of the X-coordinate.

[Max Value (Y)]: Enter the maximum value of the Y-coordinate.

[Axis Point (X)]: Enter the axis point of X-coordinate.

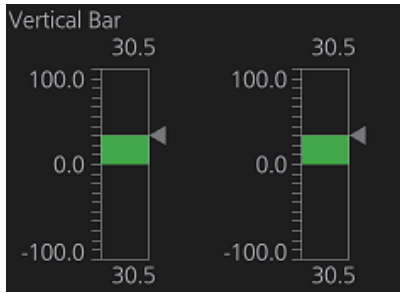
[Axis Point (Y)]: Enter the axis point of Y-coordinate.

[Axis Type]: Select the axis type. [Under Left]: The axis point is located at the under left of the screen. [Central]: The axis point is located at the center of the screen.

[Tick Label]: Check the checkbox to show the tick label.

1. INITIAL SETTINGS AND ADJUSTMENTS

• Vertical Bar



[Title]: Enter the title of the component.

[Top Source]: Select the data source of the data at the top of the vertical bar.

[Bottom Source]: Select the data source of the data at the bottom of the vertical bar.

[Primary Source]: Select the data source of the bar.

[Secondary Source]: Select the data source of the triangle indicator.

[Start Value]: Set the minimum value of the bar.

[End Value]: Set the maximum value of the bar.

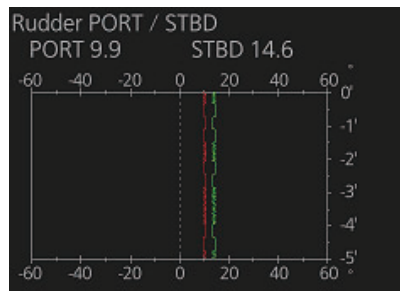
[Decimal Place]: Check the checkbox to show the value after decimal point.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

[Mirror Horizontally]: Check the checkbox to invert the position of the bar and value horizontally.

[Average Value]: Check the checkbox to show the average value.

• Vertical Graph (Middle)



[Title]: Enter the title of the component.

[Label Source]: Enter the source of text shown on the right of the graph. Manual input is available.

[Mode Source]: Enter the source of text shown on the right of the value indication. Manual input is available.

[Label]: Enter the title of [Primary] and [Secondary].

[Source]: Select the data source of [Primary] and [Secondary].

[Source (sub)]: Set the other data source in the same range as the data of [Primary]. The [Source (sub)] appears only when the source of [Secondary] is not entered.

[Unit]: Set the unit in the [Primary] and [Secondary].

[Line Color]: Select the display color for the [Primary] and [Secondary] graphs.

[Scale | Range]: Set the display range of the X-coordinate. [Primary] is for the range of the upper of the graph, [Secondary] is for the range of the lower of the graph.

[Time Span]: Set the display range of the Y-coordinate.

[Sample Interval]: Set the interval of the graph plot.

[Scale Resolution]: Select the scale resolution of the graph.

[Change button]: Check the checkbox to show the [Change] button. Click the [Change] button to show the [Vertical Graph (Middle)] hidden behind. Check the checkbox of [Show] in [Change Button] to show the component hidden behind.

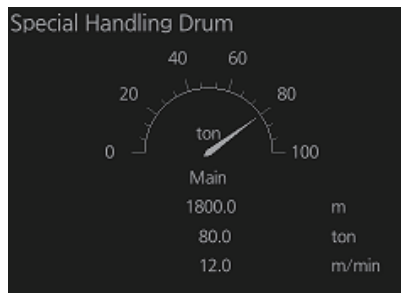
[Decimal Place]: Check the checkbox to show the value after decimal point.

[Secondary (Y2) Scale]: Check the check box to show the value input from the data source of [Secondary].

[Mathematical Sign (Scale)]: Check the checkbox to show the minus sign (-) when the value of the X-coordinate is minus.

[Mathematical Sign (Value)]: Check the checkbox to hide the minus sign (-) when the value above graph is minus.

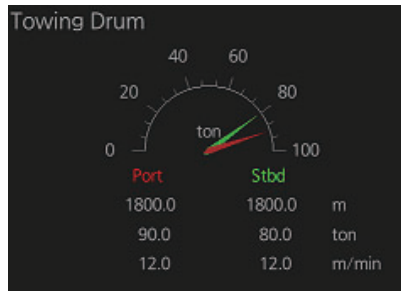
• **Winch**



Winch

Title	Towing Drum		Color Indication	<input checked="" type="checkbox"/> Enable
Type	<input checked="" type="radio"/> Main only <input type="radio"/> Port and Stbd			
	Main Source	Part Source	Stbd Source	Unit
Length	<input type="text" value=""/>	sd_Wire_Length(PWDA1)	sd_Wire_Length(PWDA1)	m
Power	<input type="text" value=""/>	l_Wire_Tension(PWDA1)	l_Wire_Tension(PWDA1)	kn
Speed	<input type="text" value=""/>	sd_Wire_Speed(PWDA1)	sd_Wire_Speed(PWDA1)	m/min
Start Value	<input type="text" value="0"/>			
End Value	<input type="text" value="100"/>			
Scale Resolution	COARSE			
Decimal Place	<input checked="" type="checkbox"/> Show		Mathematical Sign	<input checked="" type="checkbox"/> Show

Cancel OK



[Title]: Enter the title of the component.

[Color Indication]: Check [Enable] to show the pointer labels "Port" and "Stbd" in the meter in their default colors (only when [Port and Stbd] is selected).

[Type]: Select [Main only] or [Port and Stbd]. For [Main only], the information of only the main winch is shown. For [Port and Stbd], the information of each winch on both the port and starboard is shown.

[Length]: Set the source and unit of length for rope.

[Power]: Set the source and unit for rope winding force.

[Speed]: Set the source and unit for rope winding speed.

[Start Value]: Set the minimum value of the bar.

[End Value]: Set the maximum value of the bar.

[Scale Resolution]: Select the scale resolution of the graph.

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

1. INITIAL SETTINGS AND ADJUSTMENTS

• Winch Information



[Title]: Enter the title of the component.

[Color Indication]: Check [Enable] to show the labels "Port" and "Stbd" in their default colors.

[Length]: Set the source and unit of length for rope.

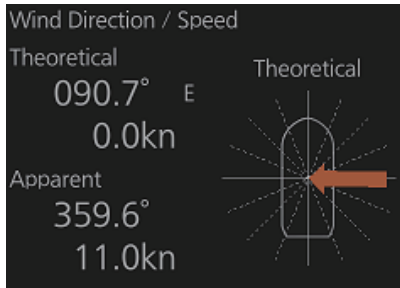
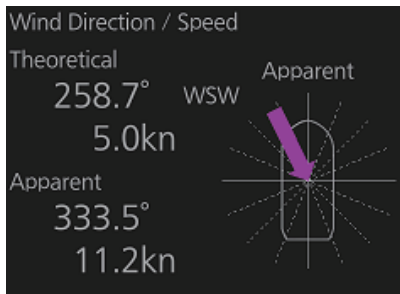
[Power]: Set the source and unit for rope winding force.

[Speed]: Set the source and unit for rope winding speed.

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

• Wind Direction



[Title]: Enter the title of the component.

[Location]: Select the reference point for the wind direction and speed from the pull-down list.

[Theoretical]

[Label]: Enter the data name for the theoretical wind direction and speed.

[Source]: Select the data source of the theoretical wind direction and speed.

[Apparent]

[Label]: Enter the data name for the apparent wind direction and speed.

[Source]: Select the data source of the apparent wind direction and speed.

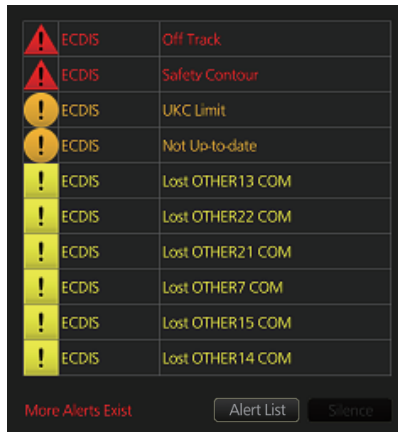
[Unit]: Set the unit of the wind direction and wind speed.

[Decimal Place]: Check the checkbox to show the value after decimal point.

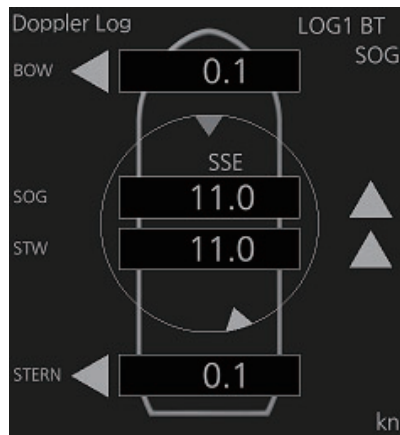
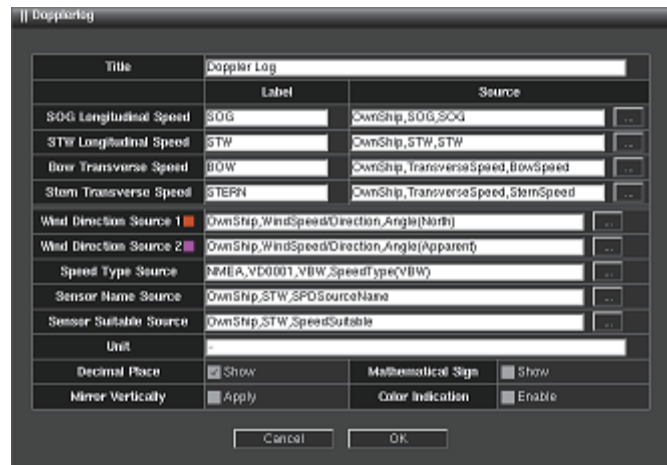
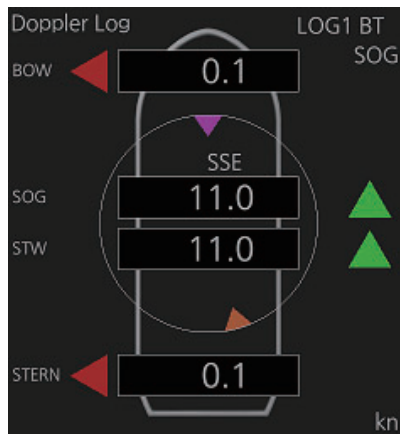
[Display Arrow]: Select the display method for the wind direction (arrow), (true wind direction: [Theoretical], or relative wind direction [Apparent]).

[Large] component (three or more blocks)

- Alert



- Doppler Log



[Title]: Enter the title of the component.

[SOG Longitudinal Speed]: Select the data source of the longitudinal SOG.

[STW Longitudinal Speed]: Select the data source of the longitudinal STW.

[Bow Transverse Speed]: Select the data source of the longitudinal speed at the bow position.

[Stern Transverse Speed]: Select the data source of the longitudinal speed at the stern position.

[Wind Direction Source 1 ■]: Select the source of true wind direction indicated as the red triangle in the center of the component.

[Wind Direction Source 2 ■]: Select the source of relative wind direction indicated as the red triangle in the center of the component.

1. INITIAL SETTINGS AND ADJUSTMENTS

[Speed Type Source]: Select the data source same as [Longitudinal Speed Source] to show the abbreviated name of the data source unit.

[Sensor Name Source]: Select the appropriate sensor name source.

[Sensor Suitable Source]: Set the source to determine if the appropriate sensor is configured.

[Unit]: Set the unit of the ship's speed.

[Decimal Place]: Check the checkbox to show the value after decimal point

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

[Mirror Vertically]: Check the checkbox to invert the display vertically.

[Color Indication]: Check [Enable] to show the indications for ground tracking speed, water tracking speed, longitudinal direction ship speed, transverse direction ship speed and wind direction in their default colors.

- **NAV Information**

Route Information	
Route	Route - GRAND TURK
Present Leg	WPT No. 3
Plan Course	083.2 °
Bearing to WOP	064.6 °
XTD Limit	1852.0 m
XTD	513.8 m
Distance to WOP	0.83 NM
Time to Go to WOL	00:09'56"
Turn Radius	1.00 NM
Next Leg	WPT No. 4
Next Course	083.2 °
Next Leg Distance	8.22 NM
Set Course	*** * *
MODE	
	◀ 159.9 °
Set and Drift	0.0 kn

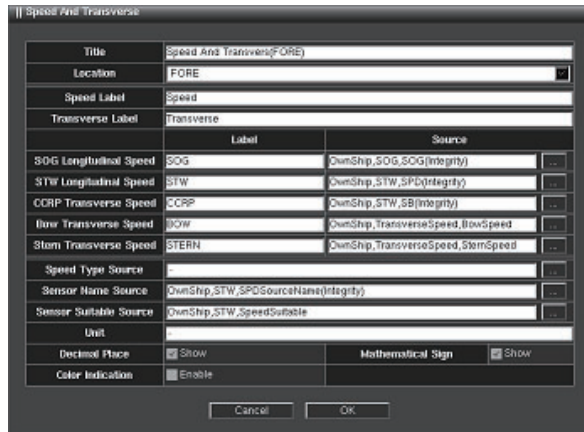
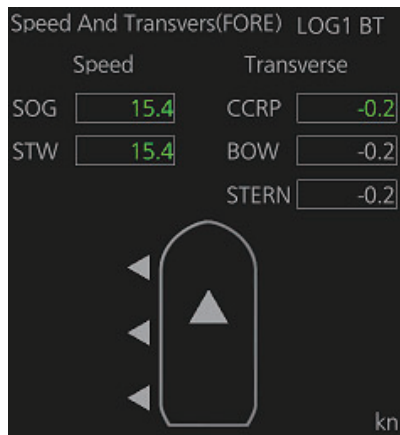
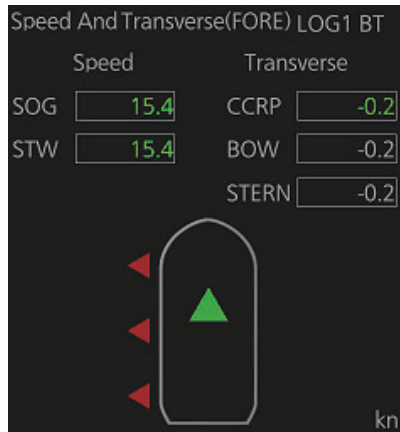
[Title]: Enter the title of the component.

[Component.Height]: Select the size of component.

- **Present Leg**

Route	Route - GRAND TURK
Present Leg	WPT No. 4
Plan Course	083.2 °
Bearing to WOP	063.6 °
XTD Limit	1852.0 m
XTD	6271.7 m
Distance to WOP	10.15 NM
Time to Go	02:01'50"
Turn Radius	1.00 NM

• **Speed And Transverse**



[Title]: Enter the title of the component.

[Location]: Select the reference point for the speed from the pull-down list.

[Speed Label]: Enter the title shown at the upper of the longitudinal speed value.

[Transverse Label]: Enter the title shown at the upper of the transverse speed value.

[SOG Longitudinal Speed]: Select the data source of the longitudinal SOG.

[STW Longitudinal Speed]: Select the data source of the longitudinal STW.

[CCRP Transverse Speed]: Select the data source of the longitudinal speed at the CCRP position.

[Bow Transverse Speed]: Select the data source of the longitudinal speed at the bow position.

[Stern Transverse Speed]: Select the data source of the longitudinal speed at the stern position.

[Speed Type Source]: Select the data source same as [Longitudinal Speed Source] to show the abbreviated name of the data source unit.

[Sensor Name Source]: Select the appropriate sensor name source.

[Sensor Suitable Source]: Set the source to determine if the appropriate sensor is configured.

[Unit]: Set the unit of the ship's speed.

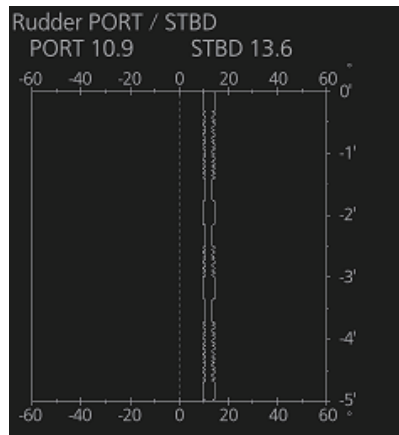
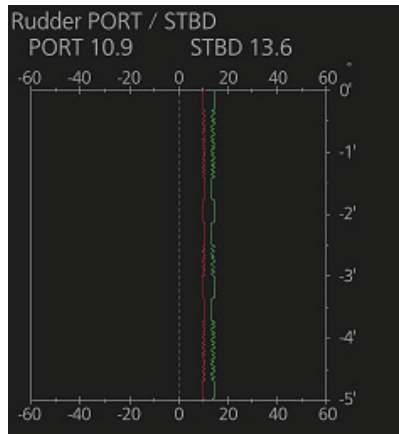
[Decimal Place]: Check the checkbox to show the value after decimal point

[Mathematical Sign]: Check the checkbox to show the minus sign (-) when the value is minus.

[Color Indication]: Check [Enable] to show the indications for ground tracking speed, water tracking speed, longitudinal direction ship speed, transverse direction ship speed and wind direction in their default colors.

1. INITIAL SETTINGS AND ADJUSTMENTS

• Vertical Graph



Title		Rudder PORT / STBD	
Label		Primary	Secondary
Label		PORT	STBD
Source		NMEA_ER0101_RSA_RudderAngleP(RSA)	NMEA_ER0101_RSA_RudderAngleS(RSA)
Source (sub)			
Unit			
Line Color		White	White
Scale Range		Min: -60 Max: 60	Min: -60 Max: 60
Time Span		5min	Sample Interval: 1sec
Scale Resolution		MEDIUM	Change Button: Show
Decimal Place		Show	Mathematical Sign(Scale): Show
Secondary(Y2) Scale		Show	Mathematical Sign(Value): Hide

[Title]: Enter the title of the component.

[Label]: Enter the title of [Primary] or [Secondary].

[Source]: Select the data source of [Primary] or [Secondary].

[Source (sub)]: Set the other data source in the same range as the data of [Primary]. The [Source (sub)] appears only when the source of [Secondary] is not entered.

[Unit]: Set the unit in the [Primary] or [Secondary].

[Line Color]: Select the display color for the [Primary] and [Secondary] graphs.

[Scale | Range]: Set the display range of the X-coordinate. [Primary] is for the range of the upper of the graph, [Secondary] is for the range of the lower of the graph.

[Time Span]: Set the display range of the Y-coordinate.

[Sample Interval]: Set the interval of the graph plot.

[Scale Resolution]: Select the scale resolution of the graph.

[Change button]: Check the checkbox to show the [Change] button. Click the [Change] button to show the [Vertical Graph (Middle)] hidden behind. Check the checkbox of [Show] in [Change Button] of the component hidden behind.

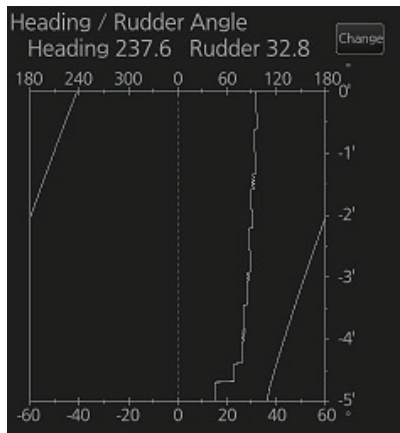
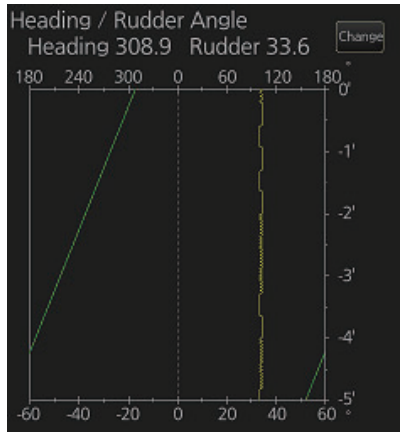
[Decimal Place]: Check the checkbox to show the value after decimal point.

[Secondary (Y2) Scale]: Check the check box to show the value input from the data source of [Secondary].

[Mathematical Sign (Scale)]: Check the checkbox to show the minus sign (-) when the value of the X-coordinate is minus.

[Mathematical Sign (Value)]: Check the checkbox to hide the minus sign (-) when the value above graph is minus.

- **Vertical Heading Graph**



Title		Heading / Rudder Angle	
Label	Heading	Rudder	Other
Source	OwnShip_Heading_Heading	NMEA_ER0501_RSA_RudderAngle(RSA)	
Source (sub)			
Unit			
Line Color	Green	Yellow	
Scale Range	Min	Max	Min
	0	360	180
Time Span	5min	Sample Interval	1sec
Scale Resolution	MEDIUM	Change Buttons	Show
Decimal Place	Show	Mathematical Sign (Scale)	Show
Secondary (Y2) Scale	Show	Mathematical Sign (Value)	Hide
<input type="button" value="Cancel"/> <input type="button" value="OK"/>			

[Title]: Enter the title of the component.

[Label]: Enter the title of [Heading] or [Other].

[Source]: Select the data source of [Heading] or [Other].

[Source (sub)]: Set the other data source in the same range as the data of [Heading]. The [Source (sub)] appears only when the source of [Other] is not entered.

[Unit]: Set the unit in the [Heading] and [Other].

[Line Color]: Select the display color the [Heading] and [Other] graphs.

[Scale | Range]: Set the display range of the X-coordinate. [Heading] is for the range of the upper of the graph, [Other] is for the range of the lower of the graph.

[Time Span]: Set the display range of the Y-coordinate.

[Sample Interval]: Set the interval of the graph plot.

[Scale Resolution]: Select the scale resolution of the graph.

[Change button]: Check the checkbox to show the [Change] button. Click the [Change] button to show the [Vertical Heading Graph] hidden behind. Check the checkbox of [Show] in [Change Button] of the component hidden behind.

[Decimal Place]: Check the checkbox to show the value after decimal point.

[Secondary (Y2) Scale]: Check the check box to show the value input from the data source of [Secondary].

[Mathematical Sign (Scale)]: Check the checkbox to show the minus sign (-) when the value of the X-coordinate is minus.

[Mathematical Sign (Value)]: Check the checkbox to hide the minus sign (-) when the value above graph is minus.

1.14 The Network Transmission Setting Between ECDIS and Radar

Connect the ECDIS and radar (FAR-2xx7/FAR-2xx8/FCR-2xx9/FAR-3xx0 series) with the LAN cable to show the radar echo and TT symbols on the ECDIS chart display, and show the ECDIS route and user chart symbol on the radar display.

For non-FURUNO radar, the ECDIS chart display can show the radar echo and TT symbol on the ECDIS chart display by connecting the ECDIS and radar by serial interface, using the radar connection box (RCB-002).

For FAR-2xx7, FCR-2xx9 series

Note: Confirm that the SPU board program version of the FAR-2xx7/FCR-2xx9 series is version "03.50" or after.

1. On the SPU board of the FAR-2xx7 and FCR-2xx9 series radars, set the Dip SW (S4) to ON.
2. To connect two antenna units, change the antenna number of second antenna unit to [2] and set the IP address and subnet mask as shown below.

IP address: 192.168.031.102

Subnet mask: 255.255.255.0

3. Do one of the two procedures below according to the radar connected.

For FAR-2xx7 series

- 1) Press the **MENU** key to open the main menu.
- 2) Press and hold the **1 HL OFF** key, then press the **MENU** key five times to open the [INITIALIZE] menu.
- 3) Open [8. OTHERS] → [5. INS], then select [LAN].
- 4) Go back to the [INITIALIZE] menu and open [6. TT PRESET] → [2. TT DATA OUTPUT], then select [TTM], [TRUE] and [4800].

For FCR-2xx9 series

- 1) Press and hold the **1 HL OFF** key, then press the **MENU** key five times.
 - 2) Select [9 RADAR INSTALLATION]→[4 TT PRESET]→[1 TTM/TTD PREFERENCE] and then select [TRUE].
4. Access the [Common Installation Setting] menu on the ECDIS.
 5. Open the [Own Ship Setting] menu, then select [Radar Antenna] on the menu bar.
 6. For one antenna unit, check [RAS001]. For two antenna units, check [RAS001] and [RAS002].

For FAR-3xx0 series

1. Press and hold the **1 HL OFF** key, then press the **MENU** key five times.
2. Select [9 RADAR INSTALLATION]→[4 TT PRESET]→[1 TTM/TTD PREFERENCE] and then select [TRUE].
3. Access the [Common Installation Setting] menu on the ECDIS.
4. Open the [Own Ship Setting] menu, then select [Radar Antenna] on the menu bar.
5. For one antenna unit, check [RAS001]. For two antenna units, check [RAS001] and [RAS002].

For FAR-2xx8 series

1. Press and hold the **1 HL OFF** key, then press the **MENU** key five times to open the [RADAR INSTALLATION] menu.
2. Select [0 NEXT].
3. Select [2 NETWORK SETTINGS], then set [2 LAN1•3 IP ADDRESS] to [CLASS C].
4. Go back to the first page of the [RADAR INSTALLATION] menu, then select [5 INSTALLATION].
5. Set the antenna number ([3 RADAR NO]), taking care not to duplicate the antenna number of other radars.
6. Go back to the second page of the [RADAR INSTALLATION] menu, then select [3 OTHER SETTINGS].
7. Set [4 ECDIS] to [LAN].
8. Go back to the first page of the [RADAR INSTALLATION] menu, then select [6 TT PRESET] → [2 TT DATA OUTPUT].
9. Set [2 SELECT SENTENCE] to [TTM] or [TTD].
10. Set [3 TTM/TTD REFERENCE] to [TRUE].
11. If you want to share the ship's speed and location data with the ECDIS, select [ECDIS] on the either of the following menu items:
 - Main menu → [7 INFORMATION BOX] → [2 OWN SHIP INFO] → [3 SPEED] → [2 SHIP SPEED]
 - Main menu → [7 IINFORMATION BOX] → [2 OWN SHIP INFO] → [4 OWN SHIP POSN] → [2 POSITION SOURCE]

Note: The settings for the above two menu items are shared. When either one is changed, the other is also changed.
12. If you want to show the marks received from the ECDIS on the FAR-2xx8 screen, open the main menu → [2 MARKS] → [6 ECDIS MARKS DISPLAY], then select [ON] or [OFF] as appropriate.
13. Access the [Common Installation Setting] menu on the ECDIS.
14. Open the [Own Ship Setting] menu, then select [Radar Antenna] on the menu bar.
15. For one antenna unit, check [RAS001]. For two antenna units, check [RAS001] and [RAS002].

For non-FURUNO radar

1. Open [Installation Parameters]→[Sensor Setting]→[Other Sensor] menu on the ECDIS.
2. Check [OTR001] and enter "RA0201" in the [SFID] field. Do not use other than [RA0201] to [RA0204].

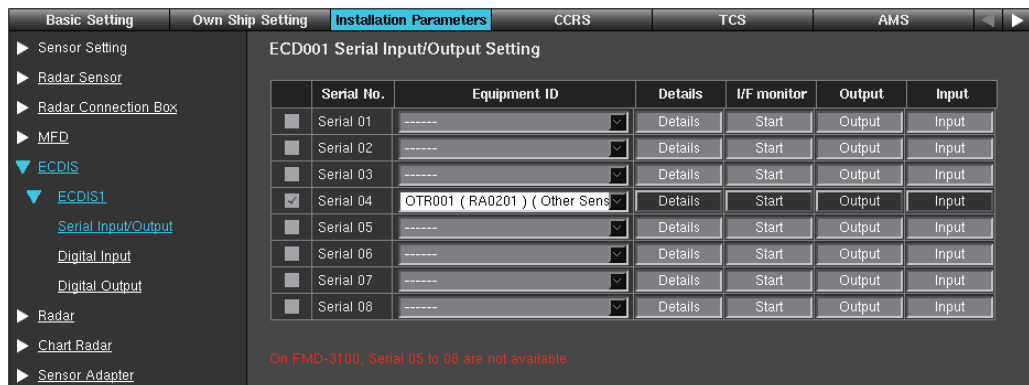
Note 1: When entering the SFID, do not use the prefix "AI" (AIS excluded) or "II".

Note 2: Do not enter the same SFID as any other equipment in the network.

1. INITIAL SETTINGS AND ADJUSTMENTS

	Equipment ID	SFID	Data Type	Strict / Loose	Details
<input checked="" type="checkbox"/>	OTR001	RA0201	IEC61162-1 Ed4	Loose	Details
<input type="checkbox"/>	OTR002		IEC61162-1 Ed4	Loose	Details
<input type="checkbox"/>	OTR003		IEC61162-1 Ed4	Loose	Details
<input type="checkbox"/>	OTR004		IEC61162-1 Ed4	Loose	Details
<input type="checkbox"/>	OTR005		IEC61162-1 Ed4	Loose	Details
<input type="checkbox"/>	OTR006		IEC61162-1 Ed4	Loose	Details

3. Select [Serial Input/Output] of the PCU you want to set on the menu bar.
4. Check the serial port to receive the TT symbol data and select "OTR001" from the [Equipment ID] drop-down list.
The example shown below indicates that the [Serial 04] port of [ECD001] receives the TT symbol data.

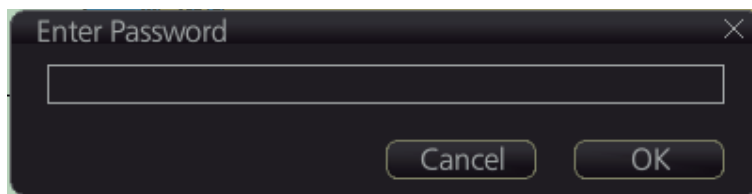


1.15 How to Set the Forwarding Distance

Set the forwarding distance* as follows. The configuration can be copied to other units connected to the network after saving the configuration.

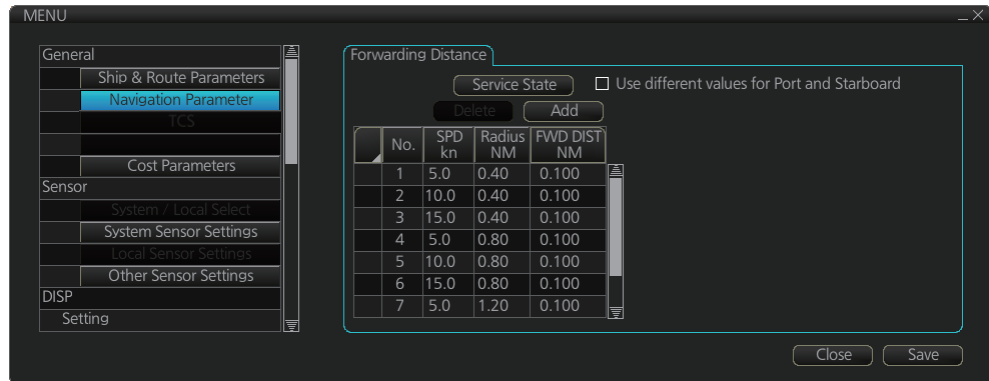
*: The distance the ship travels straight after the steering control.

1. Press **Ctrl**, **Shift** and **t** keys simultaneously on the control unit or keyboard. A dialog box for entry of password appears.

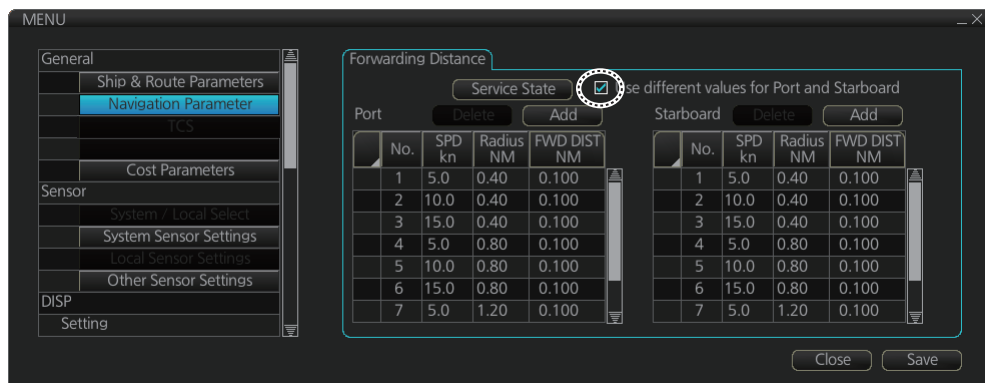


2. Enter the password and click the [OK] button.
Note: The edit mode is enabled until you press **Ctrl**, **Shift** and **t** keys simultaneously or reboot the unit.
3. Click [MENU] to open the menu.

- Click [Navigation Parameter] to show the [Navigation Parameter] setting window.



- Enter [SPD kn] (ship speed), [Radius NM] (turning radius) and [FWD DIST NM] (forwarding distance*).
- When [FWD DIST NM] is different between port and starboard sides, check the checkbox of "Use different values for Port and Starboard" and then enter each setting value.



- Click [Save] button to save the configuration.

1.16 Synchronization With Ship's Clock

The time (UTC) received from the GPS is shown. If the ZDA sentence is input from the ship's clock, the time synchronized with the ship's clock can be shown.

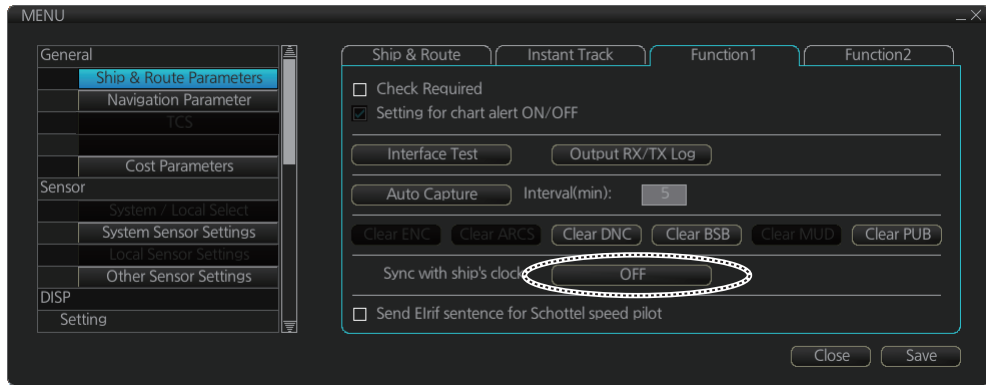
Do as follows to activate the synchronization with the ship's clock.

Note: The local time setting is not available when the synchronization with ship's clock is active.

- Press **Ctrl**, **Shift** and **t** keys simultaneously on the control unit or keyboard. The password input dialog box appears.
- Enter the password and click the [OK] button.
Note: The service mode remains enabled until you press **Ctrl**, **Shift** and **t** keys simultaneously or reboot the unit.
- Click [MENU] to open the menu.

1. INITIAL SETTINGS AND ADJUSTMENTS

- Click [Ship & Route Parameters], then click the [Function1] tab.

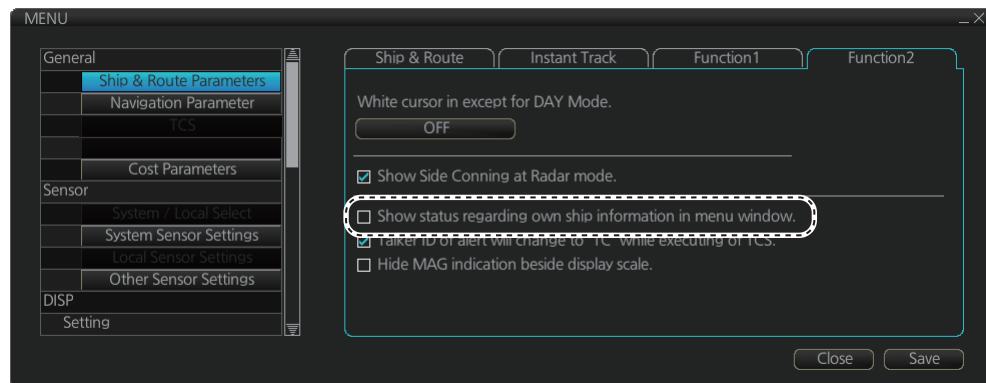


- Click the [OFF] button of [Sync with ship's clock] to set "ON".
- Click the [Save] button to save the configuration.

1.17 How to Display the Result of the Consistency Check in the Menu

Do the following to display the result of the consistency check in the menu.

- Press **Ctrl**, **Shift** and **t** keys simultaneously on the control unit or keyboard. The password input dialog box appears.
- Enter the password and click the [OK] button.
Note: The service mode remains enabled until you press **Ctrl**, **Shift** and **t** keys simultaneously or reboot the unit.
- Click [MENU] to open the menu.
- Click [Ship & Route Parameters], then click the [Function2] tab.



- Check the checkbox of [Show status regarding own ship information in menu window].
- Click the [Save] button to save the configuration.

2. SETTINGS FOR SENSOR ADAPTER

The default Equipment ID of the Sensor Adapter is “MCV016”. Set the individual Equipment ID before connecting to the network.

Connect the Sensor Adapter to the ECDIS unit after setting the Equipment ID. Then enter the other settings of the Sensor Adapter from the [Common Installation Setting] menu on the ECDIS unit.

2.1 How to Set the Equipment ID

1. Set the IP address and subnet mask of the PC as shown below.
IP address: 172.31.16.200
Subnet mask: 255.255.0.0
2. Connect the laptop PC to the Sensor Adapter with the LAN cable.
3. Activate the web browser on the PC and enter the default IP address of the sensor adapter: “172.31.17.108”.
4. Access the [Common Installation Setting] menu and click [Basic Setting] on the tab bar.

The screenshot shows the 'Basic Setting' web interface for the Sensor Adapter. The interface has a tab bar at the top with 'Basic Setting' selected. Below the tab bar, there are several tabs: 'Basic Setting', 'Installation Parameters', 'Alert Define List', 'Save', 'System Monitor', and 'Factory Test & Default'. The main content area is titled 'Basic Setting' and contains a 'Sensor Adapter' section with the following fields:

- Equipment ID: MCV016 (dropdown menu)
- Equipment Name: Sensor Adapter16
- Equipment Type No.: MC-3000S (dropdown menu)
- Subsystem: A
- IP Address: 172.31.17.108 (text input field)
- Sensor Network: (text input field)
- Set Default: (button)

5. Select the Equipment ID from the drop-down list. The [Equipment Name], [Equipment Type No.] and [IP Address] are automatically entered according to the Equipment ID.

Setting range: “MCV001” to “MCV016”

Note 1: The properties of data transmitted under IEC61162-450 protocol are changed according to the Equipment ID settings. The Sensor Adapter's SFIDs change as shown in the following table.

Equipment ID	SFID	Equipment ID	SFID
MCV001	SI0101	MCV009	SI0109
MCV002	SI0102	MCV010	SI0110
MCV003	SI0103	MCV011	SI0111
MCV004	SI0104	MCV012	SI0112
MCV005	SI0105	MCV013	SI0113
MCV006	SI0106	MCV014	SI0114
MCV007	SI0107	MCV015	SI0115
MCV008	SI0108	MCV016	SI0116

Note 2: Click the [Set Default] button in the [Sensor Network]field to change the IP address of the sensor network to "192.168.0.1". Normally, do not use this item.

2. SETTINGS FOR SENSOR ADAPTER

6. After entering the setting, click [Save] on the Info bar. Several confirmation messages appear. Click [OK] to reboot the system.
If you want to discard the entry, click [Discard Changes].

How to restore the default Equipment ID

When you can not define the Equipment ID of the Sensor Adapter, restore the default and set the Equipment ID again.

1. Turn on the No. 8 segment of the DIP switch S10 on the board in the MC-3000S.
2. Turn on the Sensor Adapter.
The Equipment ID of the Sensor Adapter turns to default "MCV016", and the IP address is set to "172.31.17.108".
3. See section 2.1 for how to set the Equipment ID of the Sensor Adapter.
4. Turn off the No. 8 segment of the DIP switch S10 on the board in the MC-3000S.

2.2 How to Update the Firmware (MC-3000S)

This section shows you how to update the firmware program of the sensor adapter MC-3000S.

Preparation

- PC that has a LAN port
Windows[®] XP is recommended. Disable the firewall and set the IP address and subnet mask of the PC as shown below.
IP address: 172.31.16.200
Subnet mask: 255.255.0.0
- LAN cable
- Binary file for update

2450080-xxxxxxx_mc_cs_boot.bin	Boot program
2450081-xxxxxxx_mc_cs_mainpg.bin	Main program
2450082-xxxxxxx_mc_cs_maint.bin	Maintenance program
2450084-xxxxxxx_mc_io_mainpg.bin	Main program (analog, digital input, and digital output board)

(xxxxxxx: program version)

2.2.1 How to activate the maintenance program

1. Turn off all Sensor Adapters.
2. Connect the applicable MC-3000S to the PC with the LAN cable.
3. Turn on the No. 6 of the DIP-SW (S10) on the MC-CS board (24P0114).
4. Turn on the Sensor Adapter MC-3000S.
5. The maintenance program activates after about 30 seconds. At this time, the IP address of MC-3000S is changed to "172.31.17.108".
Confirm that the LED (CR 74) on the MC-CS board lights 3 times and goes off for a while repeatedly.

2.2.2 How to confirm the firmware program version

1. Activate the maintenance program of the sensor adapter MC-3000S.
2. Activate the command prompt of Windows®.
3. Enter “telnet 172.31.17.108” on the command prompt.
4. Enter the user name and password correctly.

```
C:¥telnet 172.31.17.108 ← Enter the telnet command.
Trying 172.31.17.108...
Connected 172.31.17.108
Escape character is '^]'.
MC_CS_MAINTENANCE login: ← Enter the user name.
Password: ← Enter the user password.
```

5. Enter “/usr/sbin/version” on the command prompt to confirm the program version. The program version is shown on the command prompt.

```
~$ /usr/sbin/version ← The command to confirm the program version.
MC C/S BOOTLOADER-1st : 2450080-01.01 } Boot program
MC C/S BOOTLOADER-2nd : 2450080-01.01 }
MC C/S MAIN : 2450081-01.01 Main program
MC C/S MAINTENANCE : 2450082-01.01 Maintenance program
~$ exit ← After the confirmation the program version, enter “exit”.
```

Note: The image shown above is an example. The program version number may be different.

6. After confirming the program version, enter “exit” to finish the telnet command.

2.2.3 How to update the firmware program

1. Delete the version number from the firmware binary file name.

Example : 2450081-01010088_mc_cs_mainpg.bin

↑ Program number ↑ Version number



Delete the version number from the file name.

Example : 2450081_mc_cs_mainpg.bin

2. Activate the maintenance program of the Sensor Adapter MC-3000S.
3. Activate the command prompt of Windows®.
4. Change the current directory to the directory where the firmware binary program is saved.

In the example shown below, binary file is saved at C:¥update .

```
C: ← The command to change the current drive
cd ¥update ← The command to change the current directory
```

2. SETTINGS FOR SENSOR ADAPTER

Note: Change the current directory to the one where the binary file is saved.

5. Enter "ftp 172.31.17.108" on the command prompt.
Confirm that "220-MC3000_CS_MAINTENANCE" is shown.
6. Enter the user name and password.

```
ftp 172.31.17.108  ⇐ Enter the ftp command.
Connected to 172.31.17.108.
220- MC3000_CS_MAINTENANCE  ⇐ Confirm that this message appears.
220 MC_CS_MAINTENANCE FTP server (Version 6.4/OpenBSD/Linux-ftpd-0.17) ready.
Name (172.31.17.108:tanaka-toshihisa): ⇐ Enter the username.
331 Password required for root.
Password: ⇐ Enter the password.
```

7. After the login, enter "dir".
The file names that are saved in the Sensor Adapter are displayed. Confirm that the file names shown below are shown on the display.

```
Name (172.31.17.108:tanaka-toshihisa): ⇐ Enter the username.
331 Password required for root.
Password: ⇐ Enter the password.
230 User root logged in.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> dir  ⇐ Enter "dir" .
200 PORT command successful.
150 Opening ASCII mode data connection for '/bin/ls' .
crw-r--r--  1 root  root  90,  2 Sep 30  2011 2450080_mc_cs_boot.bin
crw-r--r--  1 root  root  90,  4 Sep 30  2011 2450081_mc_cs_mainpg.bin
crw-r--r--  1 root  root  90,  6 Sep 30  2011 2450082_mc_cs_maint.bin
crw-r--r--  1 root  root  90, 12 Sep 30  2011 2450084_mc_io_mainpg.bin
drwr-xr-x  2 root  root      0 Sep 30  2011 backup
226 Transfer complete
ftp>
```

Check these file names.

8. Enter "bin", and then enter "hash".
9. Enter the command to transfer the firmware program.
Example: put 24500810_mc_cs_mainpg.bin
10. When you transfer other program, enter the command to transfer the program.

11. Enter “bye” to finish updating the firmware program.

```
ftp> bin ← Enter necessarily.
200 Type set to I.
ftp> hash ← Enter necessarily.
Hash mark printing on (1024 bytes/hash mark).
ftp> put 2450081_mc_cs_mainpg.bin ← The command to transfer the firmware program.
local: 2450081_mc_cs_mainpg.bin remote: 2450081_mc_cs_mainpg.bin
200 PORT command successful.
150 Opening BINARY mode data connection for '2450081_mc_cs_mainpg.bin'.
#####
...
#####
226 Transfer complete.
10888576 bytes sent in 87.84 secs (121.1 kB/s)
ftp> bye ← The command to finish the ftp command.
221 Goodbye
```

12. Confirm the firmware program version (see section 2.2.2).

2. SETTINGS FOR SENSOR ADAPTER

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3. HUB-3000 IGMP QUERIER SETTINGS

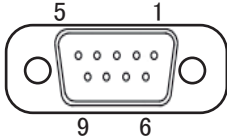
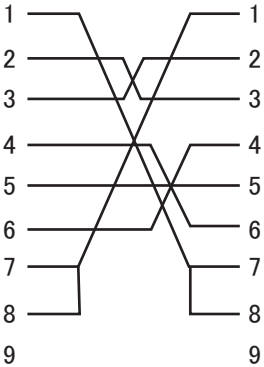
When constructing a network with two or more FAR-2xx7 radars via HUB-3000, set the IGMP querier of the HUB-3000.

Items to prepare

- PC with RS-232C serial port (with D-SUB9 pin connections)
- RS-232C serial crossover cable (with D-SUB9 pin connections)
- Software to control a serial device (HyperTerminal, TeraTerm, Putty, etc.)

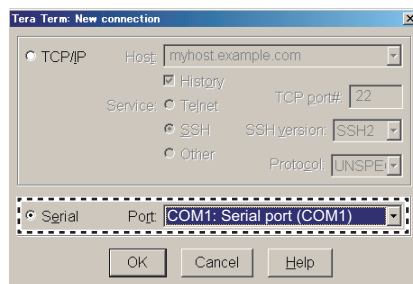
Note: This manual uses TeraTerm in the explanations and procedure which follow.

RS-232C crossover cable

Pin locations (Female)	Pin No.	Signal	Connection
	1	NC	
	2	RD	
	3	SD	
	4	NC	
	5	SG	
	6	NC	
	7	NC	
	8	NC	
	9	NC	
	Shell	FG	

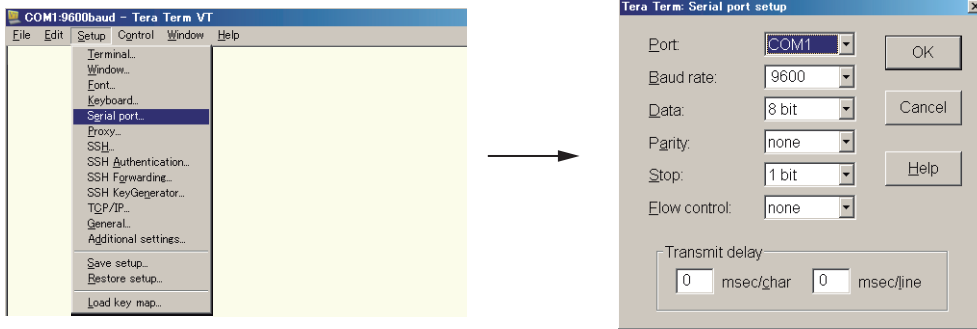
Procedure

1. Connect the RS-232C serial cable to the PC serial port.
2. Connect the loose end of the RS-232C serial cable to the HUB-3000 serial port.
Note: When removing the serial cable, disconnect the HUB-3000 first, then disconnect the PC.
3. Start the TeraTerm application on the PC.
4. Click the [Serial Port] radio button, then select the connected COM port from the drop-down menu.



3. HUB-3000 IGMP QUERIER SETTINGS

- Click [OK].
- Click [Setup], then [Serial port] to open the [Serial port setup] window.



- Change the settings as shown below, then click [OK].
Baud rate : 9600 Data : 8 bit Parity : none
Stop : 1 bit Flow Control : none
- Press the **Enter** key. You will be prompted for a Username and Password.
- Enter the [Username] and [Password] as shown below, then press the **Enter** key.

```
Username: admin
Password: admin
                Welcome to  HUB-3000 GigabitHUB
Switch>
```

- Input “enter” at the “Switch>” line, then press the **Enter** key.
- Press the **Enter** key again.
- At the “Switch#” line, input “show ip igmp-snooping”, then press the **Enter** key. The current settings for the HUB-3000 will be displayed.

```
Switch> enter
Switch#Jan  1 20:32:14 User admin enter privilege mode from console 0, level
= 15
Switch# show ip igmp-snooping
Global IGMP snooping configuration:
-----
Globally enable      : Enabled
VLAN nodes           : 1
Dlf-frames filtering : Enabled
Sensitive            : Disabled
Querier              : Disabled
Querier address      : 10.0.0.200
Router age           : 260 s
```

If the “Querier” line shows “Enabled”, skip to step 17.

If the “Querier” line shows “Disabled”, go to step 13.

- At the “Switch#” line, input “config” then press the **Enter** key.
- At the “Switch_config#” line, input “ip igmp-snooping querier” then press the **Enter** key.
- At the “Switch_config#” line, input “show ip igmp-snooping” then press the **Enter** key.
- The “Querier” line should now show “Enabled”. If not, repeat steps 13 to 15.

17. At the “Switch#” line, input “write” then press the **Enter** key. This will save the configuration.

```
Switch# config
Switch_config# ip igmp-snooping querier
Switch_config# show ip igmp-snooping

Global IGMP snooping configuration:
-----
Globally enable      : Enabled
VLAN nodes           : 1
Dlf-frames filtering : Enabled
Sensitive             : Disabled
Querier              : Enabled
Querier address      : 10.0.0.200
Router age           : 260 s
Response time        : 15 s

Switch_config# write
Saving current configuration...
OK!
```

18. When the write process finishes, the HUB-3000 will restart.
19. Referring to steps 8 through 12, check to make sure the “Querier” line is showing “Enabled”. If the “Querier” line shows “Disabled”, repeat the above procedure.

3. HUB-3000 IGMP QUERIER SETTINGS

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APPX. 1 EQUIPMENT ID LIST

Equipment ID	Equipment Name	Gateway Network	Sensor Network	Remarks
MFD001	MFD1	192.168.31.51	172.31.16.51	
MFD002	MFD2	192.168.31.52	172.31.17.51	
MFD003	MFD3	192.168.31.53	172.31.16.52	
MFD004	MFD4	192.168.31.54	172.31.17.52	
MFD005	MFD5	192.168.31.55	172.31.16.53	
MFD006	MFD6	192.168.31.56	172.31.17.53	
MFD007	MFD7	192.168.31.57	172.31.16.54	
MFD008	MFD8	192.168.31.58	172.31.17.54	
MFD009	MFD9	192.168.31.59	172.31.16.55	
MFD010	MFD10	192.168.31.60	172.31.17.55	
MFD011	MFD11	192.168.31.61	172.31.16.56	
MFD012	MFD12	192.168.31.62	172.31.17.56	
MFD013	MFD13	192.168.31.63	172.31.16.57	
MFD014	MFD14	192.168.31.64	172.31.17.57	
MFD015	MFD15	192.168.31.65	172.31.16.58	
MFD016	MFD16	192.168.31.66	172.31.17.58	
ECD001	ECDIS1	192.168.31.1	172.31.16.1	Default setting for PCU-3010
ECD002	ECDIS2	192.168.31.2	172.31.17.1	
ECD003	ECDIS3	192.168.31.3	172.31.16.2	
ECD004	ECDIS4	192.168.31.4	172.31.17.2	
ECD005	ECDIS5	192.168.31.5	172.31.16.3	
ECD006	ECDIS6	192.168.31.6	172.31.17.3	
ECD007	ECDIS7	192.168.31.7	172.31.16.4	
ECD008	ECDIS8	192.168.31.8	172.31.17.4	
ECD009	ECDIS9	192.168.31.9	172.31.16.5	
ECD010	ECDIS10	192.168.31.10	172.31.17.5	
ECD011	ECDIS11	192.168.31.11	172.31.16.6	
ECD012	ECDIS12	192.168.31.12	172.31.17.6	
ECD013	ECDIS13	192.168.31.13	172.31.16.7	
ECD014	ECDIS14	192.168.31.14	172.31.17.7	
ECD015	ECDIS15	192.168.31.15	172.31.16.8	
ECD016	ECDIS16	192.168.31.16	172.31.17.8	
RAD001	Radar1	192.168.31.21	172.31.16.11	
RAD002	Radar2	192.168.31.22	172.31.17.11	
RAD003	Radar3	192.168.31.23	172.31.16.12	
RAD004	Radar4	192.168.31.24	172.31.17.12	
RAD005	Radar5	192.168.31.25	172.31.16.13	
RAD006	Radar6	192.168.31.26	172.31.17.13	
RAD007	Radar7	192.168.31.27	172.31.16.14	
RAD008	Radar8	192.168.31.28	172.31.17.14	
RAD009	Radar9	192.168.31.29	172.31.16.15	
RAD010	Radar10	192.168.31.30	172.31.17.15	
RAD111	FAR-2x8 Radar1	192.168.31.21	172.31.16.11	

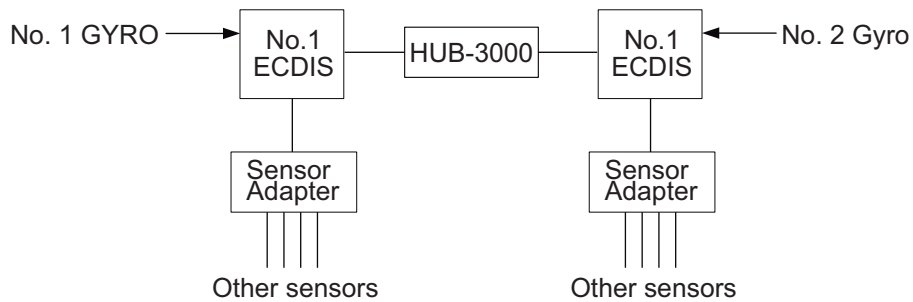
APPX. 1 EQUIPMENT ID LIST

Equipment ID	Equipment Name	Gateway Network	Sensor Network	Remarks
RAD112	FAR-2xx8 Radar2	192.168.31.22	172.31.17.11	
RAD113	FAR-2xx8Radar3	192.168.31.23	172.31.16.12	
RAD114	FAR-2xx8 Radar4	192.168.31.24	172.31.17.12	
RAD115	FAR-2xx8 Radar5	192.168.31.25	172.31.16.13	
RAD116	FAR-2xx8Radar6	192.168.31.26	172.31.17.13	
RAD117	FAR-2xx8Radar7	192.168.31.27	172.31.16.14	
RAD118	FAR-2xx8 Radar8	192.168.31.28	172.31.17.14	
CRA001	Chart Radar1	192.168.31.31	172.31.16.21	
CRA002	Chart Radar2	192.168.31.32	172.31.17.21	
CRA003	Chart Radar3	192.168.31.33	172.31.16.22	
CRA004	Chart Radar4	192.168.31.34	172.31.17.22	
CRA005	Chart Radar5	192.168.31.35	172.31.16.23	Do not Select.
CRA006	Chart Radar6	192.168.31.36	172.31.17.23	
CRA007	Chart Radar7	192.168.31.37	172.31.16.24	
CRA008	Chart Radar8	192.168.31.38	172.31.17.24	
CRA009	Chart Radar9	192.168.31.39	172.31.16.25	
CRA010	Chart Radar10	192.168.31.40	172.31.17.25	
RAS001	Radar Sensor1	192.168.31.101	-	
RAS002	Radar Sensor2	192.168.31.102	-	
RAS003	Radar Sensor3	192.168.31.103	-	
RAS004	Radar Sensor4	192.168.31.104	-	
RAS005	Radar Sensor5	192.168.31.105	-	Do not Select.
RAS006	Radar Sensor6	192.168.31.106	-	
RAS007	Radar Sensor7	192.168.31.107	-	
RAS008	Radar Sensor8	192.168.31.108	-	
RAS009	Radar Sensor9	192.168.31.109	-	
RAS010	Radar Sensor10	192.168.31.110	-	
MCV001	Sensor Adapter1	-	172.31.16.101	
MCV002	Sensor Adapter2	-	172.31.17.101	
MCV003	Sensor Adapter3	-	172.31.16.102	
MCV004	Sensor Adapter4	-	172.31.17.102	
MCV005	Sensor Adapter5	-	172.31.16.103	
MCV006	Sensor Adapter6	-	172.31.17.103	
MCV007	Sensor Adapter7	-	172.31.16.104	
MCV008	Sensor Adapter8	-	172.31.17.104	
MCV009	Sensor Adapter9	-	172.31.16.105	
MCV010	Sensor Adapter10	-	172.31.17.105	
MCV011	Sensor Adapter11	-	172.31.16.106	
MCV012	Sensor Adapter12	-	172.31.17.106	
MCV013	Sensor Adapter13	-	172.31.16.107	
MCV014	Sensor Adapter14	-	172.31.17.107	
MCV015	Sensor Adapter15	-	172.31.16.108	
MCV016	Sensor Adapter16	-	172.31.17.108	Default setting for sensor adapter

APPX. 2 SUBSYSTEM

Where the network configuration requires the use of a HUB-3000, the [Subsystem] settings must also be configured. For example, in a configuration like the one below, if the Subsystem settings are not configured, No. 1 ECDIS can only receive data from No. 1 Gyro, and No. 2 ECDIS can only receive data from No. 2 Gyro.

By configuring the Subsystem settings, the HUB-3000 allows the sharing of sensor data between No. 1 ECDIS and No. 2 ECDIS.

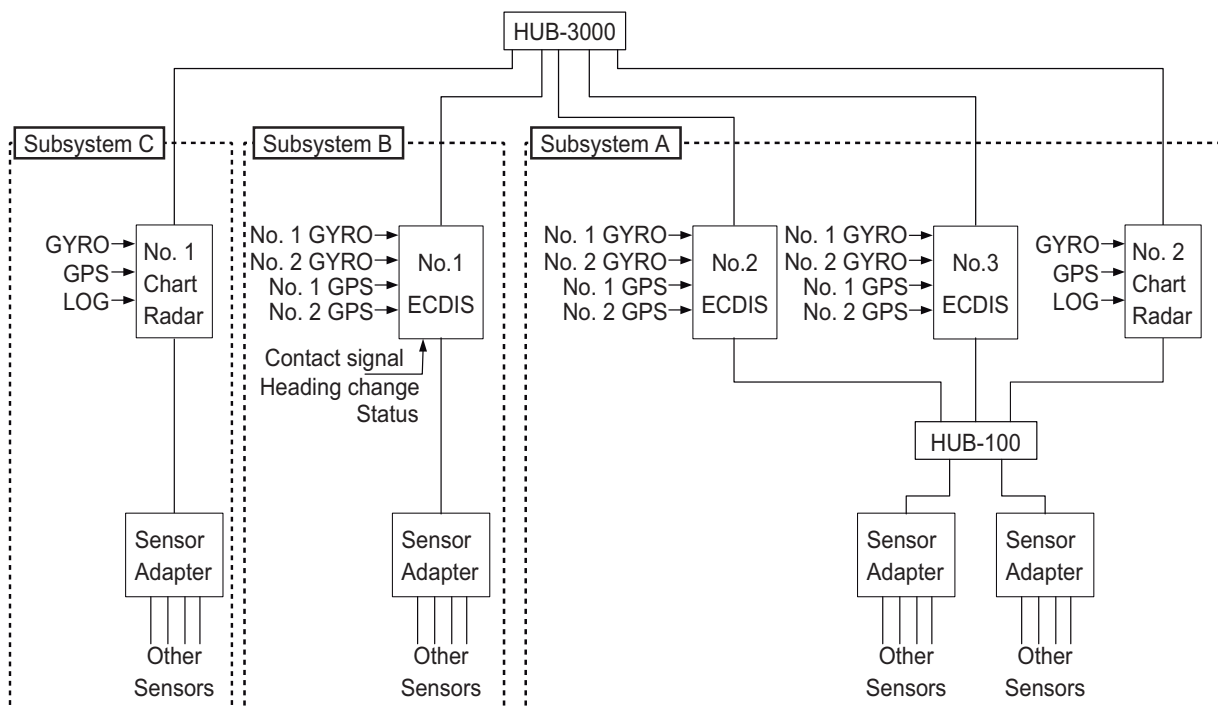


Subsystems A to Z are defined as follows:

- Subsystem A: Configurations which include sensor adapters connected to a HUB-100.
- Subsystem B to Z: Configurations where sensor adapters are directly connected to the PCU.

Examples of Subsystem settings are:

- Subsystem A: No. 2 Chart Radar, No.2 ECDIS, No. 3 ECDIS
- Subsystem B: No. 1 ECDIS
- Subsystem C: No. 1 Chart Radar



APPX. 3 RCB-002 IP ADDRESS SETTING

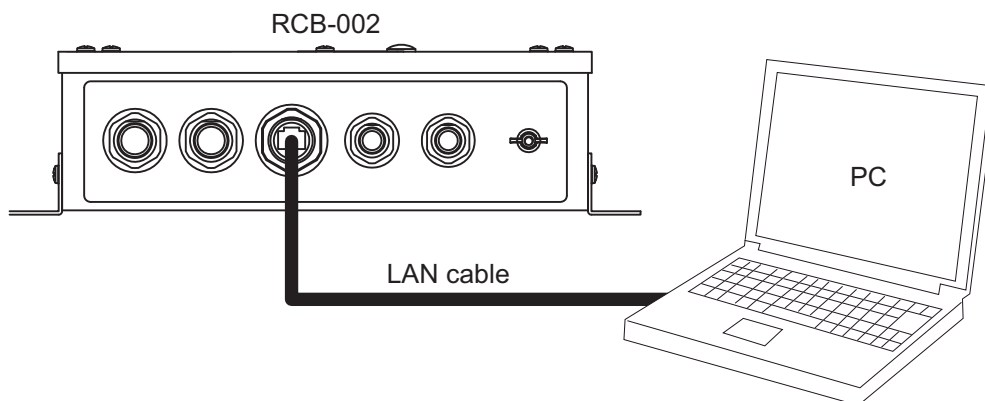
When multiple Radar Connection Box RCB-002s are connected to the same network, change the IP address as follows. Assign a different IP address to each RCB-002. IP address setting is not required for configurations with a single RCB-002.

Preparation

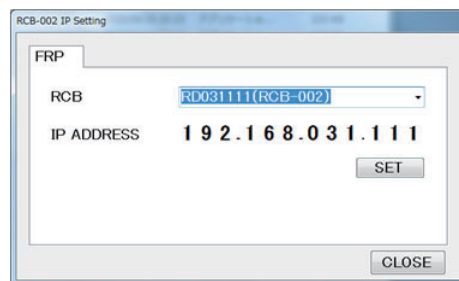
- PC: Used for LAN connection with the RCB-002
- LAN cable: Used for connection between PC and RCB-002
- IP address setting tool (IPSetting.exe): Download from “Tech-Net” and save it on the PC.

Procedure

1. Set the IP address and subnet mask for the PC as follows.
 - IP address: 192.168.31.110
 - Subnet mask: 255.255.255.0
2. Connect the PC to the RCB-002, using a LAN cable.



3. Turn on the RCB-002 power.
4. Run the IP address setting tool (IPSetting.exe) on the PC.



5. Confirm that “RD031111 (RCB-002)” and “192.168.031.111” appear on the [RCB-002 IP Setting] window.

Note: When the indication on the [RCB-002 IP Setting] window is not correct, confirm the following points.

- Confirm that the IP address and subnet mask setting for the PC is correct.
- Check the connection between the PC and RCB-002. Reconnect as necessary.

6. Enter the IP address as follows, then click the [SET] button.

- No.1 RCB: 192.168.031.111 (Default setting)
- No.2 RCB: 192.168.031.112
- No.3 RCB: 192.168.031.113
- No.4 RCB: 192.168.031.114

7. Click the [CLOSE] button.

8. Run the IP address setting tool (IPSetting.exe) on the PC again, then the IP address entered at step 6 appears in the [RCB-002 IP Setting] window.

Note: If the IP address setting is not applied, reboot the RCB-002 and PC, then retry step 4 to step 8.