INS (Integrated Navigation System) Installation Setup Quick Reference Guide JMR-9200/JAN-9201/JAN-9202

Note:

- This guide is intended for use as a reference during commissioning work on newly built vessels, specifically for INS configuration. For details, please refer to the installation manual, chapter “INS Initial Settings”.
- The contents of this guide are subject to change without notice.

Japan Radio Co., Ltd.

(NA26ZZ0319A, Edition 1)

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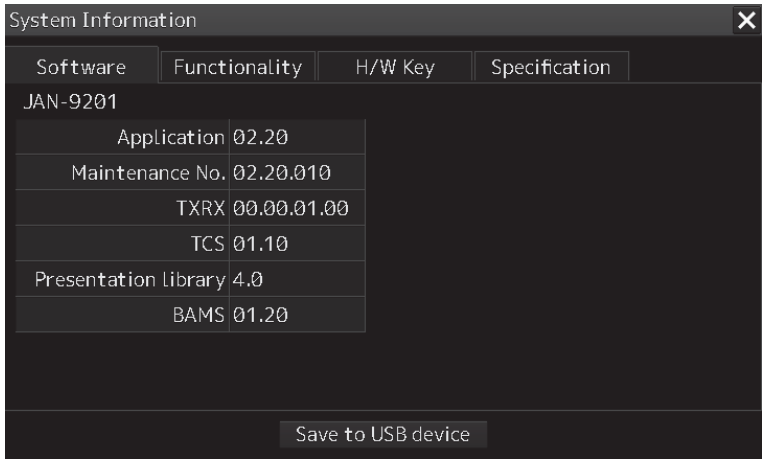
1. INS Software Update

In accordance with the INS technical information, download the latest INS software (Ver. 02.XX.XXX) from MS-WEB and update the MFDs assigned to the INS to this version.



Note:

✓ Do not update the Route Planning System (RPS) using the INS software.

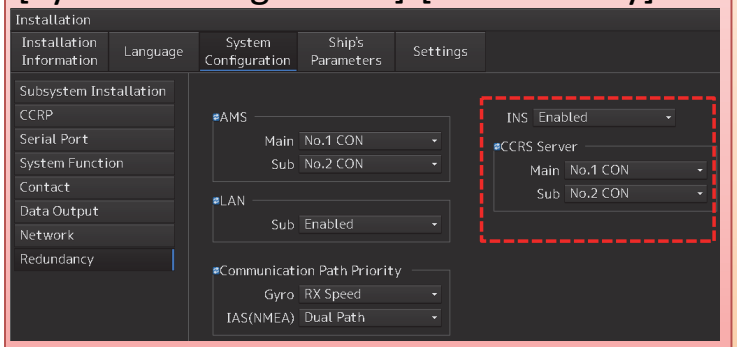
2. INS License File Import

Import the INS license file (JRCMFD.lcn) into each MFD.

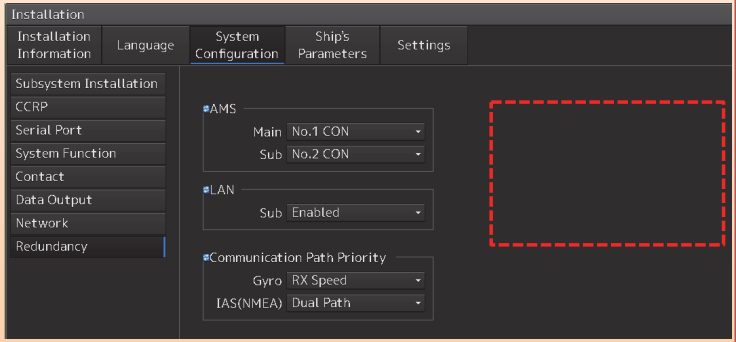
If the INS license file has not been imported, the INS functions will be disabled and certain settings will not be available. The status of the INS license file can be checked in the information area at the top of the MFD screen.

Top of MFD screen.

[Menu]-[service]-[Installation]-
[System Configuration]-[Redundancy]



INS license file imported.



INS license file not imported.

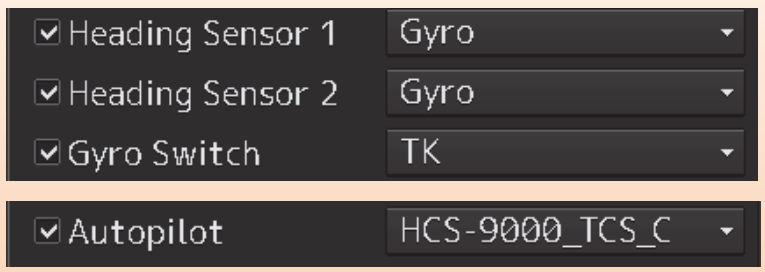
3. Device Installation

Select [Menu]-[Service]-[Installation]-[System Configuration]-[Subsystem Installation], and configure the Gyro switch and Autopilot.

For the CCRS heading integrity monitoring function, the INS requires a Gyro Distribution Unit (gyro switch) and dual gyrocompass installation.

The settings differ depending on whether YDK Technologies' gyro system and autopilot are connected to the INS system, or Tokyo Keiki's gyro system and autopilot are connected to the INS system.

When connecting a YDK Technologies gyro system and autopilot to the INS system.

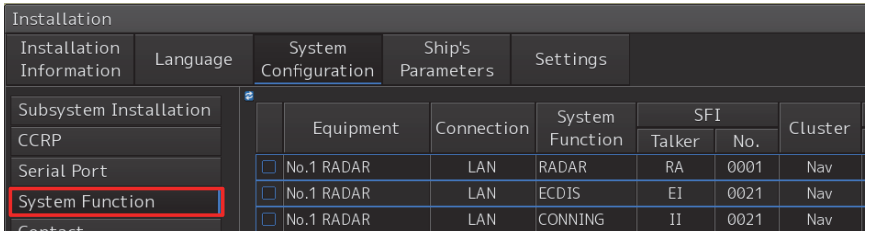


When connecting a Tokyo keiki gyro system and autopilot to the INS system.

4. System Function

Select [Menu]-[Service]-[Installation]-[System Configuration]-[System Function], and add the following system functions. For details, refer to the installation manual.

a. ECDIS, TCS, RADAR, CONNING, AMS and INS system function for each task station.
b. System function for CCRS server
c. System function for Scanner group



Note:

✓ If ECDIS, TCS, RADAR, CONNING, AMS and INS system functions are not added, functions that require two-way communication such as managing alerts on AMS screens, will not work.

✓ If CCRS server or Scanner group system functions are not added, alerts related to the CCRS server or Scanner group will not be occurred on the MFDs.

4. System Function

a. ECDIS, TCS, RADAR, CONNING, AMS and INS system function for each task station.

Equipment	Connection	System Function	SFI		Cluster	Control		Alert		
			Talker	No.		Tx		Tx	Rx	
No.1 RADAR	LAN	RADAR	RA	0001	Nav	TGTD	○	TGTD	CAM1	○
No.1 RADAR	LAN	ECDIS	EI	0021	Nav	NAVD	○	NAVD	CAM1	○
No.1 RADAR	LAN	CONNING	II	0021	Nav	MISC	○	MISC	CAM1	○
No.1 RADAR	LAN	CAM	CA	0021	Nav	CAM1	○	CAM1	CAM1	○
No.1 RADAR	LAN	Track Cont...	TC	0021	Nav	NAVD	○	NAVD	CAM1	○
No.1 RADAR	LAN	INS(INS)	IN	0021	Nav	NAVD	○	NAVD	CAM1	○
No.2 RADAR	LAN	RADAR	RA	0002	Nav	TGTD	●	TGTD	CAM1	●
No.2 RADAR	LAN	ECDIS	EI	0022	Nav	NAVD	●	NAVD	CAM1	●
No.2 RADAR	LAN	CONNING	II	0022	Nav	MISC	●	MISC	CAM1	●
No.2 RADAR	LAN	CAM	CA	0022	Nav	CAM1	●	CAM1	CAM1	●
No.2 RADAR	LAN	Track Cont...	TC	0022	Nav	NAVD	●	NAVD	CAM1	●
No.2 RADAR	LAN	INS(INS)	IN	0022	Nav	NAVD	●	NAVD	CAM1	●
No.1 ECDIS	LAN	RADAR	RA	0011	Nav	TGTD	●	TGTD	CAM1	●

Add system functions other than the primary task system function so that each task station has the following system function: ECDIS, TCS, RADAR, CONNING, AMS, and INS.

4. System Function

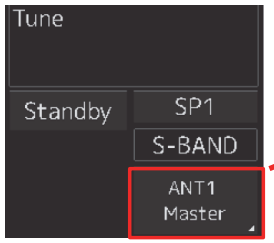
b. System function for CCRS server

☐	INS(RADAR/Main)	LAN	INS(RADAR)	RA	0100	Nav	TGTD	◯	TGTD	CAM1	◯
☐	INS(ECDIS/Main)	LAN	INS(ECDIS)	EI	0100	Nav	NAVD	◯	NAVD	CAM1	◯
☐	INS(CON/Main)	LAN	INS(CON)	II	0100	Nav	MISC	◯	MISC	CAM1	◯
☐	INS(AMS/Main)	LAN	INS(AMS)	CA	0100	Nav	CAM1	◯	CAM1	CAM1	◯
☐	INS(TCS/Main)	LAN	INS(TCS)	TC	0100	Nav	NAVD	◯	NAVD	CAM1	◯
☐	INS(INS/Main)	LAN	INS(INS)	IN	0100	Nav	NAVD	◯	NAVD	CAM1	◯
☐	INS(RADAR/Sub)	LAN	INS(RADAR)	RA	0200	Nav	TGTD	◯	TGTD	CAM1	◯
☐	INS(ECDIS/Sub)	LAN	INS(ECDIS)	EI	0200	Nav	NAVD	◯	NAVD	CAM1	◯
☐	INS(CON/Sub)	LAN	INS(CON)	II	0200	Nav	MISC	◯	MISC	CAM1	◯
☐	INS(AMS/Sub)	LAN	INS(AMS)	CA	0200	Nav	CAM1	◯	CAM1	CAM1	◯
☐	INS(TCS/Sub)	LAN	INS(TCS)	TC	0200	Nav	NAVD	◯	NAVD	CAM1	◯
☐	INS(INS/Sub)	LAN	INS(INS)	IN	0200	Nav	NAVD	◯	NAVD	CAM1	◯

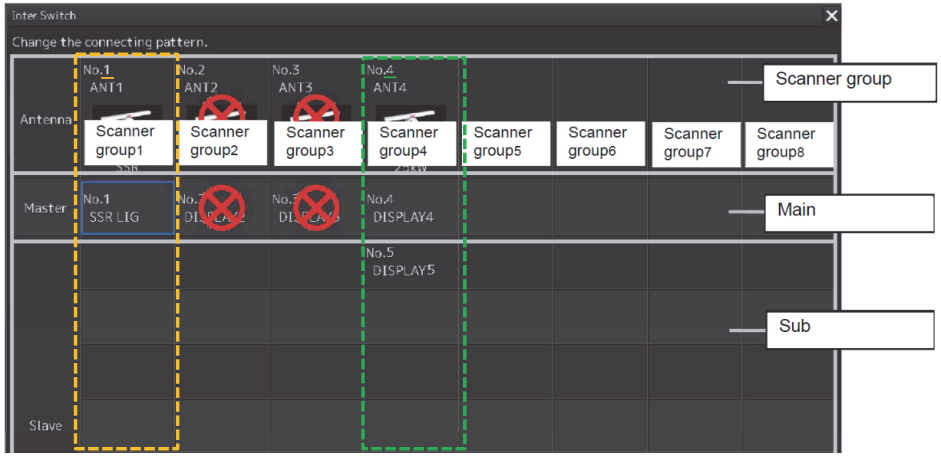
Add system functions for CCRS server.

4. System Function

c. System function for Scanner group



Click the [Change Inter Switch Connection] button and check the current Scanner group setting.

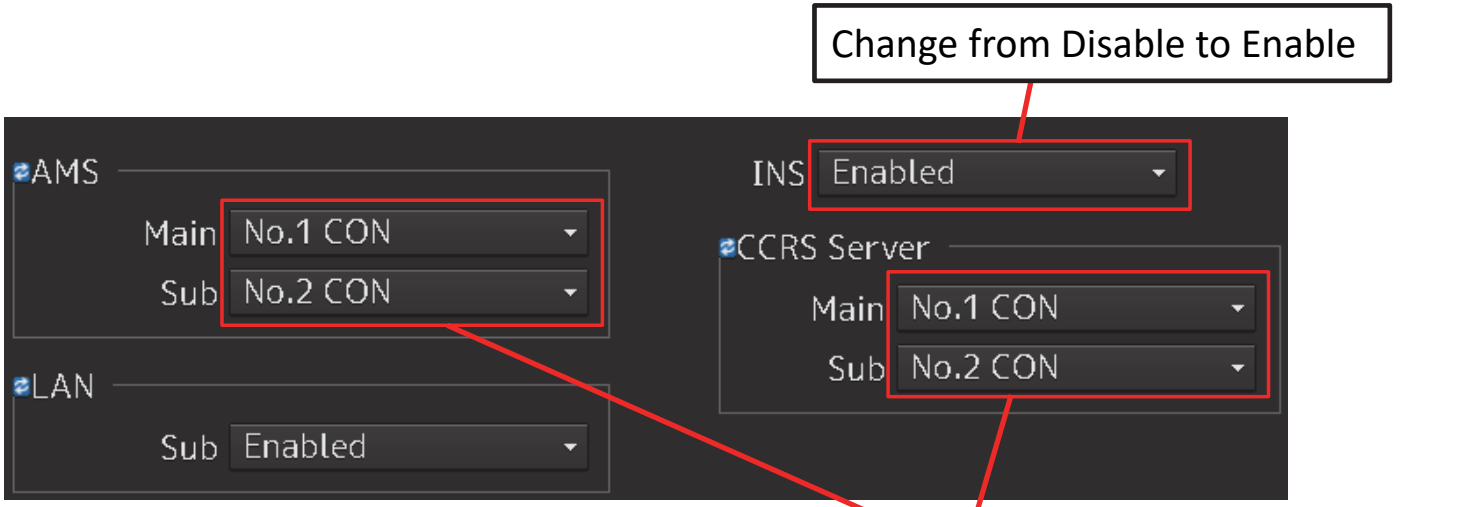


☐	INS(SCG1/Main)	LAN	INS(SCG1)	RA	1100	Nav	TGTD	◯	TGTD	CAM1 ◯
☐	INS(SCG4/Main)	LAN	INS(SCG4)	RA	4100	Nav	TGTD	◯	TGTD	CAM1 ◯
☐	INS(SCG1/Sub)	LAN	INS(SCG1)	RA	1200	Nav	TGTD	◯	TGTD	CAM1 ◯
☐	INS(SCG4/Sub)	LAN	INS(SCG4)	RA	4200	Nav	TGTD	◯	TGTD	CAM1 ◯

Add SCGx/Main and SCGx/Sub system functions of the numbers where the Scanner group is enabled according to the current Scanner group settings.

5. Redundancy

Select [Menu]-[Service]-[Installation]-[System Configuration]-[Redundancy], and configure the following settings.



Configure as follows:

- When INS system include No2 Conning
  Main:No.1 CON Sub: No2 CON

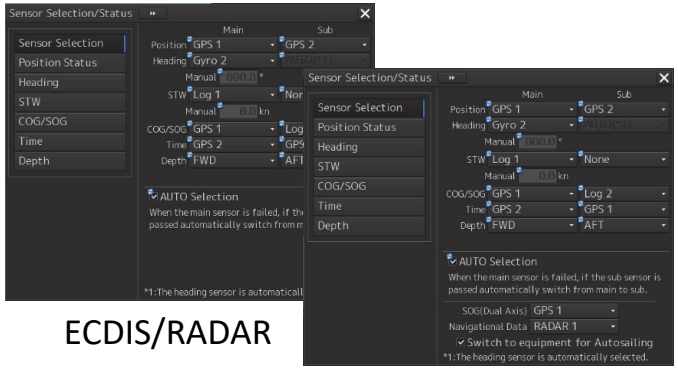
- When INS system not include No2 Conning
  Main:No.1 CON Sub: No2 RADAR

6. Sensor Selection Settings

The sensors that can be selected vary depending on the installation. Therefore, this setting should, in principle, be performed by a service engineer.

Before changing the setting, the service engineer must ensure that they fully understand the function of this setting. For details, refer to the installation manual.

To enable the automatic sensor switching function, the Main and Sub sensors must be specified with the [AUTO Selection] check box checked.



ECDIS/RADAR

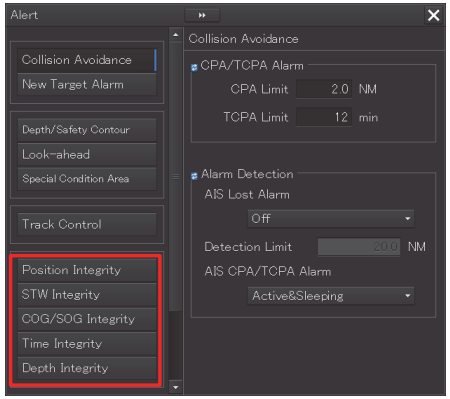
Conning Display

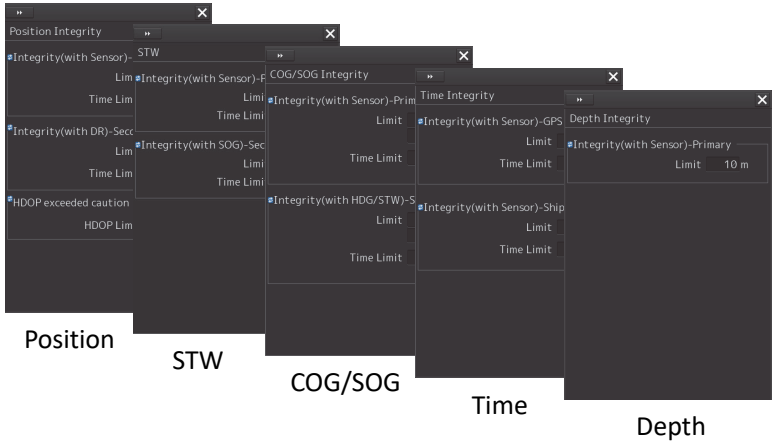
Note:

- ✓ When Gyro switch is in the normal condition, it can only select "Gyro" as Heading Main. Gyro sensor source (Gyro1 or Gyro2) is automatically selected by Gyro switch.

7. Integrity Check Settings

Configure the threshold values (Limit and Time Limit) in accordance with the installation manual and the INS instruction manual.



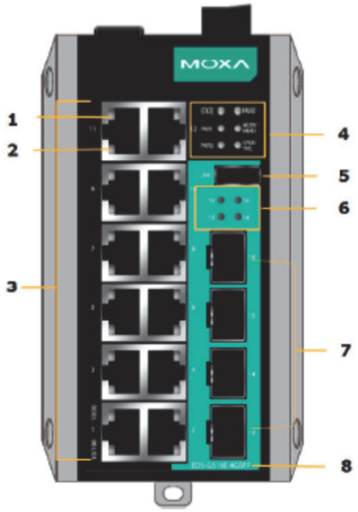


Note:

- ✓ In the case of STW integrity, when the speed is less than 10kn, the error of 0.4kn is used as the fixed threshold value. When the speed is 10kn or higher, the value that is set as the error of the setting value (%) is used as the threshold value.
- ✓ In the case of GPS(COG) for COG/SOG integrity, when the speed is less than 1kn, the check result will be “not possible”. When the speed is 1kn or higher or less than 17kn, the error of ±6° is used as the threshold value and when the speed is 17kn or higher, the value that is set as the error of the setting value (°) is used as the threshold value.
- ✓ In the case of GPS(SOG) for COG/SOG integrity, when the speed is less than 10kn, the error of 0.4kn is used as the fixed threshold value. When the speed is 10kn or higher, the value that is set as the error of the setting value (%) is used as the threshold value.

8. HUB Settings

Configure the settings of EDS-G516E-4GSFP Managed Ethernet Switch according to the installation manual.



EDS-G516E-4GSFP

Front Panel
1. 1000BaseT(X) LED indicator
2. 10/100BaseT(X) LED indicator
3. 10/100/1000BaseT(X) ports
   EDS-G508E: 1 to 8
   EDS-G512E-4GSFP: 1 to 8
   EDS-G516E-4GSFP: 1 to 12
4. System status LED
   - STATE LED indicator
   - PWR1 LED indicator
   - PWR2 LED indicator
   - FAULT LED indicator
   - MSTR/HEAD LED indicator
   - CPLR/TAIL LED indicator
5. USB storage port
6. SFP port LED indicator
   EDS-G512E-4GSFP: 9 to 12
   EDS-G516E-4GSFP: 13 to 16
7. 100/1000BaseSFP slots
8. Model Name

Setting IP

HUB-1 for Main LAN: 172.16.60.103
HUB-2 for Main LAN: 172.16.60.104
HUB-1 for Sub LAN: 172.17.60.103
HUB-2 for Sub LAN: 172.17.60.104

Setting loop protection

Check the [Enable] check box.

Setting system events

(1) Port event Setting value
Link-ON: ON
Link-OFF: ON
Traffic-Overload: ON
Traffic-Threshold (%): 16
Traffic-Duration (sec.): 10
Trap: ON
Syslog: ON
Severity: Warning

(2) Set the Trap notification mode.
SNMP Versions: V1, V2c
Admin Auth Type: No-Auth
User Auth Type: No-Auth
V1, V2c Read Community: Public
V1, V2c Write/Read Community: Private

Note:

- ✓ Items other than those described above should be left at their default values. For details, refer to the installation manual.
- ✓ To meet NAUT-nn(ICS) requirements, these settings are necessary.

9. BAM File Import

Import BAM file using INS BAM editor (BAMEditor Ver1.1.0.XXi for INS).

Do not use normal BAM editor (BAMEditor Ver1.1.0.XX).

For example)

10. Conning.ini File Import

Import Conning.ini file.

conning

For example)

11. Recording capture image to VDR (1)

The MFD capture image is transmitted to VDR only when either RADAR task or ECDIS task is selected/displayed.
When Conning task or AMS(CAM) task is selected/displayed on the MFD, the capture image is not transmitted.
Therefore, it is not recommended to configure the recording image of JAN-9202 Conning Display on VDR.

Note:

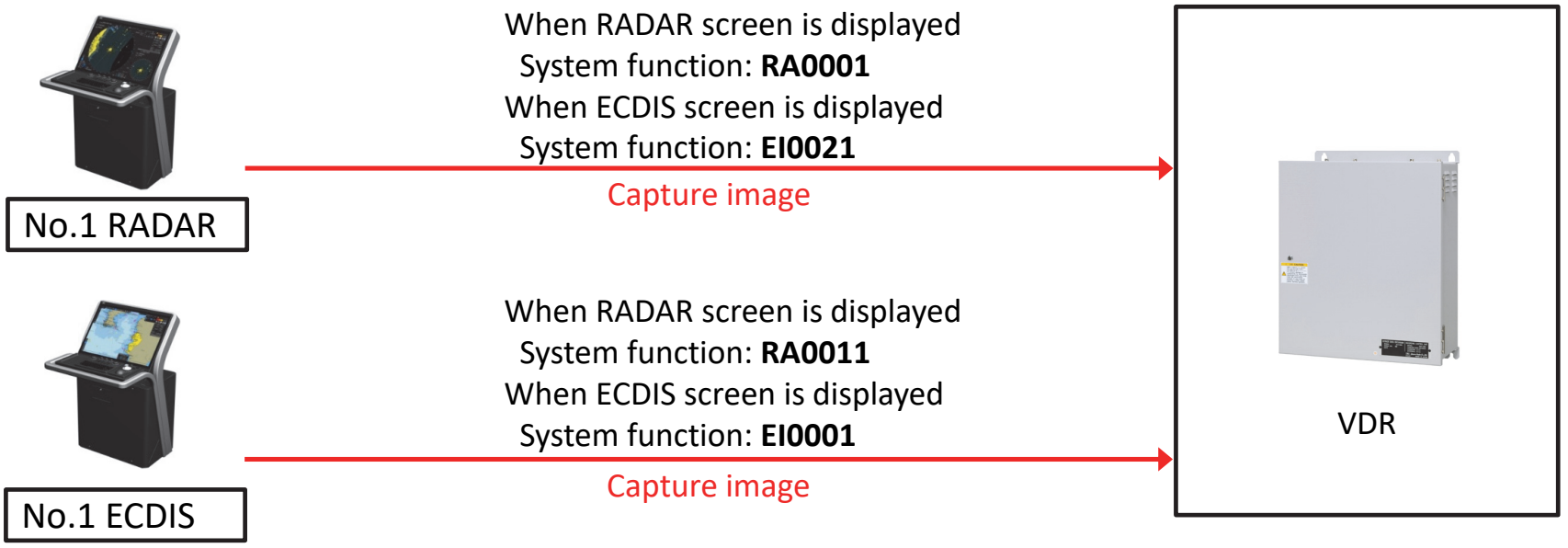
✓ If JAN-9202 is configured as the recording source in VDR, the VDR will generate an alert that the captured image from JAN-9202 cannot be received when Conning task or AMS(CAM) task is selected/displayed on JAN-9202.

11. Recording capture image to VDR (2)

One MFD transmits captured images to VDR using multiple system function.

Configure the multiple system function on the VDR so that the VDR can receive captured images from the MFD.

- When RADAR screen is displayed, MFD transmits a capture image with system function "**RAxxxx**".
- When ECDIS screen is displayed, MFD transmits a capture image with system function "**EIxxxx**".

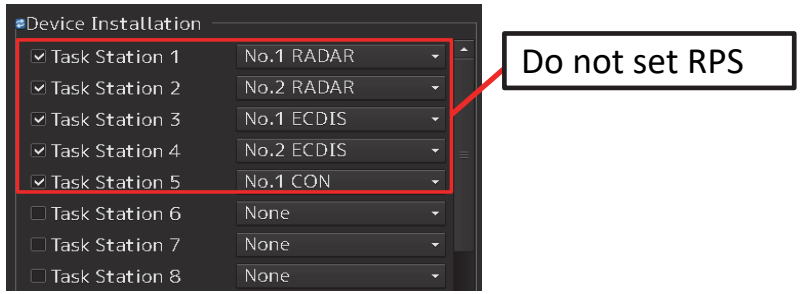


12. RPS Configuration Settings (1)

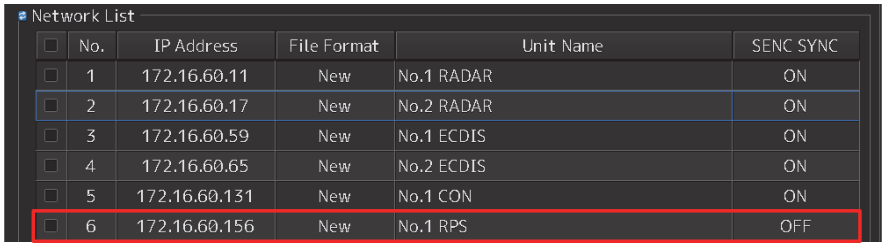
The JAN-5203/A Route Planning System (RPS) does not support INS software (Ver. 02.XX.XXX). Therefore, the RPS needs to install MFD software (Ver. 01.50.044 or later). Also, the RPS needs to be set up for installation setting without syncing settings from the MFD.

AA. The following settings must be configured on MFD (ECDIS/RADAR/CONNING).

1. Do not set the RPS as Task Station in [System Configuration]-[Subsystem Installation]-[Device Installation].



2. Set the RPS IP address in [System Configuration]-[Network]-[Network List].

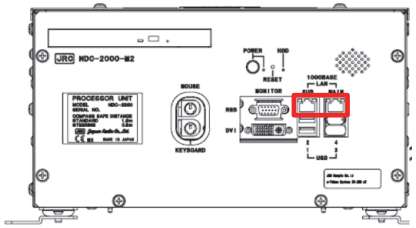


No.	IP Address	File Format	Unit Name	SENC SYNC
1	172.16.60.11	New	No.1 RADAR	ON
2	172.16.60.17	New	No.2 RADAR	ON
3	172.16.60.59	New	No.1 ECDIS	ON
4	172.16.60.65	New	No.2 ECDIS	ON
5	172.16.60.131	New	No.1 CON	ON
6	172.16.60.156	New	No.1 RPS	OFF

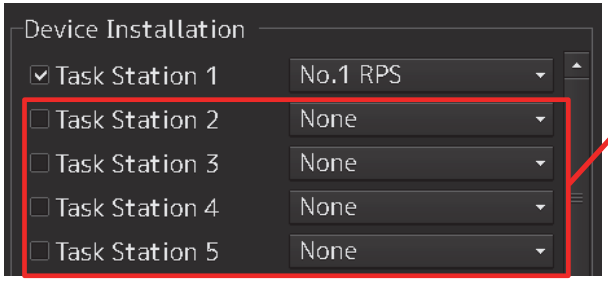
12. RPS Configuration Settings (2)

BB. The following settings must be configured on RPS.

1. Unplug the LAN cables and then turn on the RPS.



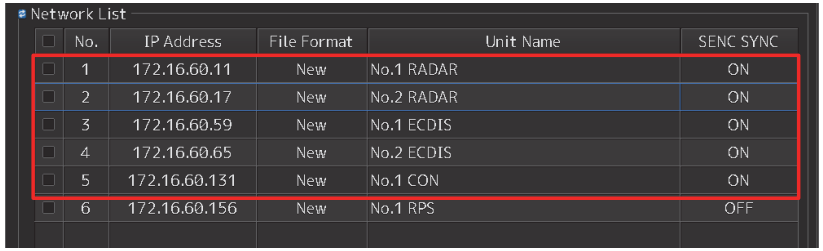
2. Update the RPS with the latest MFD software (Ver. 01.50.044 or later). Do not update the RPS with INS software (Ver. 02.XX.XXX).
3. Set only the RPS as Task Station in [System Configuration]-[Subsystem Installation]-[Device Installation].



Do not set RADAR, ECDIS, CONNING

12. RPS Configuration Settings (3)

4. Set RADAR, ECDIS and CONNING IP addresses in [System Configuration]-[Network]-[Network List].


Network List

No.	IP Address	File Format	Unit Name	SENC SYNC
1	172.16.60.11	New	No.1 RADAR	ON
2	172.16.60.17	New	No.2 RADAR	ON
3	172.16.60.59	New	No.1 ECDIS	ON
4	172.16.60.65	New	No.2 ECDIS	ON
5	172.16.60.131	New	No.1 CON	ON
6	172.16.60.156	New	No.1 RPS	OFF

5. The settings other than the above should be carried out according to the installation manual.
6. Turn off the RPS, connect the LAN cables and then turn on the RPS.

Note:

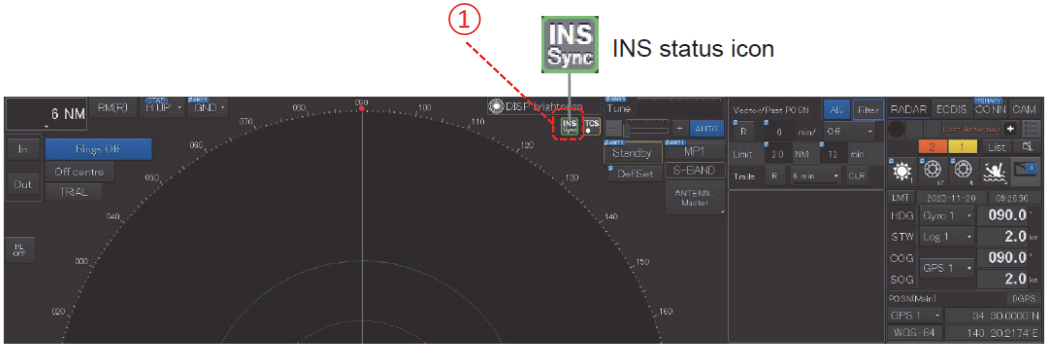
- ✓ After completing the above settings, if installation dialog is opened on the RPS or MFD (RADAR/ECDIS/CONNING), installation settings will not be synchronized between the RPS and MFD (RADAR/ECDIS/CONNING).
- ✓ If the installation settings are changed on MFD (RADAR/ECDIS/CONNING), a reboot pop-up dialog will not appear on the RPS screen.

13. Installation Checklist

After completing the configuration, check the INS-related installation settings against the checklist below (see Appendix).

APPENDIX: Checklist for INS Installation Settings

A. INS Synchronization

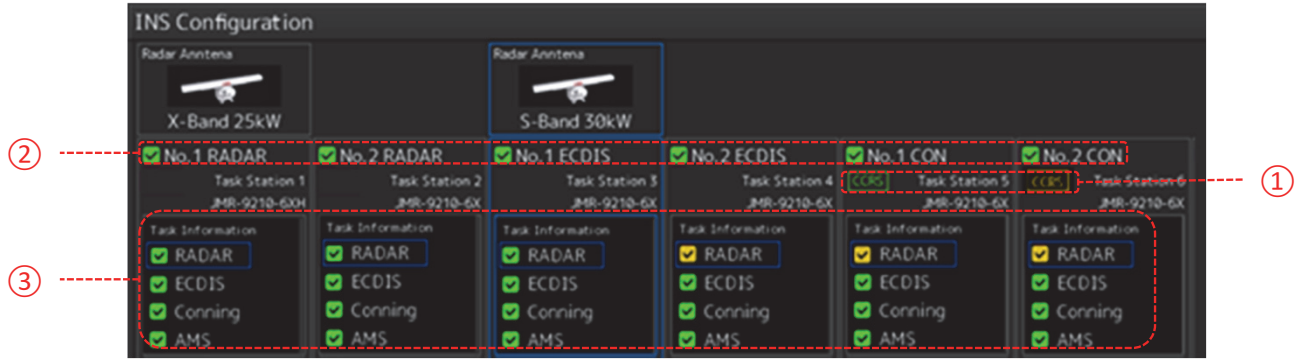


Example: RADAR (26-inch screen)

No.	Item	Ref. in fig.	Check contents	Result
A-01	INS Synchronization	①	INS-Status-Icon should be displayed as "INS Sync (INS Sync)" on the MFDs assigned to the INS.	☐

APPENDIX: Checklist for INS Installation Settings

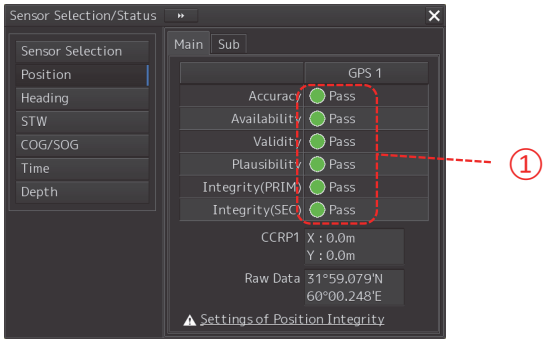
B. INS Configuration



No.	Item	Ref. in fig.	Check contents	Result
B-01	CCRS Server (Main)	①	“CCRS” mark should be displayed in green characters in Task Station Information set as “CCRS Main (CCRS)”.	☐
B-02	CCRS Server (Sub)	①	"CCRS" mark should be displayed in yellow characters in Task Station Information set as "CCRS Sub (CCRS)".	☐
B-03	Task station status	②	The status of all task stations should be “Normal (✓)”.	☐
B-04	Task states	③	The status of all tasks at each task station should not be “Failed (✗)”.	☐

APPENDIX: Checklist for INS Installation Settings

C. Integrity Checking Result



Example: Position

No.	Item	Ref. in fig.	Check contents	Result
C-01	Position	①	All results must be “Pass ( )” for [Main] and [Sub].	☐
C-02	Heading	①	All results must be “Pass ( )” for [Main].	☐
C-03	STW	①	All results should be “Pass ( )” for [Main] and [Sub]. Note: When only LOG2 is a satellite log providing SOG only, the Sensor Selection is set as “Main: LOG1 and Sub: None”. In this case, it is acceptable that the LOG1 Integrity(PRIM) is continuously indicated as “Not possible ( ).”	☐
C-04	COG/SOG	①	All results must be “Pass ( )” for [Main] and [Sub].	☐
C-05	Time	①	All results must be “Pass ( )” for [Main] and [Sub].	☐
C-06	Depth	①	All results must be “Pass ( )” for [Main] and [Sub].	☐

One-JRC

Thank you very much.

Fin