

JLN-740A/740N  
JLN-741A/741N

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**DOPPLER LOG**

**INSTALLATION  
MANUAL**



# Contents

<b>1. Overview</b> .....	<b>1-1</b>
1.1. Function.....	1-1
1.2. Content of This Manual .....	1-1
1.3. Components .....	1-2
1.4. Construction .....	1-6
1.4.1. Equipment outline .....	1-6
1.4.2. Table 1.2 Control according to dimmer unit NCM-227 / NCM-329 .....	1-17
1.5. System Configuration .....	1-18
1.5.1. JLN-740A System Configuration Diagram .....	1-18
1.5.2. JLN-740N System Configuration Diagram.....	1-19
1.5.3. JLN-741A System Configuration Diagram .....	1-20
1.5.4. JLN-741N System Configuration Diagram.....	1-21
1.6. System Diagram.....	1-22
1.6.1. System diagram (JLN-740A).....	1-22
1.6.2. System diagram (JLN-740N).....	1-23
1.6.3. System diagram (JLN-741A).....	1-24
1.6.4. System diagram (JLN-741N).....	1-25
1.7. Inter-block Wiring Diagram.....	1-26
1.7.1. Inter-block wiring diagram (JLN-740A) .....	1-26
1.7.2. Inter-block wiring diagram (JLN-740N) .....	1-27
1.7.3. Inter-block wiring diagram (JLN-741A) .....	1-28
1.7.4. Inter-block wiring diagram (JLN-741N).....	1-29
1.8. Alert.....	1-30
1.8.1. Alert List .....	1-30
1.8.2. Interface .....	1-30
1.9. Cluster identifiers.....	1-30
1.9.1. Cluster identifiers .....	1-30
1.9.2. Setting .....	1-31
1.9.3. Standardized cluster identifiers.....	1-31
<b>2. Installation</b> .....	<b>2-1</b>
2.1. Installation workflow .....	2-1
2.1.1. JLN-740A/JLN-740N .....	2-1
2.1.2. JLN-741A/JLN-741N .....	2-2
<b>3. Installing of NKF-547</b> .....	<b>3-1</b>
3.1. Installation Drawing .....	3-1

3.2.	Installation Procedure.....	3-2
3.3.	Welding Guide.....	3-3
3.4.	Painting Guide.....	3-6
3.5.	Handling of the Transducer.....	3-7
3.6.	Mounting of the Transducer.....	3-8
3.7.	Cable Laying and Piping.....	3-10
3.8.	Final Check.....	3-12
3.9.	Others.....	3-13
<b>4.</b>	<b>Installing of NKF-531E.....</b>	<b>4-1</b>
4.1.	Installation Drawing.....	4-1
4.2.	Installation Procedure.....	4-2
4.3.	Welding Guide.....	4-3
4.3.1.	Unpacking and Handling.....	4-3
4.3.2.	Disassembling.....	4-4
4.3.3.	Welding.....	4-5
4.4.	Mounting Guide of the Transducer.....	4-7
4.5.	Painting Guide.....	4-8
4.6.	Maintenance Space and Piping.....	4-9
4.7.	Replacing Guide of the Transducer.....	4-10
4.7.	Precautions for tank / sea valve installation.....	4-18
<b>5.</b>	<b>Installing of NJC-70S.....</b>	<b>5-1</b>
5.1.	Installation Drawing.....	5-1
5.2.	Name plate sticking.....	5-3
5.3.	Installation Procedure.....	5-4
5.3.1.	Removal of the cover.....	5-4
5.3.2.	Connection of the equipment.....	5-5
5.3.2.1.	Precautions.....	5-5
5.3.2.2.	Connection of Power Supply.....	5-9
5.3.2.2.1.	AC Power supply (100V or 230V) (JLN-740A, JLN-740N).....	5-9
5.3.2.2.2.	AC Power supply (100V or 230V) (JLN-741A, JLN-741N).....	5-12
5.3.2.3.	Connecting the transducer (Common to JLN-740A, JLN-740N, JLN-741A, and JLN-741N).....	5-14
5.3.2.3.1.	Processing the transducer cable.....	5-14
5.3.2.4.	Connecting the distribution processor and the signal processor.....	5-16
5.3.2.4.1.	Connecting distribution processor NQA-7040 (for JLN-740A and JLN-740N).....	5-16

5.3.2.4.2.	Connecting the main display unit (for JLN-741A and JLN-741N)	5-18
5.3.3.	Supplying the power	5-19
5.3.4.	Attachment of the cover	5-21
5.4.	Fuse Replacement Procedure	5-22
5.4.1.	NJC-70S fuse replacement procedure	5-23
5.4.1.1.	Replacement of 2A Fuse	5-23
5.4.1.2.	Replacement of 5A Fuse	5-25
5.4.2.	How to replace the fuse for power cable	5-28
<b>6.</b>	<b>Installing of NQA-7040</b>	<b>6-1</b>
6.1.	Installation Drawing	6-1
6.2.	Sub name plate sticking	6-3
6.3.	Installation Procedure	6-4
6.3.1.	Removing the cover	6-4
6.3.2.	Connecting the equipment	6-5
6.3.2.1.	Precautions	6-5
6.3.2.2.	Method of Inserting Cable	6-10
6.3.2.3.	Wiring Diagram	6-11
6.3.2.3.1.	TB1 Connection Example	6-11
6.3.2.3.2.	TB2 Connection Example	6-12
6.3.2.3.3.	TB3 Connection Example	6-14
6.3.2.3.4.	TB4 Connection Example	6-15
6.3.2.4.	Connection Method of VDR	6-16
6.3.2.5.	Connection of Power Supply	6-17
6.3.2.5.1.	AC Power supply (100V or 230V)	6-17
6.3.2.5.2.	24VDC Power Supply Exclusive to Power Fail	6-20
6.3.2.6.	Connecting NJC-70S	6-22
6.3.2.7.	Comb shape clamp	6-23
6.3.2.8.	Cable Inlet	6-24
6.3.3.	Supplying power	6-25
6.3.4.	Attaching a cover	6-26
6.4.	Cable end processing	6-30
6.5.	Assembling an Ethernet Connector (RJ-45 Type)	6-31
6.6.	Fuse Replacement Procedure	6-37
6.6.1.	NQA-7040 fuse replacement procedure	6-38
6.6.1.1.	Replacement of 0.5A Fuse	6-38

6.6.1.2.	Replacement of 4A Fuse .....	6-40
<b>7.</b>	<b>Installing of NWZ-510SDW.....</b>	<b>7-1</b>
7.1.	Installation Drawing .....	7-1
7.2.	Pasting of seal .....	7-3
7.3.	Installation Procedure.....	7-4
7.3.1.	JLN-740A .....	7-4
7.3.2.	JLN-741A .....	7-15
<b>8.</b>	<b>Installing of NWZ-4640 .....</b>	<b>8-1</b>
8.1.	Installation Drawing .....	8-1
8.2.	Pasting of seal .....	8-3
8.2.1.	Seal pasting method of NWZ-4640 .....	8-3
8.2.2.	Seal pasting method of CGC-300B.....	8-4
8.3.	Installation Procedure.....	8-5
8.3.1.	JLN-740N .....	8-5
8.3.2.	JLN-741N .....	8-7
8.4.	Mounting Guide .....	8-9
<b>9.</b>	<b>Installing of NWZ-650SDR.....</b>	<b>9-1</b>
9.1.	Installation Drawing .....	9-1
9.2.	Installation Procedure.....	9-3
<b>10.</b>	<b>Installing of NWZ-840SDR.....</b>	<b>10-1</b>
10.1.	Installation Drawing .....	10-1
10.2.	Installation Procedure.....	10-4
<b>11.</b>	<b>Installing of NWZ-4610 .....</b>	<b>11-1</b>
11.1.	Installation Drawing .....	11-1
11.2.	NWZ-4610 installing procedure.....	11-3
11.3.	Installation Procedure.....	11-4
11.4.	Installation Setting .....	11-6
<b>12.</b>	<b>Installing of NWW-24 .....</b>	<b>12-1</b>
12.1.	Installation Drawing .....	12-1
12.2.	Installation Procedure.....	12-3
<b>13.</b>	<b>Installing of NWW-25 .....</b>	<b>13-1</b>
13.1.	Installation Drawing .....	13-1
13.2.	Installation Procedure.....	13-3
<b>14.</b>	<b>Installing of NWW-26 .....</b>	<b>14-1</b>
14.1.	Installation Drawing .....	14-1
14.2.	Installation Procedure.....	14-3

<b>15. Installing of NWW-7 .....</b>	<b>15-1</b>
15.1. Installation Drawing .....	15-1
15.2. Installation Procedure.....	15-3
<b>16. Setting of NWZ-510SDW .....</b>	<b>16-1</b>
16.1. Supplying power (JLN-740A/741A).....	16-1
16.2. Installation Setting Menu .....	16-3
16.2.1. ADV SET .....	16-4
16.2.2. ADV SDME.....	16-7
<b>17. Setting of NWZ-4640.....</b>	<b>17-1</b>
17.1. Supplying power (JLN-740N/741N).....	17-1
17.2. JLN-740N Display at the time of initial power-on (JLN-740N) after factory shipment .....	17-2
17.3. JLN-741N Display at the time of initial power-on (JLN-741N) after factory shipment .....	17-3
17.4. Switch display unit setting to JLN-741N (JLN-741N).....	17-4
17.5. Checking the installation .....	17-5
17.5.1 Changing to the maintenance mode .....	17-5
17.5.2 Checking the input port .....	17-5
<b>18. Setting of NWZ-650SDR .....</b>	<b>18-1</b>
18.1. Installation Setting Menu .....	18-1
18.1.1. ADV SET .....	18-2
18.1.1.1. ADV SET Menu List .....	18-2
18.1.2. SDME ADV.....	18-6
18.1.2.1. SDME ADV Menu List .....	18-6
<b>19. Setting of NWZ-840SDR .....</b>	<b>19-1</b>
19.1. Installation Setting Menu .....	19-1
19.1.1. ADV SET .....	19-2
19.1.1.1. ADV SET Menu List .....	19-2
19.1.2. SDME ADV.....	19-6
19.1.2.1. SDME ADV Menu List .....	19-6
<b>20. Maintenance Software .....</b>	<b>20-1</b>
20.1. Required Items .....	20-1
20.1.1. JLN-740A/740N.....	20-1
20.1.2. JLN-741A/741N.....	20-1
20.2. Connection Method .....	20-1
20.2.1. Connection Method of JLN-740A/740N .....	20-3

20.2.2.	Connection Method of LN-741A and JLN-741N.....	20-5
20.3.	Precautions.....	20-8
20.4.	Maintenance PC tool.....	20-8
20.5.	Installation Procedure.....	20-9
20.5.1.	Initial setting value required for each piece of equipment.....	20-12
20.6.	Network setting.....	20-13
20.6.1.	Start the maintenance PC tool.....	20-13
20.6.2.	Open the Network Connections setting.....	20-13
20.6.3.	Open the property of network adaptor.....	20-13
20.6.4.	Open the properties of Internet Protocol Version 4 (TCP/IPv4).....	20-14
20.6.5.	Open the Advanced settings.....	20-14
20.6.6.	Add the IP address.....	20-15
20.7.	Initializing the Equipment (JLN-740A/740N).....	20-16
20.7.1.	Start the maintenance PC tool.....	20-16
20.7.2.	Connect the equipment.....	20-16
20.7.3.	Click on the [First Settings] button.....	20-16
20.7.4.	Checking and changing the initial settings.....	20-17
20.7.4.1.	Measurement start status.....	20-19
20.7.4.2.	Setting relating to the vessel speed calculation.....	20-19
20.7.4.3.	Distance reset.....	20-19
20.7.4.4.	Setting relating to the hull.....	20-20
20.7.4.5.	System test status.....	20-21
20.7.4.6.	Setting relating to system time.....	20-22
20.7.4.7.	Transducer (NKF-547/531E) management information.....	20-23
20.7.4.8.	Signal processor (NJC-70) error.....	20-23
20.7.4.9.	Setting remote displays.....	20-24
20.7.4.10.	Setting analog displays (NWW-24/25/26).....	20-24
20.7.4.11.	Setting LOG pulse.....	20-25
20.7.4.12.	Setting relating to the brightness control.....	20-26
20.7.4.13.	Setting serial alert.....	20-27
20.7.5.	Acquiring a bubble detection reference waveform.....	20-28
20.7.6.	Speed calibration.....	20-30
20.7.7.	Calculating milepost test results.....	20-32
20.7.7.1.	Entering a ground distance (True Distance) manually.....	20-33
20.7.7.2.	Entering a ground distance (True Distance) through serial communication of GPS.....	20-34

20.8.	Changing the Detailed Settings (JLN-740A/740N).....	20-36
20.8.1.	Start the maintenance PC tool.....	20-36
20.8.2.	Connect the equipment.....	20-36
20.8.3.	Select a menu.....	20-37
20.8.4.	Resetting all the settings to those of the factory shipment.....	20-38
20.8.5.	Checking and changing all the settings and statuses.....	20-39
20.8.5.1.	Status of the main display (NWZ-510SDW).....	20-41
20.8.5.2.	Status of the distribution processor (NQA-7040).....	20-42
20.8.5.3.	Status of the signal processor (NJC-70).....	20-43
20.8.5.4.	Measurement start status.....	20-44
20.8.5.5.	Setting relating to the vessel speed calculation.....	20-44
20.8.5.6.	Error status.....	20-45
20.8.5.7.	Distance reset.....	20-46
20.8.5.8.	Setting relating to the hull.....	20-47
20.8.5.9.	Setting relating to the transducer mounting angle.....	20-48
20.8.5.10.	System test status.....	20-49
20.8.5.11.	Power detection value.....	20-50
20.8.5.12.	Setting relating to system time.....	20-50
20.8.5.13.	Status of supported frequency.....	20-51
20.8.5.14.	Transducer (NKF-547/531E) management information.....	20-51
20.8.5.15.	Signal processor (NJC-70) error.....	20-52
20.8.5.16.	Setting remote displays.....	20-54
20.8.5.17.	Setting analog displays (NWW-24/25/26).....	20-55
20.8.5.18.	Setting the NMEA version.....	20-56
20.8.5.19.	Setting JRC-RMS.....	20-57
20.8.5.20.	Setting main display (NWZ - 510SDW) Ethernet.....	20-57
20.8.5.21.	Main display (NWZ-510SDW) oriented IEC 61162-450 transmission group.....	20-58
20.8.5.22.	Setting LOG pulse.....	20-59
20.8.5.23.	Setting reception of ROT.....	20-59
20.8.5.24.	SFI number of IEC 61162-450.....	20-60
20.8.5.25.	Distribution processor (NQA-7040) error.....	20-61
20.8.5.26.	Setting relating to brightness control.....	20-61
20.8.5.27.	Setting relating to reception of day/time information.....	20-63
20.8.5.28.	Power control status.....	20-64
20.8.5.29.	Transmission channel enable flag.....	20-64

20.8.5.30.	Setting maintenance Ethernet.....	20-65
20.8.5.31.	Setting a transmission group addressed to JRC-RMS .....	20-66
20.8.5.32.	Setting a transmission group of the IEC 61162-450 standard .....	20-67
20.8.5.33.	Setting a reception group of the IEC 61162-450 standard.....	20-68
20.8.5.34.	IEC 61162 error counter (1/2).....	20-71
20.8.5.35.	IEC 61162 error counter (2/2).....	20-72
20.8.5.36.	Setting serial alert.....	20-73
20.8.5.37.	Mode status.....	20-73
20.8.5.38.	Equipment status data.....	20-74
20.8.6.	Acquiring waveform log.....	20-75
20.8.7.	Performing demonstration for presentation.....	20-76
20.8.8.	Displaying maintenance information .....	20-77
20.9.	Initializing the Equipment (JLN-741A/741N) .....	20-79
20.9.1.	Start the maintenance PC tool. ....	20-79
20.9.2.	Connect the equipment. ....	20-79
20.9.3.	Click on the [First Settings] button. ....	20-79
20.9.4.	Checking and changing the initial settings.....	20-80
20.9.4.1.	Measurement start status.....	20-82
20.9.4.2.	Setting relating to the vessel speed calculation .....	20-82
20.9.4.3.	Distance reset .....	20-82
20.9.4.4.	Transducer (NKF-547/531E) management information.....	20-83
20.9.4.5.	Signal processor (NJC-70) error .....	20-83
20.9.5.	Acquiring a bubble detection reference waveform.....	20-84
20.9.6.	Speed calibration .....	20-86
20.9.7.	Calculating milepost test results .....	20-88
20.9.7.1.	Entering a ground distance (True Distance) manually. ....	20-89
20.9.7.2.	Entering a ground distance (True Distance) through serial communication of GPS.....	20-90
20.10.	Changing the Detailed Settings (JLN-741A/741N).....	20-92
20.10.1.	Start the maintenance PC tool. ....	20-92
20.10.2.	Connect the equipment. ....	20-92
20.10.3.	Select a menu. ....	20-93
20.10.4.	Resetting all the settings to those of the factory shipment .....	20-94
20.10.5.	Checking and changing all the settings and statuses.....	20-95
20.10.5.1.	Status of the signal processor (NJC-70).....	20-96
20.10.5.2.	Measurement start status.....	20-97

20.10.5.3.	Setting relating to the vessel speed calculation .....	20-97
20.10.5.4.	Error status .....	20-98
20.10.5.5.	Distance reset .....	20-100
20.10.5.6.	Setting relating to the transducer mounting angle .....	20-100
20.10.5.7.	System test status .....	20-101
20.10.5.8.	Power detection value .....	20-102
20.10.5.9.	Status of supported frequency .....	20-102
20.10.5.10.	Transducer (NKF-547/531E) management information .....	20-103
20.10.5.11.	Signal processor (NJC-70) errors .....	20-103
20.10.5.12.	Transmission channel enable flags .....	20-106
20.10.5.13.	Mode status .....	20-106
20.10.6.	Acquiring waveform log .....	20-107
20.10.7.	Performing demonstration for presentation .....	20-108
20.10.8.	Displaying software information .....	20-109
<b>21.</b>	<b>Trouble Shooting .....</b>	<b>21-1</b>
<b>22.</b>	<b>Maintenance information .....</b>	<b>22-1</b>
<b>Appendix(A)</b>	<b>Menu list .....</b>	<b>A-1</b>
A.1	Display menu list (NWZ-510SDW, NWZ-650SDR/NWZ-840SDR) .....	A-1
A.2	Normal menu (NWZ-4640) .....	A-5
A.3	Maintenance software menu list .....	A-9
<b>Appendix(B)</b>	<b>Milepost Test Result .....</b>	<b>B-1</b>
<b>Appendix(C)</b>	<b>NKF-531E Vacuum test procedure .....</b>	<b>C-1</b>
C.1	Overview .....	C-1
C.2	Reference Standards .....	C-1
C.3	Air pockets in the gate valve of NKF-531E .....	C-1
C.4	Presence or absence of air leaks .....	C-2
C.5	Test system verification .....	C-3

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# 1. Overview

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## 1.1. Function

The JLN-740A/740N/741A/741N Doppler log is the equipment that accurately measures the speed through the water and navigation distance of the ship by emitting ultrasonic signals to the fore and the after in the water from the transducer that is installed in the bottom of the ship and using the Doppler effects of the ultrasonic signals that are reflected from the underwater. This equipment measures the relative speed through the water at 3m or more from the bottom of a ship. Therefore, the equipment can measure the ship speed according to the output of the main engine excluding the speed of the current and so on. Signals surrounding the bottom of the ship are excluded by applying transmission and reception in a pulse system, thereby preventing errors of the ship speed that occurs due to the change of the draft. In addition, by using the dual beam system that emits ultrasonic signals in two directions, fore and after, the ship's speed errors due to the trim change are dramatically reduced. This equipment complies with the IMO (International Maritime Organization) regulation and measures and displays a wide range of ship speed from low speed to high speed.

## 1.2. Content of This Manual

This manual has brought notes that install these equipments that compose the device in the hull together. And, it is described as a reference. Refer to this manual and an instruction manual about the operation after the installing.

### 1.3. Components

The standard equipment and options are shown in the tables below.

JLN-740A Standard components

Item name	Model	Code	Quantity	Remarks
Main Display	NWZ-510SDW	NWZ510SDW	1	5-inch color display
Main Display Communication Cable	CFS-5680	CFS5680	1	Cable for communication/power supply between the main display and distribution processor (about 1.2m)
Distribution Processor	NQA-7040	NQA7040	1	For JLN-740A/740N
LAN Plug Connector	ADT-STP-T10 ADT-MC7L	5JBDH00021 5JBDH00009	Each 2	Lan connector Modular cover
Signal Processor	NJC-70S	NJC70S	1	-
Transducer Mounting	NKF-547	NKF-547	1	Flat type With cable 30m
Spare parts	H-7ZXNA3007	7ZXNA3007	1	-
Instruction manual	H-7ZPNA3208	7ZPNA3208	1	-

JLN-740N Standard components

Item name	Model	Code	Quantity	Remarks	
Main display unit	NWZ-4640	NWZ4640	1	4.5-inch monochrome display	
NWZ-4640 Accessory	Data power cable	CFQ-5766A	CFQ5766A	1	2m
	Fuse	MF60NR 250V 1	5ZFGD00205	2	1A fuse
	Front panel	MTV305018A	MTV305018A	1	-
	Desktop frame kit	MPBX47065	MPBX47065	1	Base, Knob Bolt, rotating seat, Knob Washer
	Product nameplate	MPNN50584A	MPNN50584A	1	For Front
	Installation schematic drawing	MTZ304550A	MTZ304550A	1	For Flush Mount
Distribution Processor	NQA-7040	NQA7040	1	For JLN-740A/740N	
LAN Plug Connector	ADT-STP-T10 ADT-MC7L	5JBDH00021 5JBDH00009	Each 2	Lan connector Modular cover	
Signal Processor	NJC-70S	NJC70S	1	-	
Transducer Mounting	NKF-547	NKF-547	1	Flat type With cable 30m	
Junction box	CQD-10	CQD-10CN2	1	-	
Spare parts	H-7ZXNA3007	7ZXNA3007	1	-	
Instruction manual	H-7ZPNA3208	7ZPNA3208	1	-	

**JLN-741A Standard components**

Item name	Model	Code	Quantity	Remarks
Main Display	NWZ-510SDW	NWZ510SDW	1	5-inch color display
Main Display Communication Cable	CFS-6680A	CFS6680A	1	Cable for communication/power supply between the main display and signal processor (about 1.2m)
Signal Processor	NJC-70S	NJC70S	1	-
AC power rectifier	NBA-5143	NBA5143A	1	-
Transducer Mounting	NKF-547	NKF-547	1	Flat type With cable 30m
Spare parts	H-7ZXNA3007	7ZXNA3007	1	-
Instruction manual	H-7ZPNA3208	7ZPNA3208	1	-

**JLN-741N Standard components**

Item name	Model	Code	Quantity	Remarks	
Main display unit	NWZ-4640	NWZ4640	1	4.5-inch monochrome display	
NWZ-4640 Accessory	Data power cable	CFQ-5766A	CFQ5766A	1	2m
	Fuse	MF60NR 250V 1	5ZFGD00205	2	1A fuse
	Front panel	MTV305018A	MTV305018A	1	-
	Desktop frame kit	MPBX47065	MPBX47065	1	Base, Knob Bolt, rotating seat, Knob Washer
	Product nameplate	MPNN50584A	MPNN50584A	1	For Front
Installation schematic drawing	MTZ304550A	MTZ304550A	1	For Flush Mount	
Signal Processor	NJC-70S	NJC70S	1	-	
AC power rectifier	NBA-5143	NBA5143A	1	-	
Transducer Mounting	NKF-547	NKF-547	1	Flat type With cable 30m	
Junction Box	CQD-10	CQD-10CN2	1	-	
Spare parts	H-7ZXNA3007	7ZXNA3007	1	-	
Instruction manual	H-7ZPNA3208	7ZPNA3208	1	-	

JLN-740A, JLN-740N Optional components (Separately sold)

Item name	Model	Code	Quantity	Remarks			
Desktop frame	MPBX49706	MPBX49706	1	For JLN-740A Main display (NWZ-510SDW)			
Remote Display	NWZ-650SDR NWZ-840SDR	NWZ650SDR NWZ840SDR	2	Up to a total of 2 units			
Multi-information Display (MID)	NWZ-4610	Color	Code				
		N2.5	NWZ4610N2				
		N4	NWZ4610				
Distance Counter	NWW-7	Color	Code	1	A loud click sound is heard when counting		
		N2.5	NWW-7-N2				
		N4	NWW-7-N4				
		2.5G7/2	NWW-7				
		7.5BG7/2	NWW-7-7				
Junction Box	CQD-10	CQD-10CN2	1	-			
Analog Display	NWW-24 NWW-25 NWW-26	Refer to "Table 1.1 Analog display size list".	2	NWW-25 has built- in dimmer			
Remote Display Communication Cable	CFS-6680A	CFS6680A	1	Cable for communication/power supply between the remote display and distribution processor (about 1.2m)			
Multi-information Display Communication/ Power Supply Cable	CFQ-5766D	CFQ5766D	1	10m/14-core/extension			
	CFQ-5766F	CFQ5766F	1	20m/14-core/extension			
Transducer Mounting	NKF-531E	NKF-531E	1	Gate Valve type With cable 40 m			
Dimmer Unit	NCM-227	Color	Code	1	Connection compatible devices, please refer to " Table 1.2 Control according to dimmer unit NCM-227 / NCM-329"		
		N2.5	NCM-227-N2				
		N3	NCM-227-N				
		2.5G7/2	NCM-227-2				
			7.5BG7/2	NCM-227-7			
	NCM-329	N2.5	NCM329H-N2	1			
		N3	NCM-329-HN				
		2.5G7/2	NCM-329-H2				
7.5BG7/2		NCM-329-H7					

JLN-740A, JLN-740N Optional components (Separately sold)

Item name	Model	Code	Quantity	Remarks
Desktop frame	MPBX49706	MPBX49706	1	For JLN-741A Main display (NWZ-510SDW)
Transducer Mounting	NKF-531E	NKF-531E	1	Gate valve type 40-m cable attached

Variation of NKF-531E (Classification Society) Optional components (Separately sold)

Class	Item name	Model	Code	Cable length
ABS / DNV	Transducer Mounting ABS/DNV	NKF-531EAD-04	NA531EAD04	40m
BV	Transducer Mounting BV	NKF-531EBV-04	NA531EBV04	40m
CCS	Transducer Mounting CCS	NKF-531ECC-04	NA531ECC04	40m
GL	Transducer Mounting GL	NKF-531EGL-04	NA531EGL04	40m
KR	Transducer Mounting KR	NKF-531EKR-04	NA531EKR04	40m
LR	Transducer Mounting LR	NKF-531ELR-04	NA531ELR04	40m
NK	Transducer Mounting	NKF-531E	NA531ENK	25m

Variation of CFT-022 (transducer without Gate Valve) Optional components (Separately sold)

Item name	Model	Code	Cable length
2 MHz Transducer	CFT-022C30	CFT022C30	30m
Painting Transducer	CFT022C30P	CFT022C30P	30m
2 MHz Transducer	CFT-022C01	CFT022C01	40m

Note: CFT022C30P is a specification for JMU

Variation of CFT-023 (transducer for Gate Valve) Optional components (Separately sold)

Item name	Model	Code	Cable length
2 MHz Transducer	H-7UNNA3002 CFT-023C	7UNNA3002	25m
2 MHz Transducer	CFT023C01	CFT023C01	40m

Variation of Data Power Cable for NWZ-4610 Optional components (Separately sold)

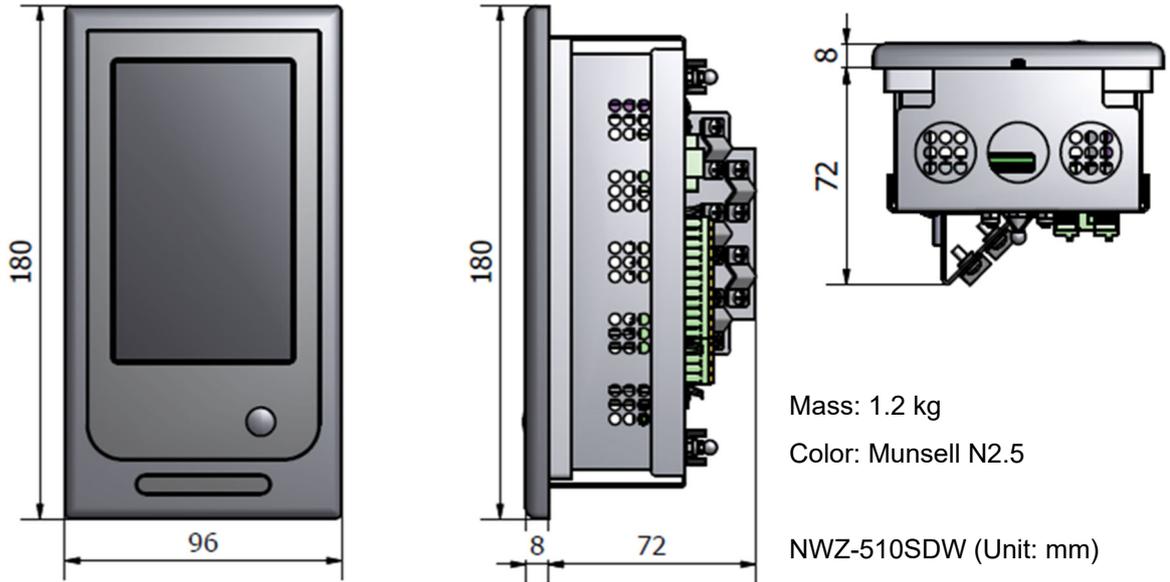
Item name	Model	Code	Cable length
DATAPOWER CABLE	CFQ-5766B	CFQ5766B	3m
DATAPOWER CABLE	CFQ-5766D	CFQ5766D	10m
DATAPOWER CABLE	CFQ-5766F	CFQ5766F	20m

#### 1.4. Construction

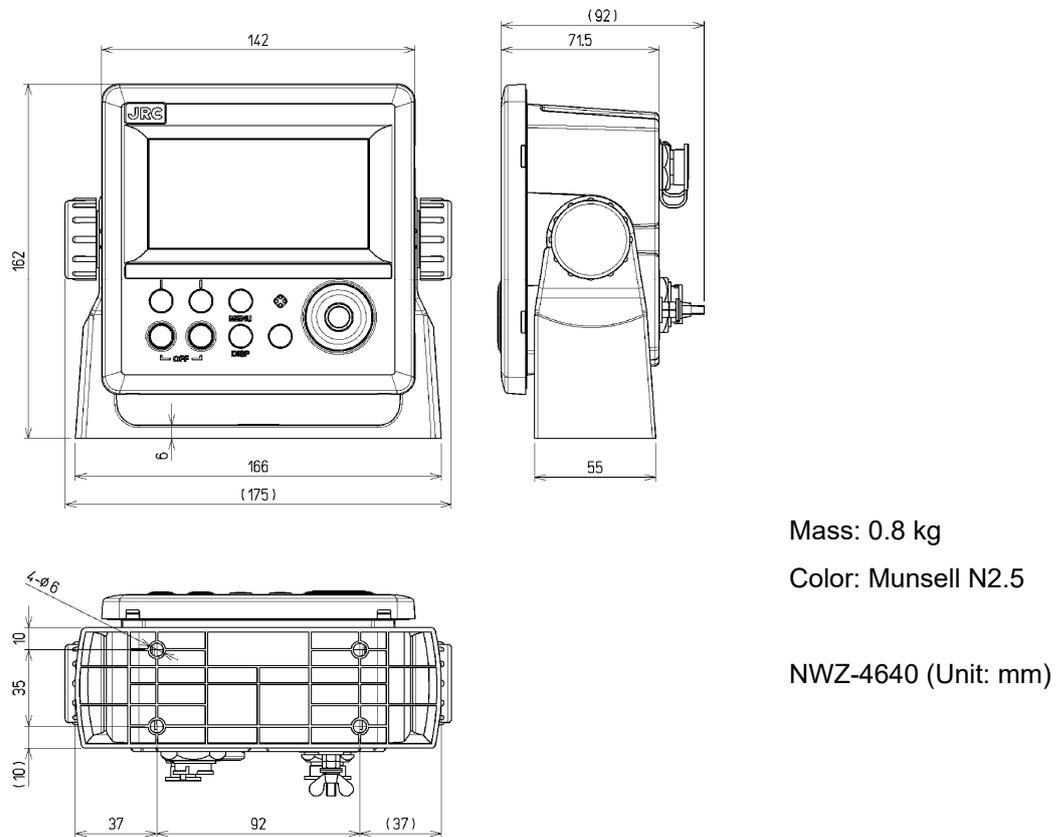
##### 1.4.1. Equipment outline

Equipment outline is shown in the following figure:

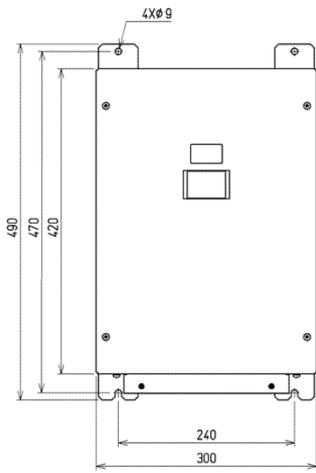
#### MAIN DISPLAY NWZ-510SDW (JLN-740A/741A)



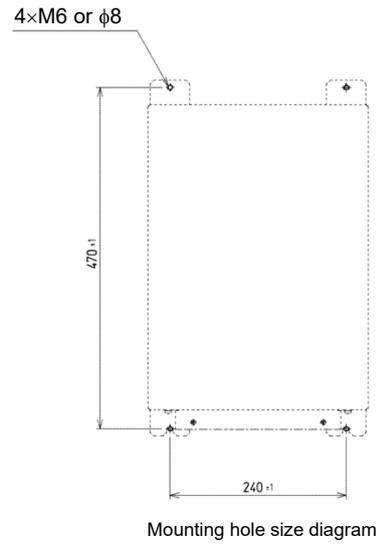
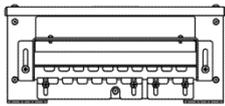
#### MAIN DISPLAY NWZ-4640 (JLN-740N/741N)



# Distribution processor NQA-7040 (JLN-740A/740N)



↑  
Cable inlet

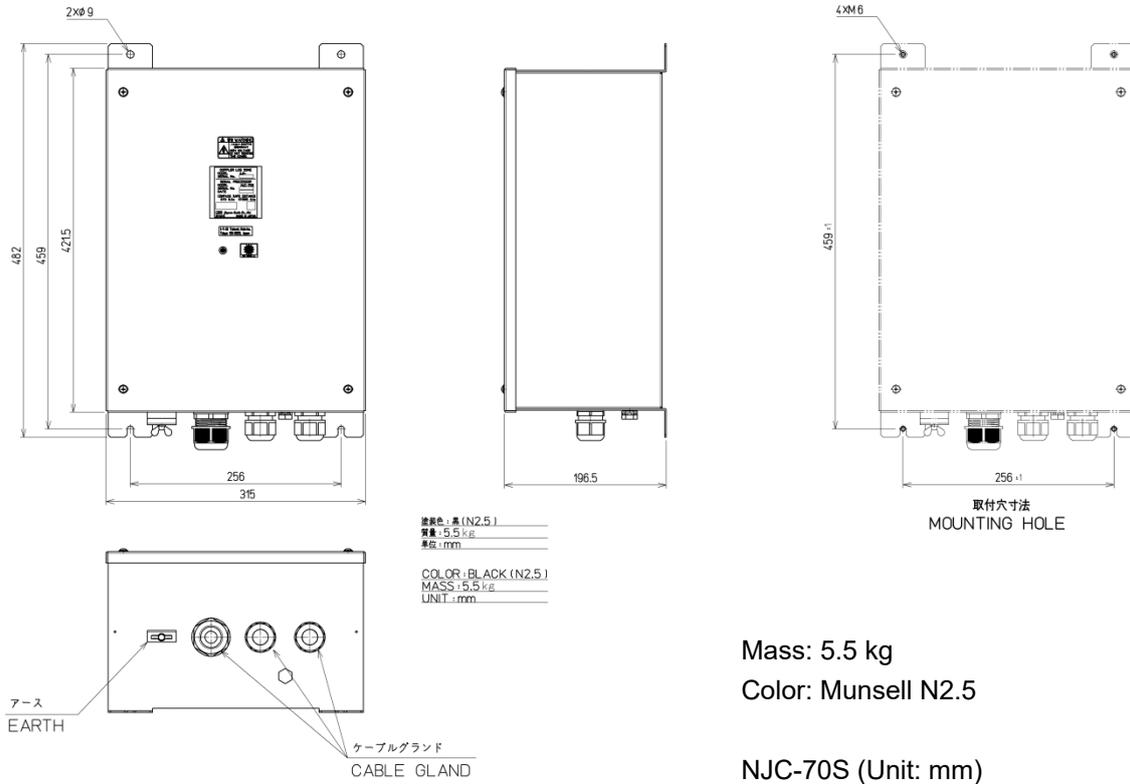


Mass: 6.0 kg

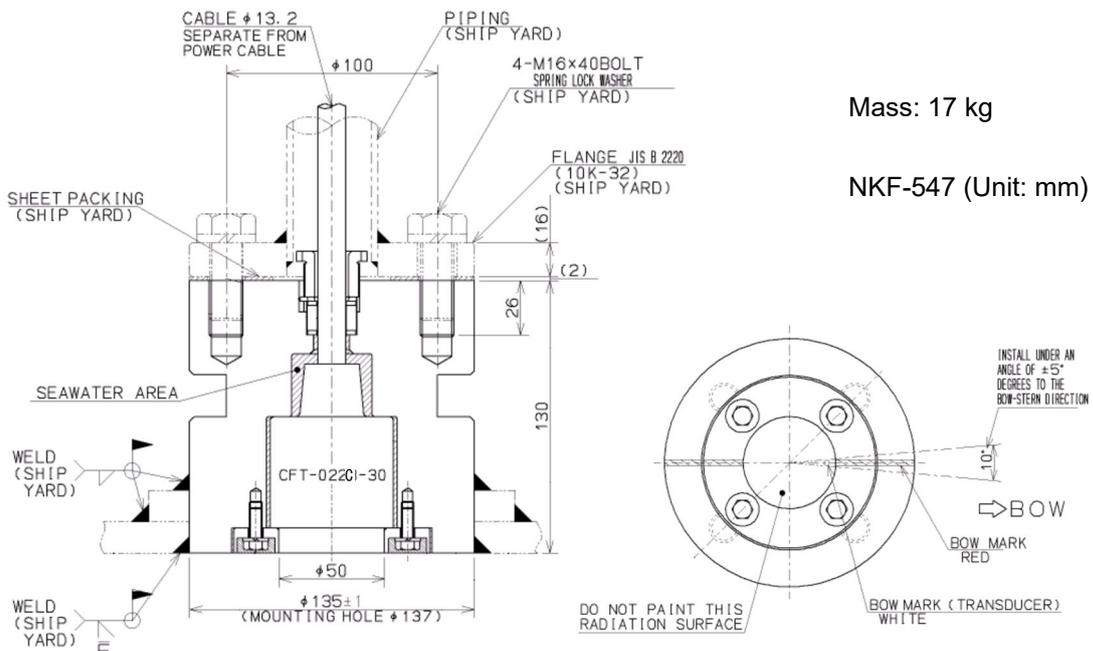
Color: Munsell N2.5

NQA-7040 (Unit: mm)

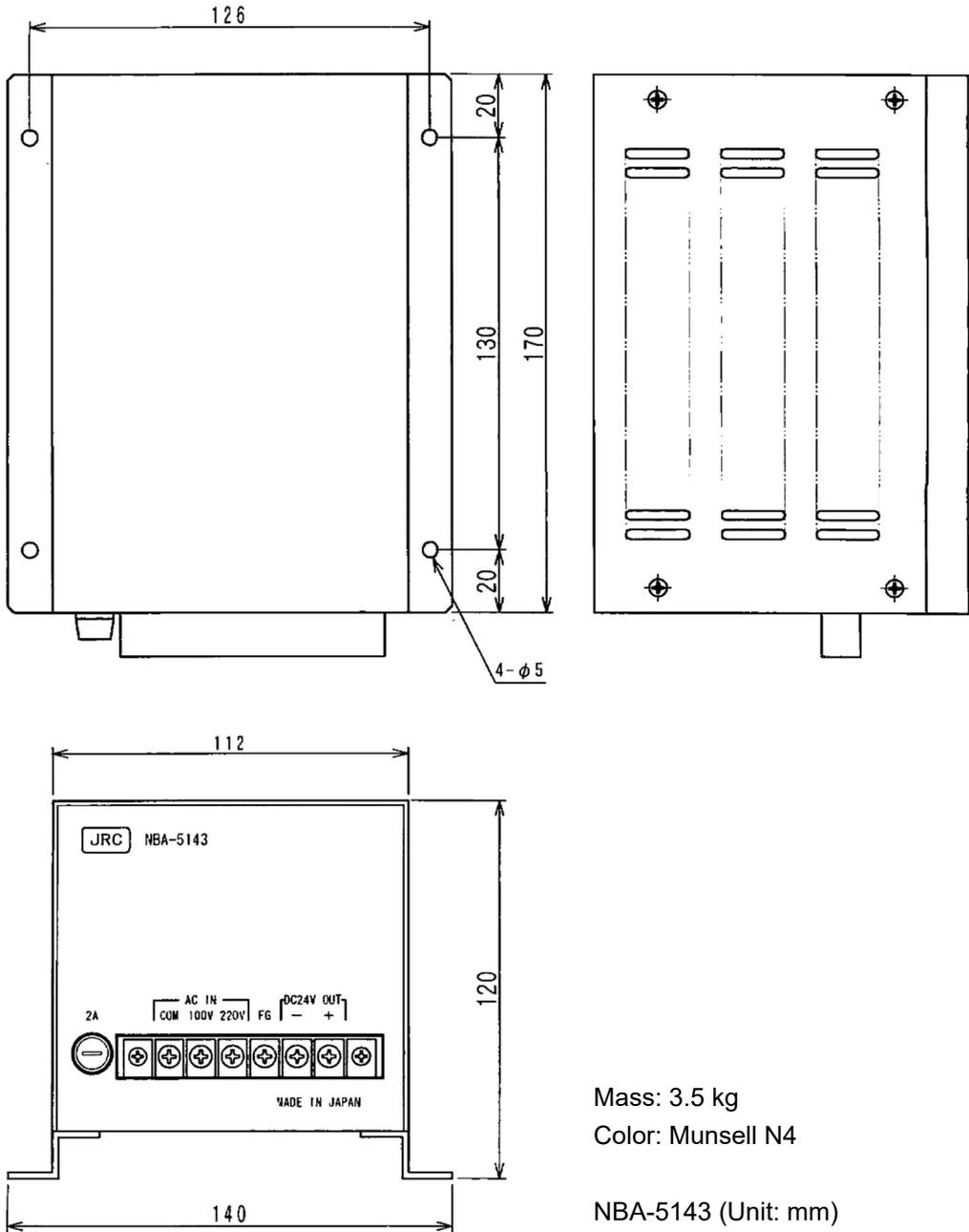
## SIGNAL PROCESSOR NJC-70S



## TRANSDUCER NKF-547



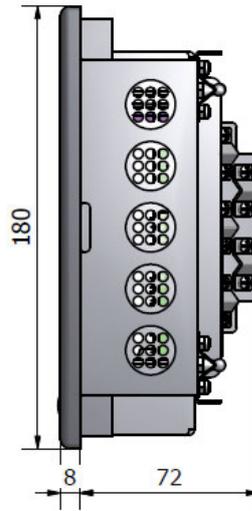
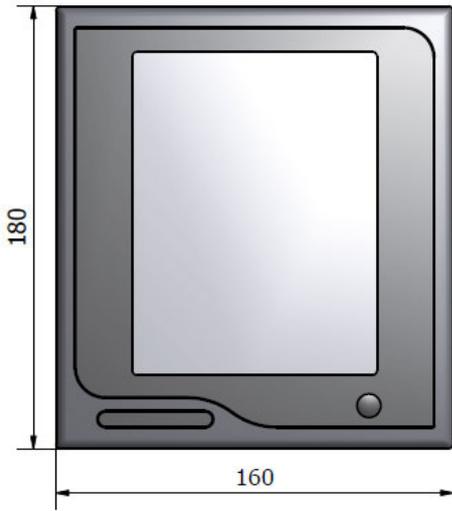
**AC power rectifier NBA-5143**



Mass: 3.5 kg  
Color: Munsell N4

NBA-5143 (Unit: mm)

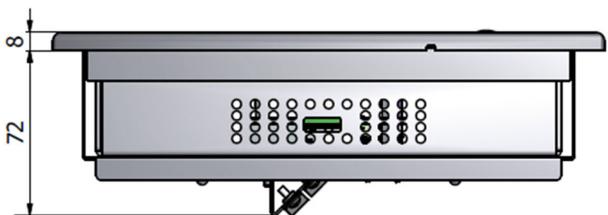
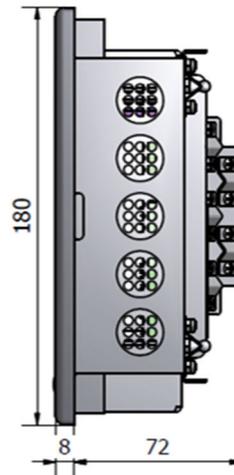
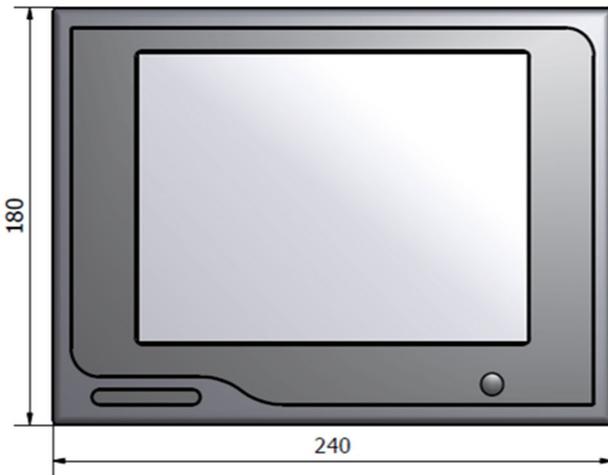
**SUB DISPLAY NWZ-650SDR (Option)**



Mass: 1.4 kg  
Color: Munsell N2.5

NWZ-650SDR (Unit: mm)

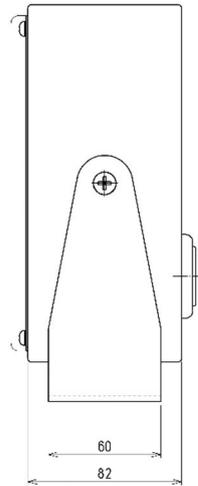
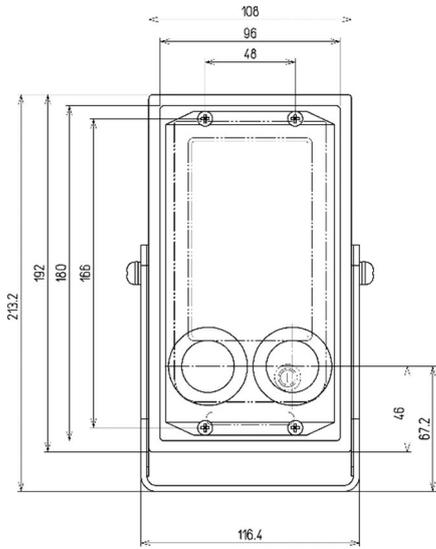
**SUB DISPLAY NWZ-840SDR (Option)**



Mass: 2.1 kg  
Color: Munsell N2.5

NWZ-840SDR (Unit: mm)

**Desktop frame MPBX49706 (optional)**

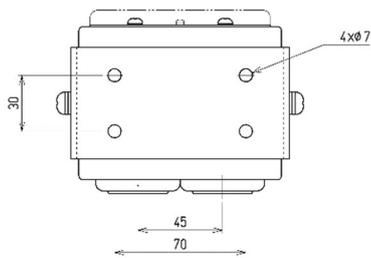


Mass: 1.0kg

Color: Munsell N2.5

MPBX49706 (Unit: mm)

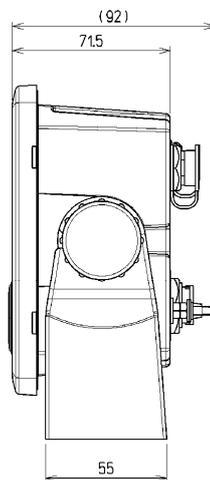
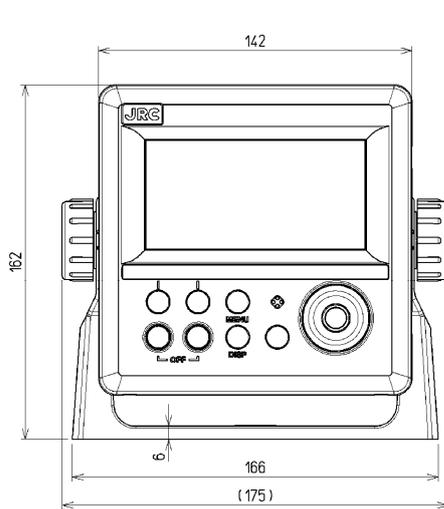
ケーブル導入口  
CABLE INLET



OUTLINE DIMENSIONS		PERMISSIBLE DIMENSIONAL DEVIATIONS
OVER	TO	
3	6	±0.5
6	30	±1
30	120	±1.5
120	400	±2.5
400	1000	±4
1000	2000	±6
2000	4000	±8

外形寸法		寸法許容差
を超え	以下	
3	6	±0.5
6	30	±1
30	120	±1.5
120	400	±2.5
400	1000	±4
1000	2000	±6
2000	4000	±8

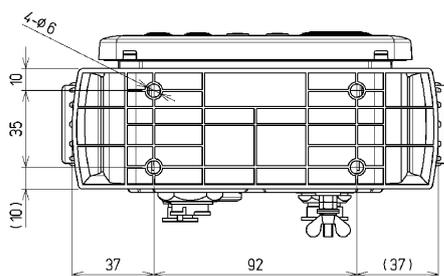
**MULTI-INFORMATION DISPLAY NWZ-4610 (Option)**



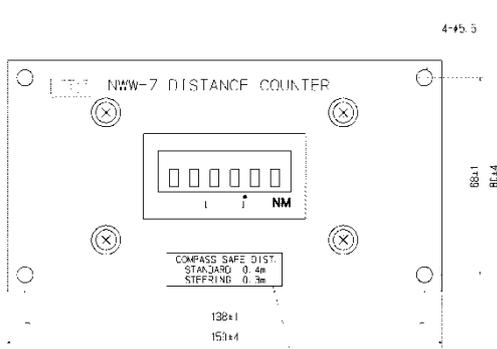
Mass: 0.8 kg

Color: Munsell N2.5

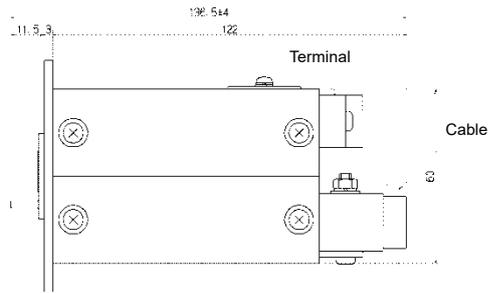
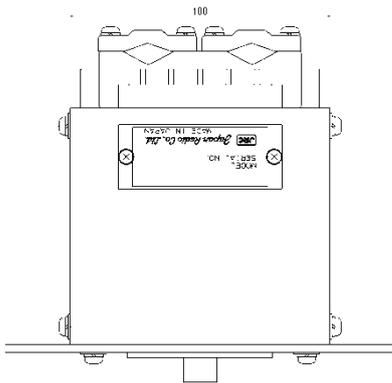
NWZ-4610 (Unit: mm)



## DISTANCE COUNTER NWW-7 (Option)



Attached nameplate

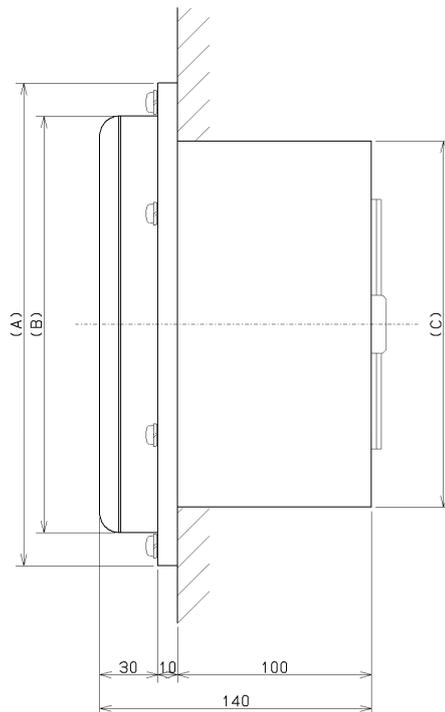
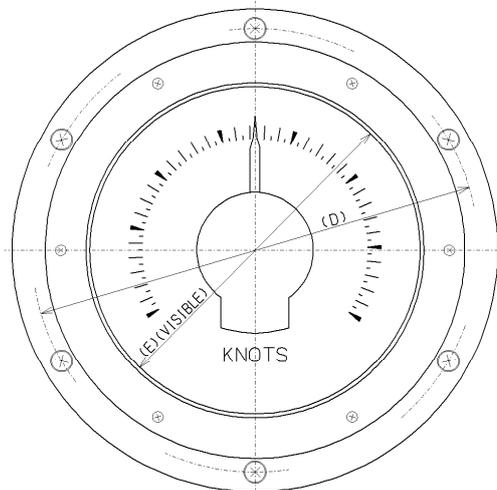


Mass: 1 kg

Color: Munsell N2.5

NWW-7 (Unit: mm)

## ANALOG DISPLAY NWW-24 (Option)



Model	A	B	C	D	E	Mass	Scale panel	E.L panel
NWW-24L	φ 250	φ 216	φ 190	φ 230	φ 170	6.5 kg	-4 to 20 -5 to 25	Green
NWW-24S	φ 200	φ 173	φ 150	φ 186	φ 125	3 kg	-6 to 30	Orange

NWW-24

Model Scale panel E.L panel

(L) (20) (G)

(S) (25) (O)

(30)

(35)

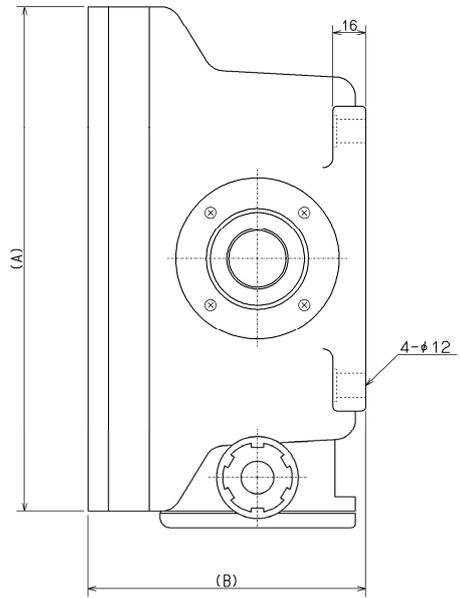
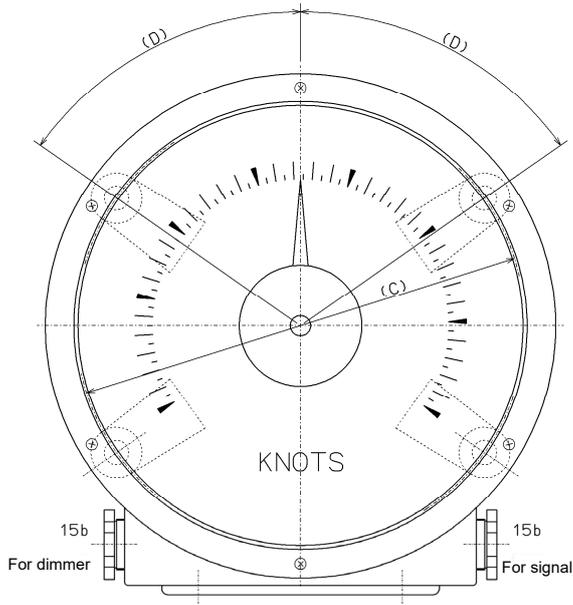
(40)

Coating colour

Munsell N2.5

NWW-24 (Unit: mm)

# ANALOG DISPLAY NWW-25 (Option)



Model	A	B	C	D	Mass	Scale plate	E.L plate
NWW-25L	φ250	136	φ220	55°	7kg	-4 to 20	Green
						-5 to 25	
NWW-25S	φ200	140	φ180	60°	5kg	-6 to 30	Orange

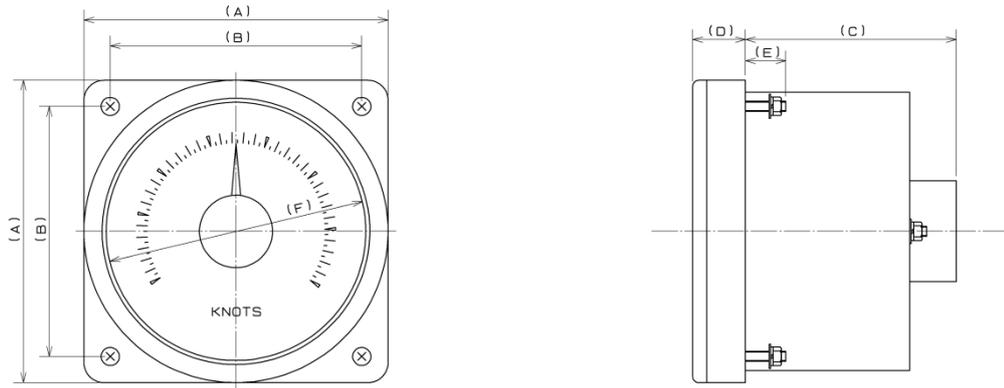
NWW-25

(L) (20) (G)  
(S) (25) (O)  
(30)  
(35)  
(40)

Coating colour  
  
Munsell N2.5

NWW-25 (Unit: mm)

## ANALOG DISPLAY NWW-26 (Option)



Model	A	B	C	D	E	F	Mass	Scale plate	E.L. plate
NWW-26L	150	124	105	26	20	∅ 128	2.5 kg	-4~20 -5~25	Green
NWW-26M	120	100	90	23	15	∅ 100	1.5 kg	-6~30	
NWW-26S	110	90	90	11	15	∅ 100	1 kg	-7~35 -8~40	Orange

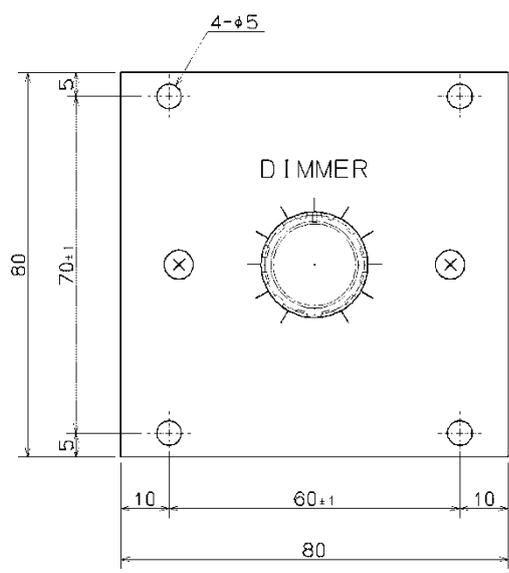
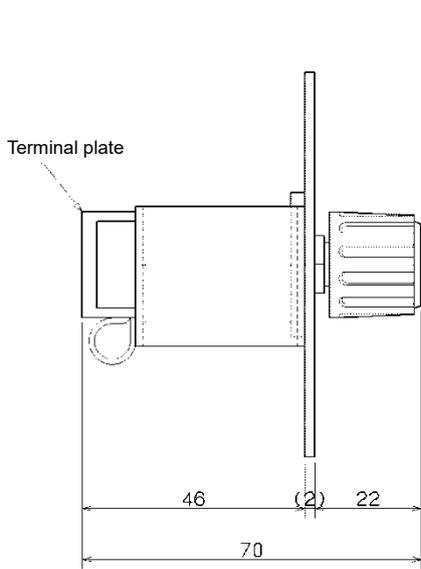
Model Scale plate E.L. plate Coating colour  
 NWW-26      
 (L) (20) (G) Munsell N2.5  
 (M) (25) (O)  
 (S) (30) (35)  
 (40)

NWW-26 (Unit: mm)

Table 1.1 Analog Display Size Table

		NWW-24 (Flush mount type)		NWW-25 (Wall mount type)		NWW-26 (Panel flush mount type)	
Scale	Size	Green EL	Orange EL	Green EL	Orange EL	Green EL	Orange EL
-4 to 20kn	L	NWW-24L20G	NWW-24L20O	NWW-25L20G	NWW-25L20O	NWW-26L20G	NWW-26L20O
	M	-	-	-	-	NWW-26M20G	NWW-26M20O
	S	NWW-24S20G	NWW-24S20O	NWW-25S20G	NWW-25S20O	NWW-26S20G	NWW-26S20O
-5 to 25kn	L	NWW-24L25G	NWW-24L25O	NWW-25L25G	NWW-25L25O	NWW-26L25G	NWW-26L25O
	M	-	-	-	-	NWW-26M25G	NWW-26M25O
	S	NWW-24S25G	NWW-24S25O	NWW-25S25G	NWW-25S25O	NWW-26S25G	NWW-26S25O
-6 to 30kn	L	NWW-24L30G	NWW-24L30O	NWW-25L30G	NWW-25L30O	NWW-26L30G	NWW-26L30O
	M	-	-	-	-	NWW-26M30G	NWW-26M30O
	S	NWW-24S30G	NWW-24S30O	NWW-25S30G	NWW-25S30O	NWW-26S30G	NWW-26S30O

**Dimmer uni NCM-227 (Option)**

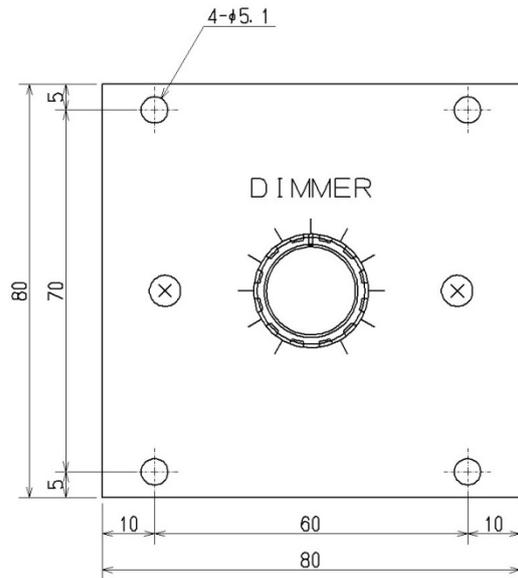
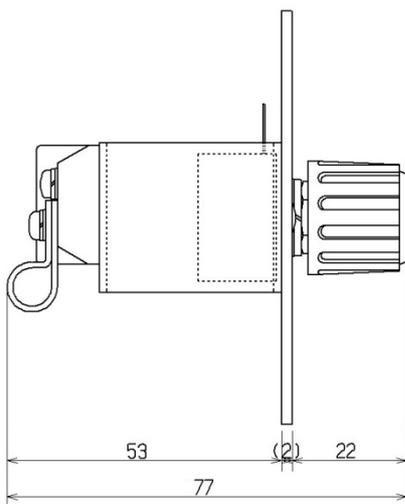


Mass: 0.5 kg

Color: Munsell N2.5

NCM-227 (Unit: mm)

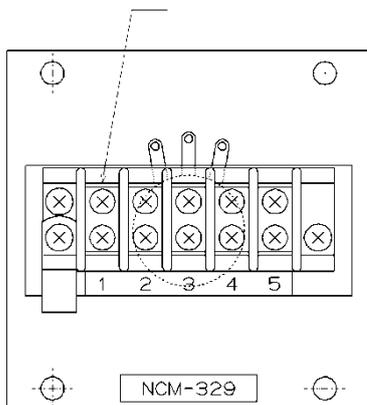
**Dimmer unit NCM-329 (Option)**



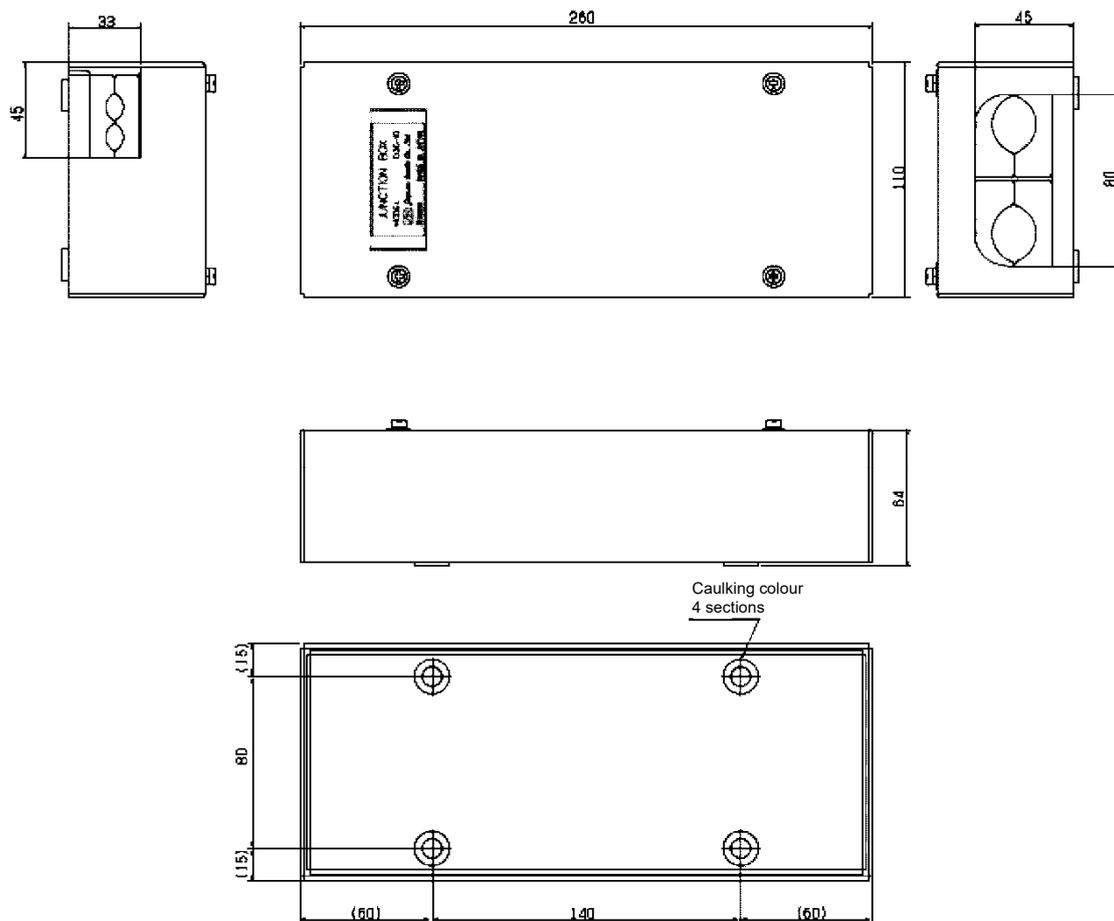
Mass: 0.5 kg

Color: Munsell N2.5

NCM-329 (Unit: mm)



## JUNCTION BOX CQD-10 (Option)

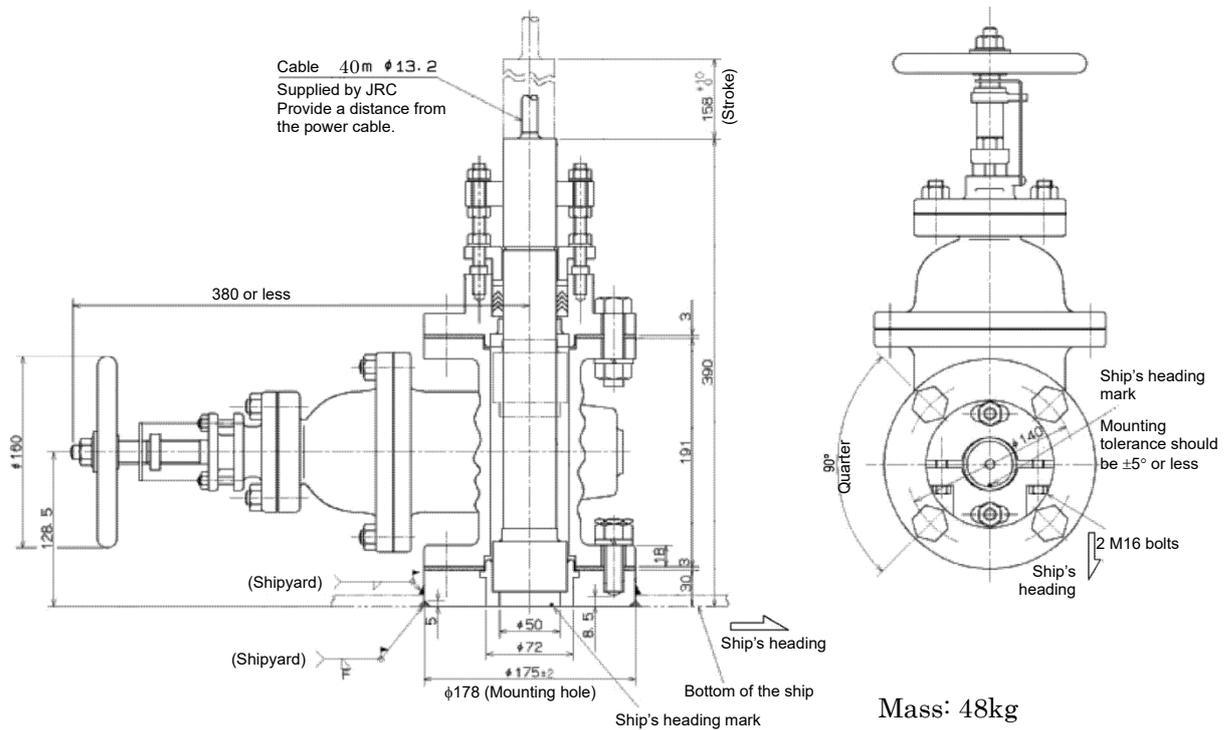


Mass: 1.1 kg

Color: Munsell N2.5

CQD-10 (Unit: mm)

## TRANSDUCER NKF-531E (Option)



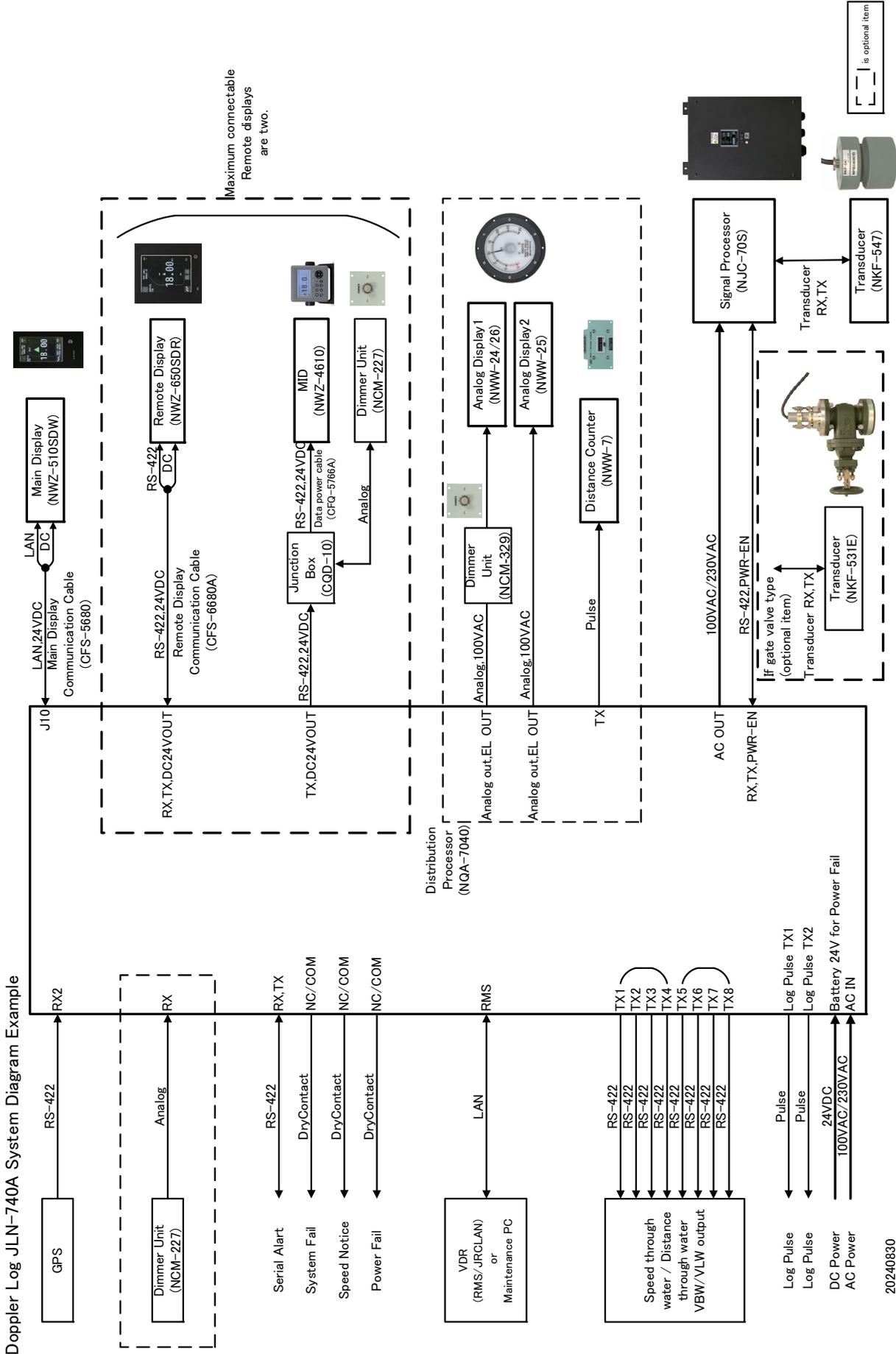
NKF-531E (Unit: mm)

1.4.2. Table 1.2 Control according to dimmer unit NCM-227 / NCM-329

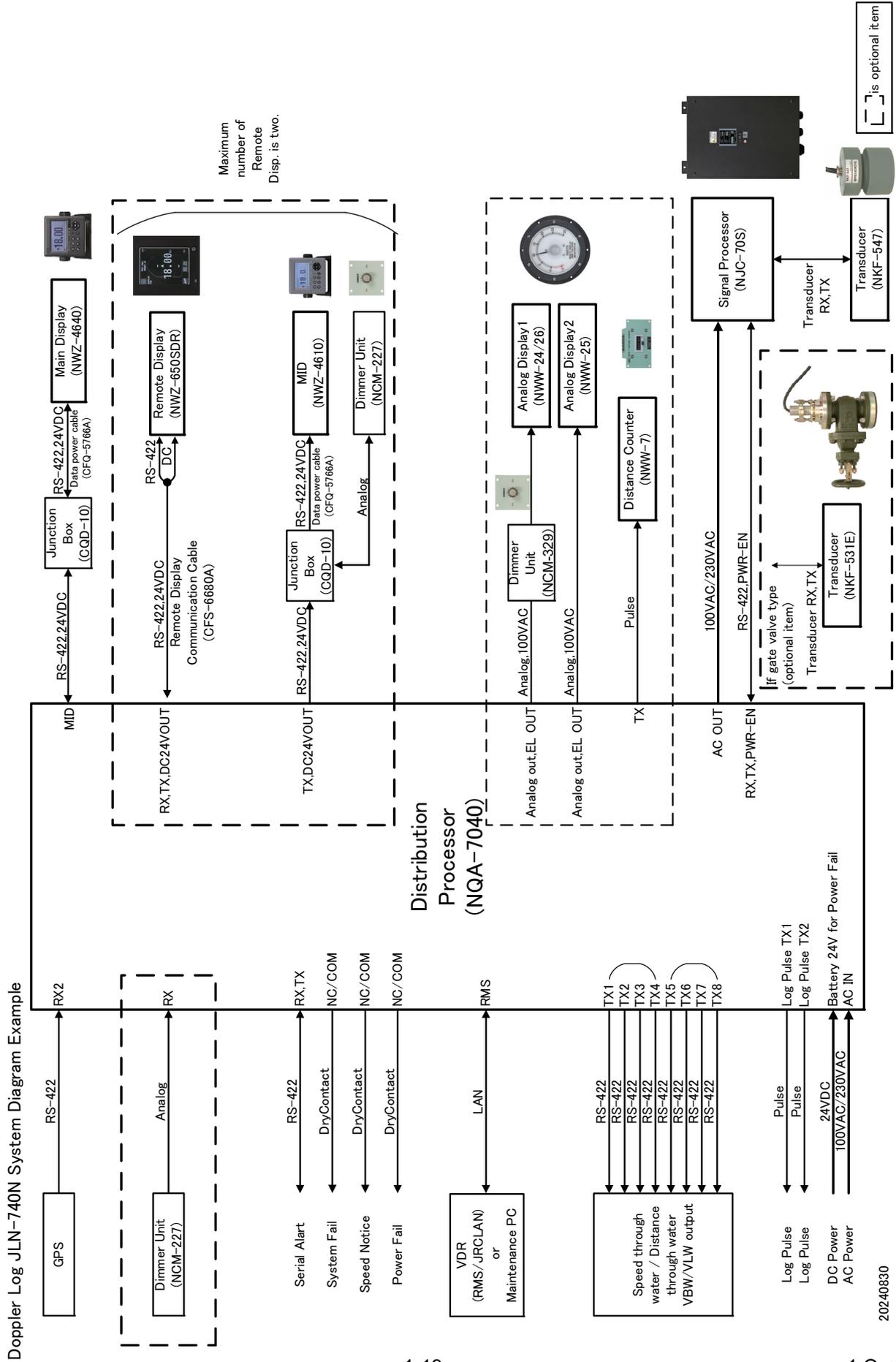
Item name	Model	Central dimmer (DDC)	NCM-227 dimmer unit	NCM-329 dimmer unit
Main Display	NWZ-510SDW	○ (Linking)	○ (Linking)	×
	NWZ-4640	○ (Linking)	○ (Linking)	×
Remote Display	NWZ-650SDR	○ (Linking)	○ (Linking)	×
	NWZ-840SDR	○ (Linking)	○ (Linking)	×
MID	NWZ-4610	○ (Direct connect)	○ (Direct connect)	×
Analog Display	NWW-24	×	×	○ (Direct connect)
	NWW-25	×	×	×
	NWW-26	×	×	○ (Direct connect)
Distance Counter (Distance counter NWW-7 there is no lighting.)	NWW-7	×	×	×

# 1.5. System Configuration

## 1.5.1. JLN-740A System Configuration Diagram

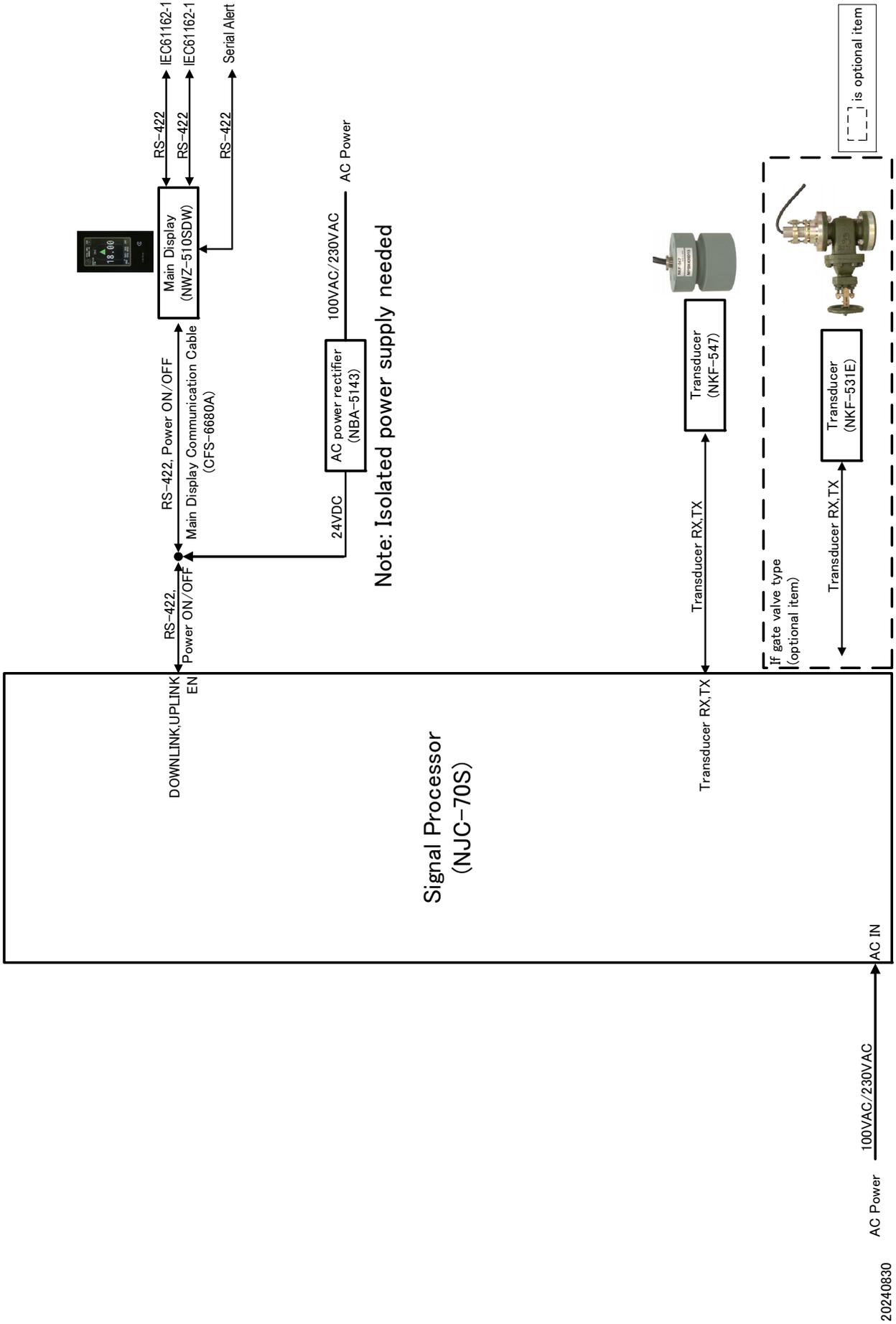


1.5.2. JLN-740N System Configuration Diagram



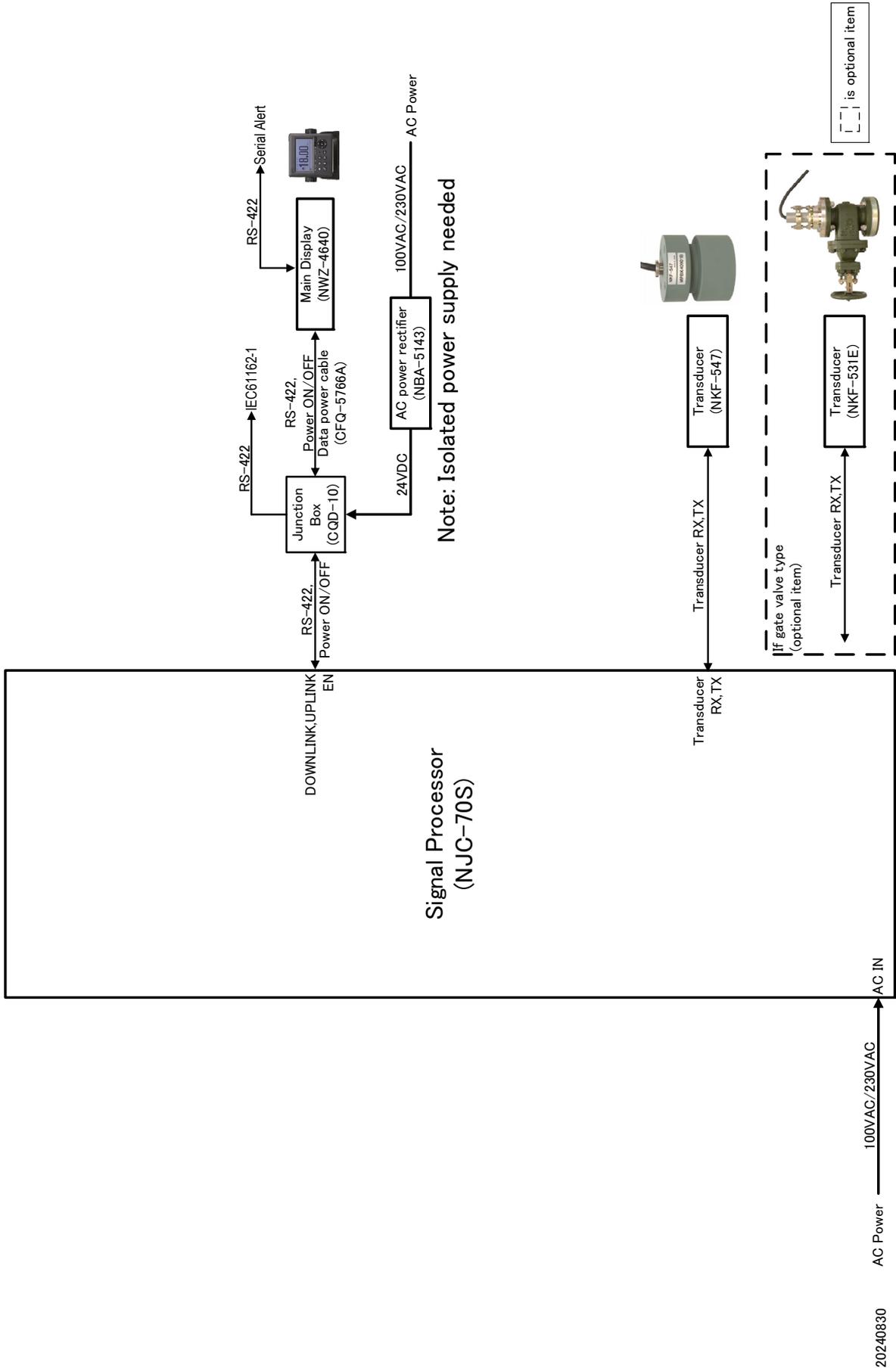
1.5.3. JLN-741A System Configuration Diagram

Doppler Log JLN-741A System Diagram Example



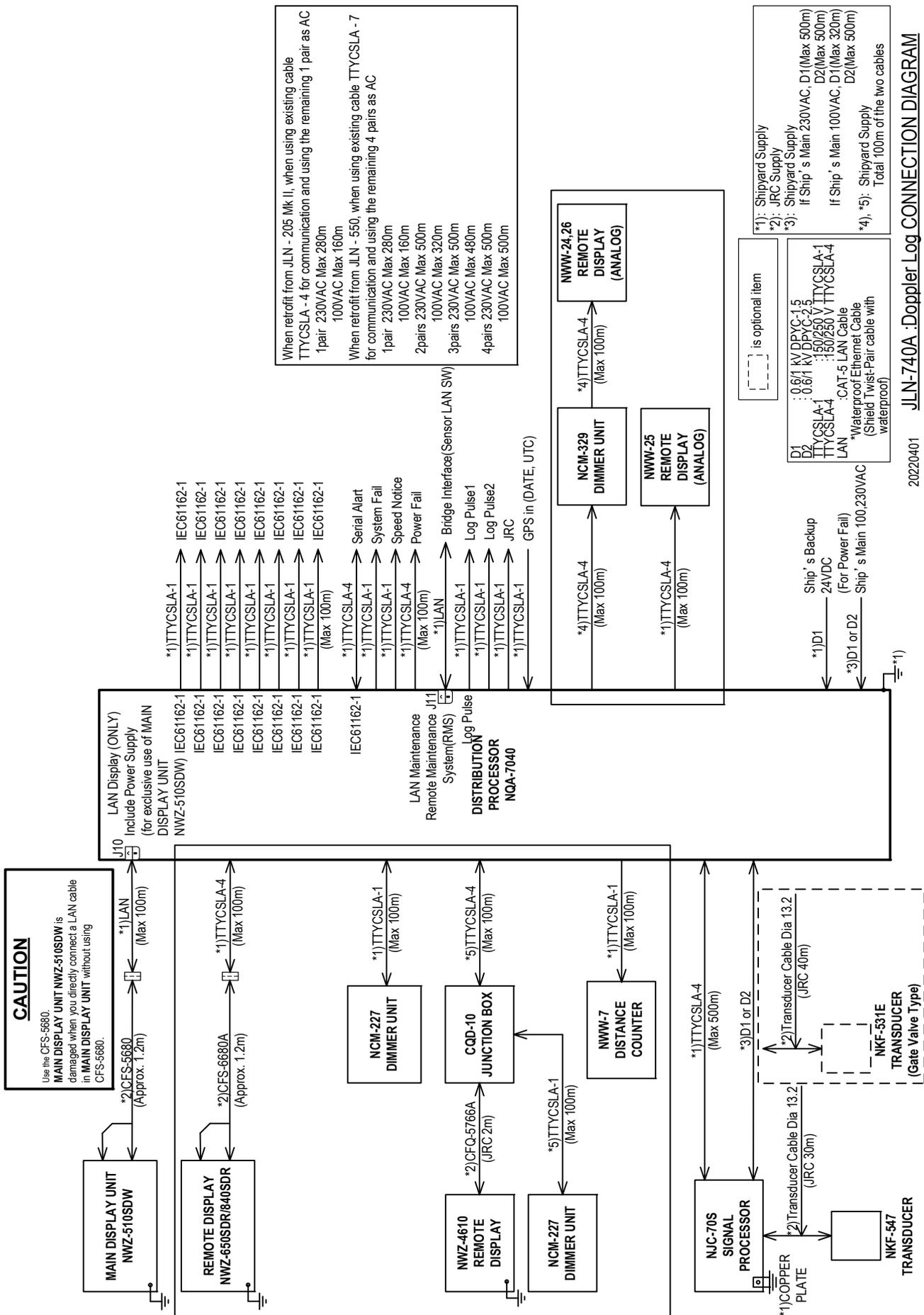
1.5.4. JLN-741N System Configuration Diagram

Doppler Log JLN-741N System Diagram Example



1.6. System Diagram

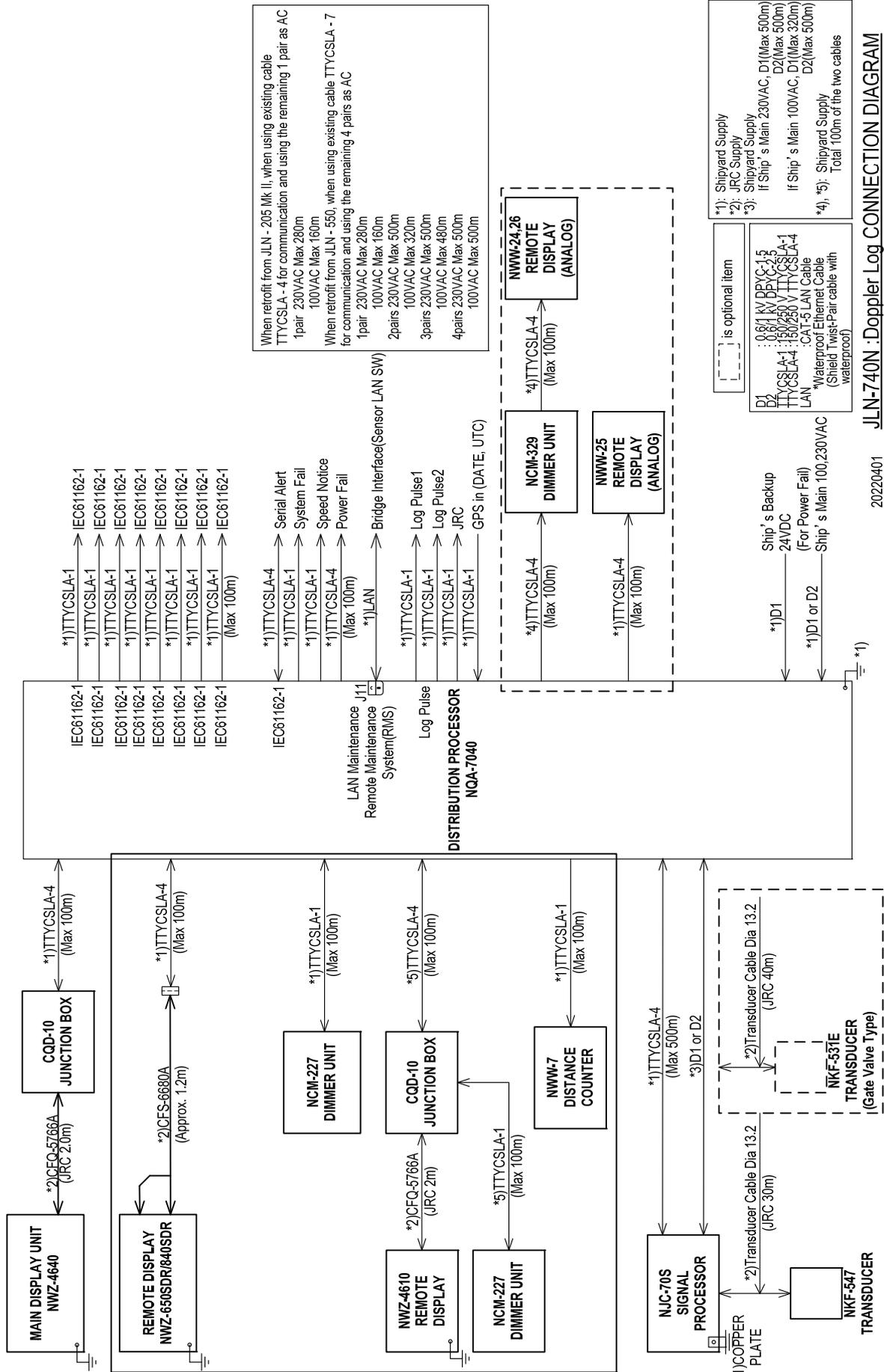
1.6.1. System diagram (JLN-740A)



JLN-740A :Doppler Log CONNECTION DIAGRAM

20220401

1.6.2. System diagram (JLN-740N)

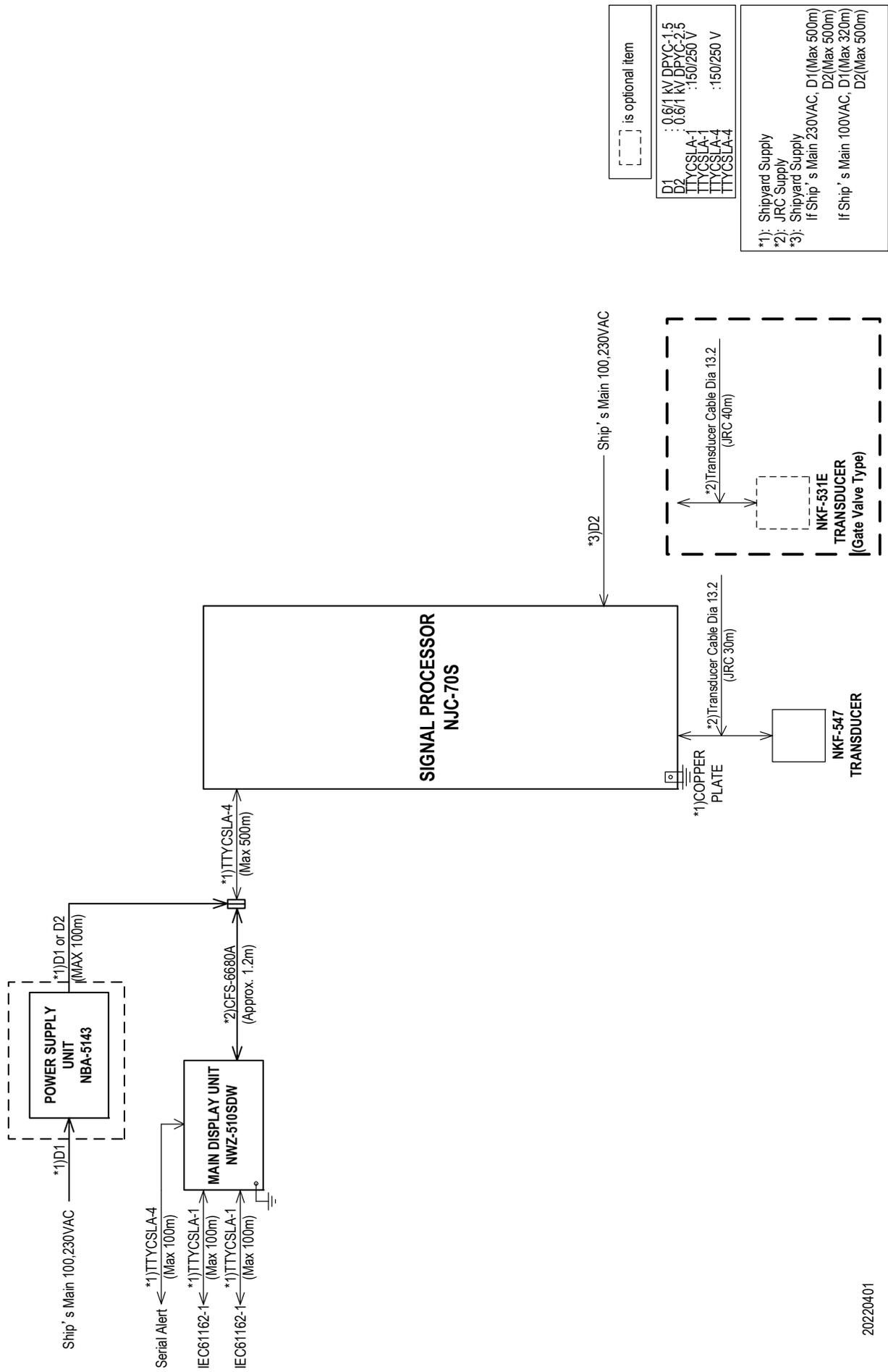


JLN-740N : Doppler Log CONNECTION DIAGRAM

20220401

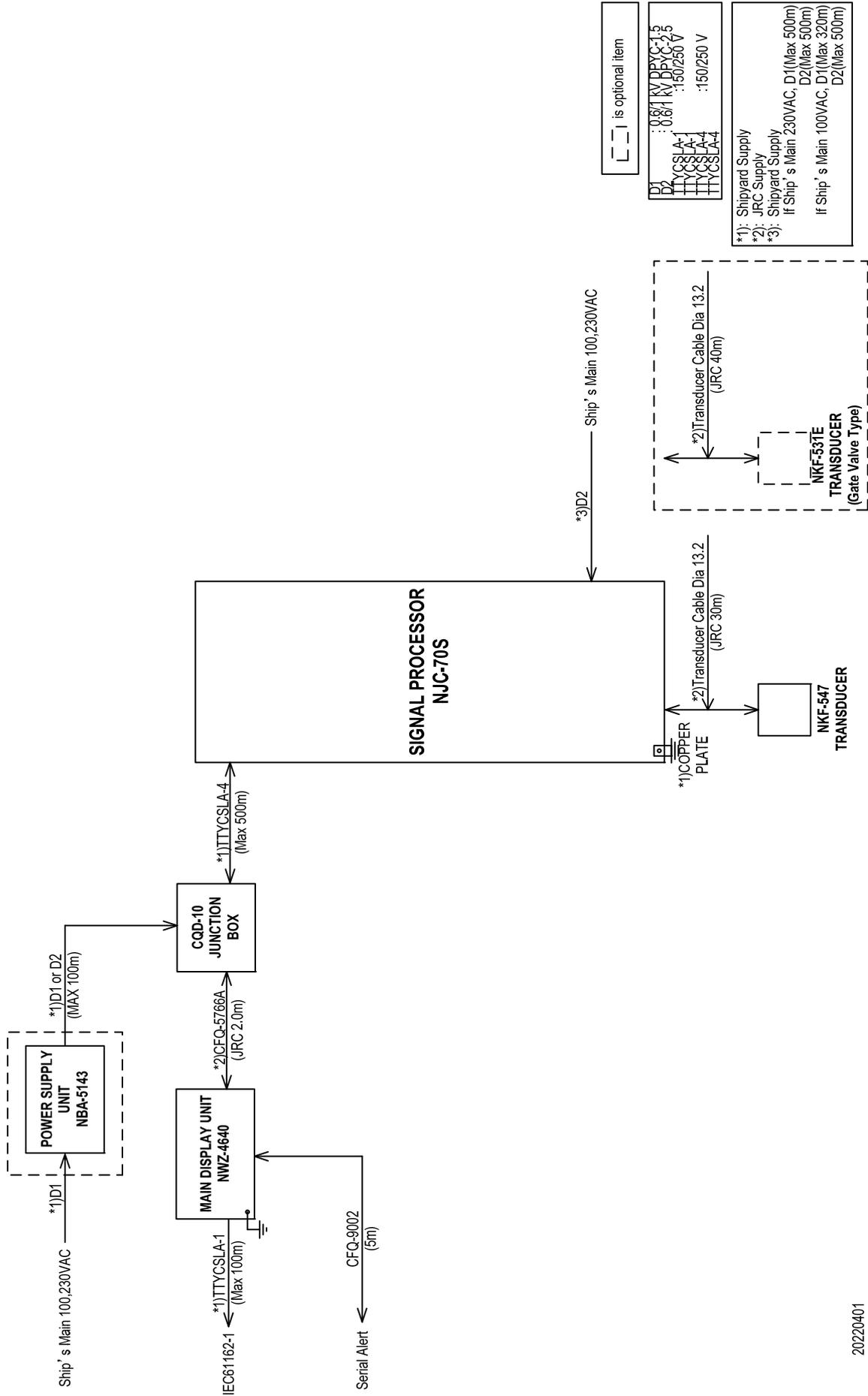
1.6.3. System diagram (JLN-741A)

JLN-741A :Doppler Log CONNECTION DIAGRAM



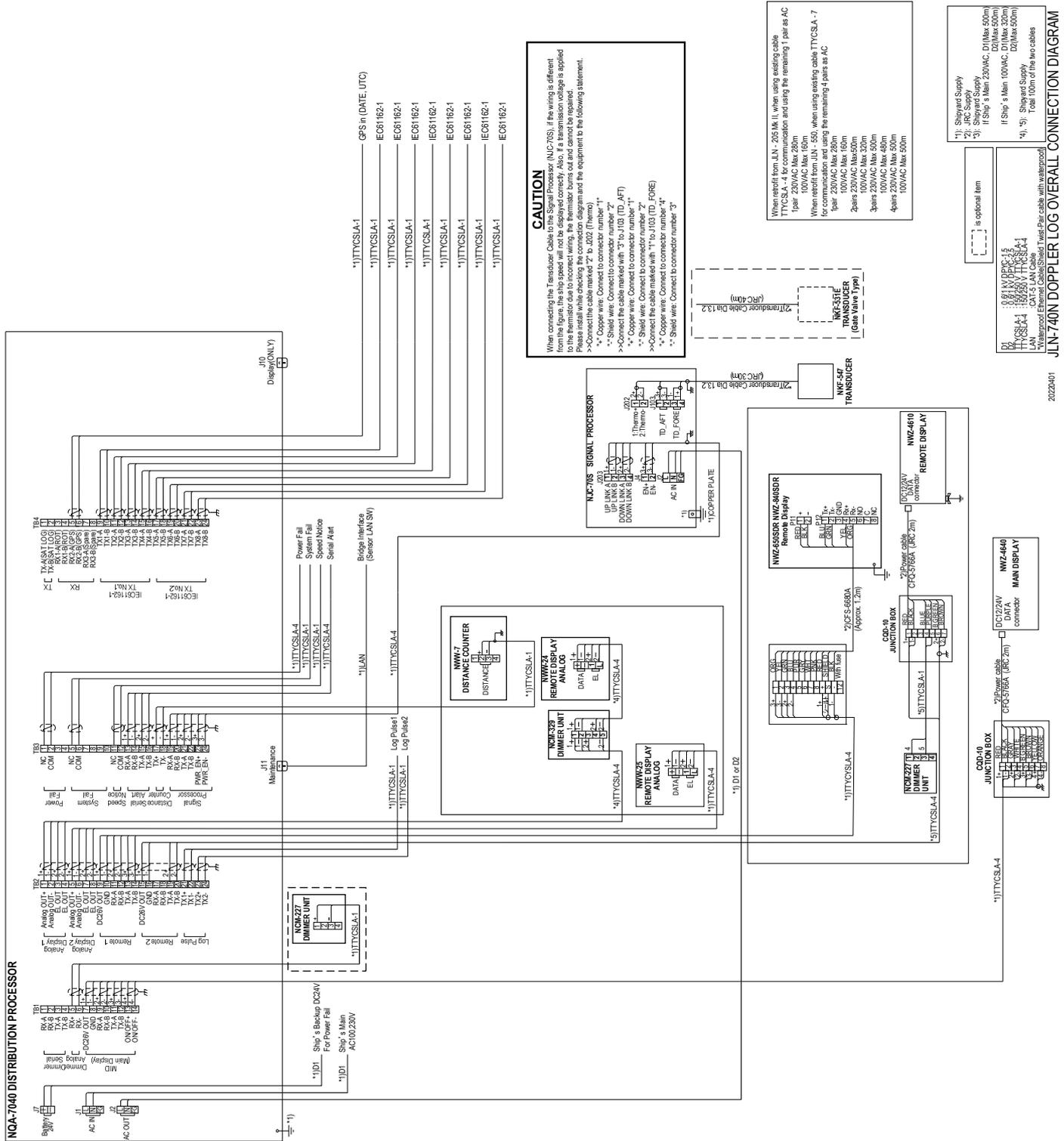
1.6.4. System diagram (JLN-741N)

JLN-741N : Doppler Log CONNECTION DIAGRAM



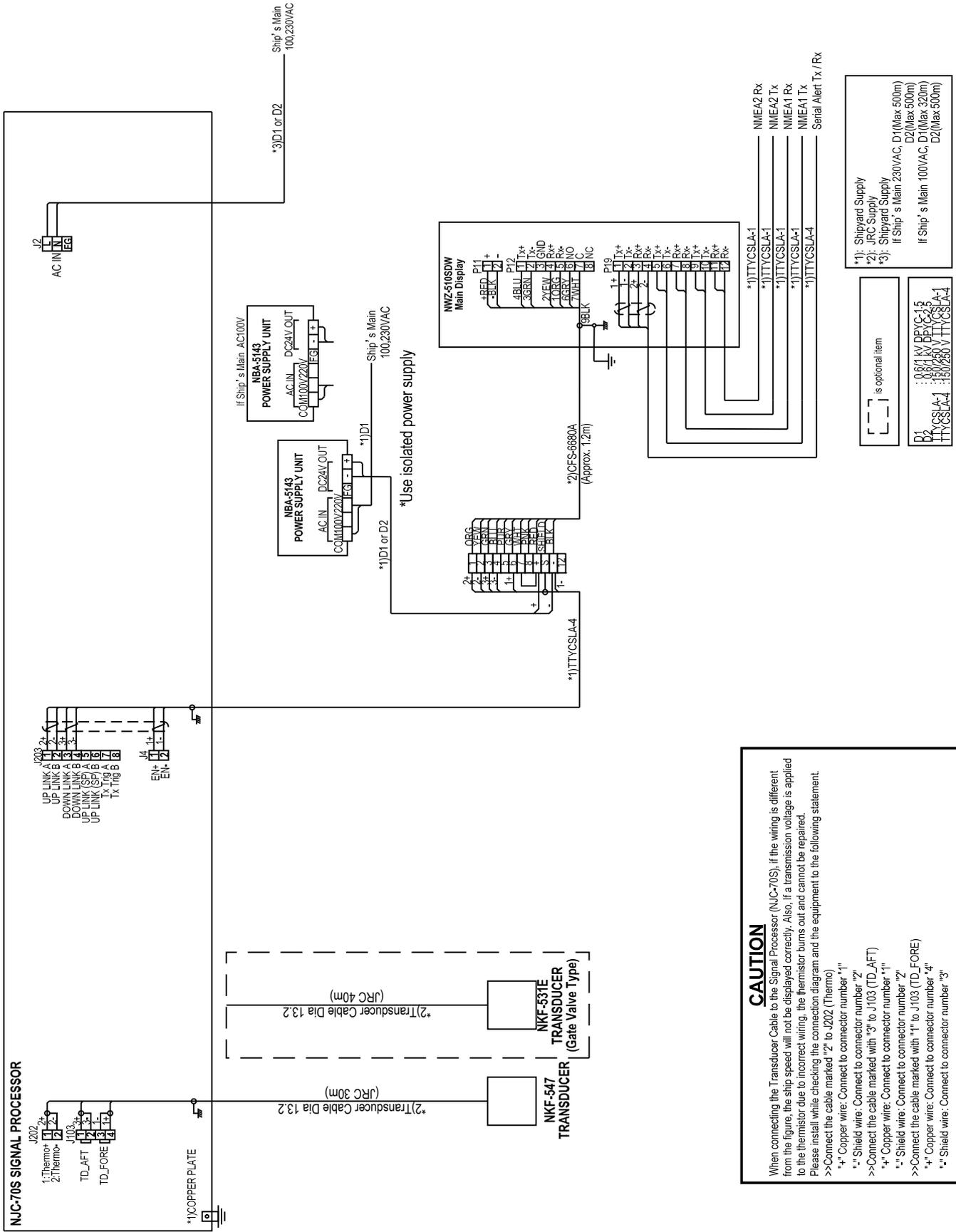


# 1.7.2. Inter-block wiring diagram (JLN-740N)



JLN-740N DOPPLER LOG OVERALL CONNECTION DIAGRAM

1.7.3. Inter-block wiring diagram (JLN-741A)

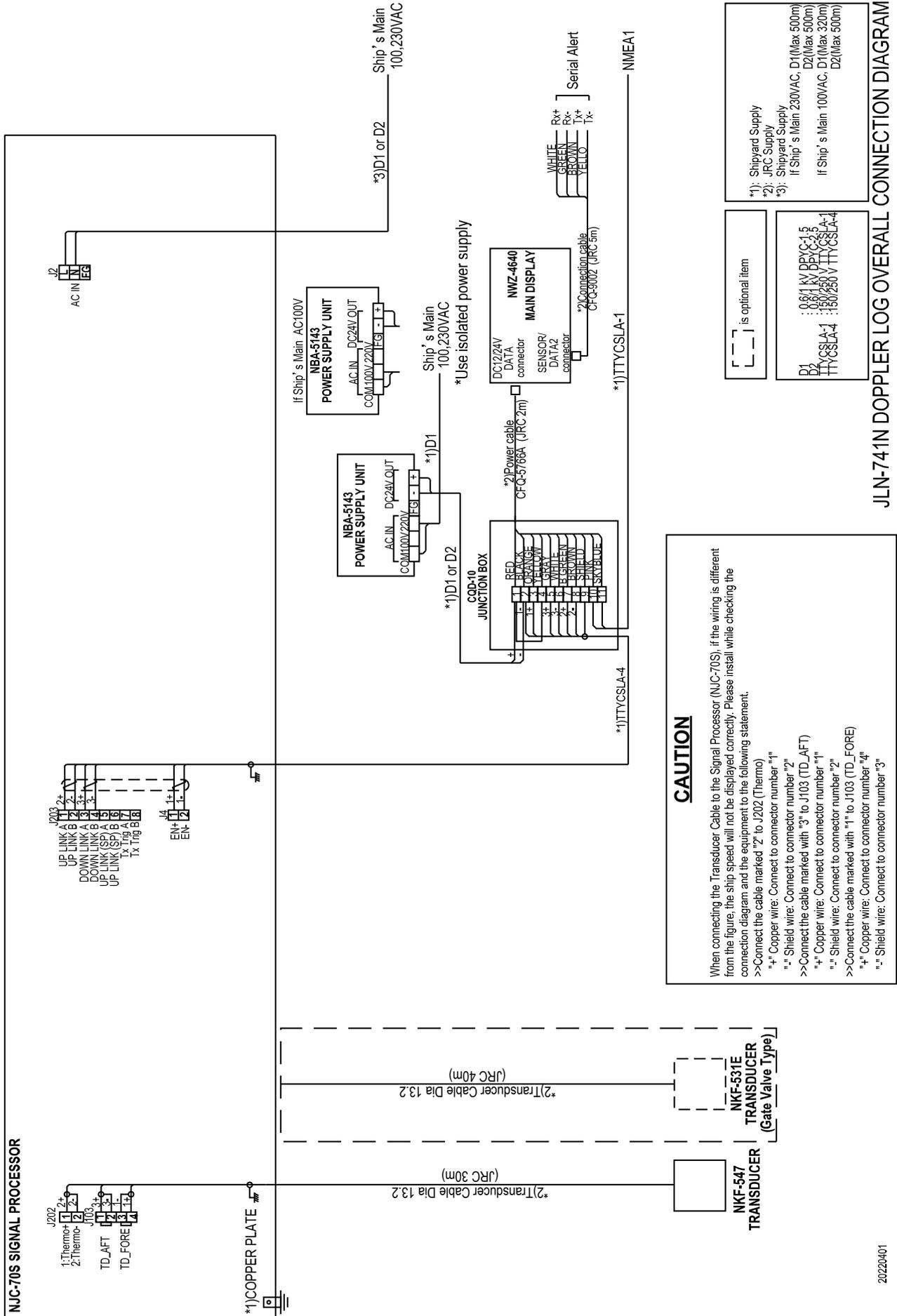


**CAUTION**

When connecting the Transducer Cable to the Signal Processor (NUC-705), if the wiring is different from the figure, the ship speed will not be displayed correctly. Also, if a transmission voltage is applied to the thermistor due to incorrect wiring, the thermistor burns out and cannot be repaired. Please install while checking the connection diagram and the equipment to the following statement.

- >> Connect the cable marked "2" to J202 (Thermo)
- "+" Copper wire: Connect to connector number "1"
- "-" Shield wire: Connect to connector number "2"
- >> Connect the cable marked with "3" to J103 (TD\_AFT)
- "+" Copper wire: Connect to connector number "1"
- "-" Shield wire: Connect to connector number "2"
- >> Connect the cable marked with "1" to J103 (TD\_FORE)
- "+" Copper wire: Connect to connector number "1"
- "-" Shield wire: Connect to connector number "3"

1.7.4. Inter-block wiring diagram (JLN-741N)



20220401

1.8. Alert

1.8.1. Alert List

The alert types displayed are as follows.

If see an alert message, please contact the service engineer.

JLN-740A / 740N / 741A / 741N Alert List

Alert Message	Criteria	ID	Priority	Category	Possible Causes / Guidance
LOST SPEED	IEC 62923-2 Table A.1	3009	Caution	Category B	Ship speed measurement function lost. / Ship speed measurement function has been restored.

1.8.2. Interface

Model	Interface	Number of Port	Input / Output	Alert sentence
JLN-740A/N	IEC 61162-1 Ed5	Max. 1 port	Output	ALF / ALC / ARC
			Input	ACN
	IEC 61162-450Ed2	Max. 1 port	Output	ALF / ALC / ARC
			Input	ACN
JLN-741A/N	IEC 61162-1 Ed5	Max. 1 port	Output	ALF / ALC / ARC
			Input	ACN

1.9. Cluster identifiers

1.9.1. Cluster Identifiers

The Cluster identifier of the JLN-740/741 is set to Nav.

The cluster identification field consists of a maximum of 15 characters. When using the standard cluster identifier, enter the character string shown in the table correctly. Use Nav unless otherwise specified by the bridge system engineer. If the bridge system engineer specifies that you want to enter a non-standard cluster identifier, be sure to enter a string that starts with 9.

For Example

Default : Nav

Other : 9Nav

### 1.9.2. Setting

See. chapter 20.8.5.39.

### 1.9.3. Standardized cluster identifiers

The reserved cluster identifiers are specified in Table.

**Table List of reserved cluster identifiers**

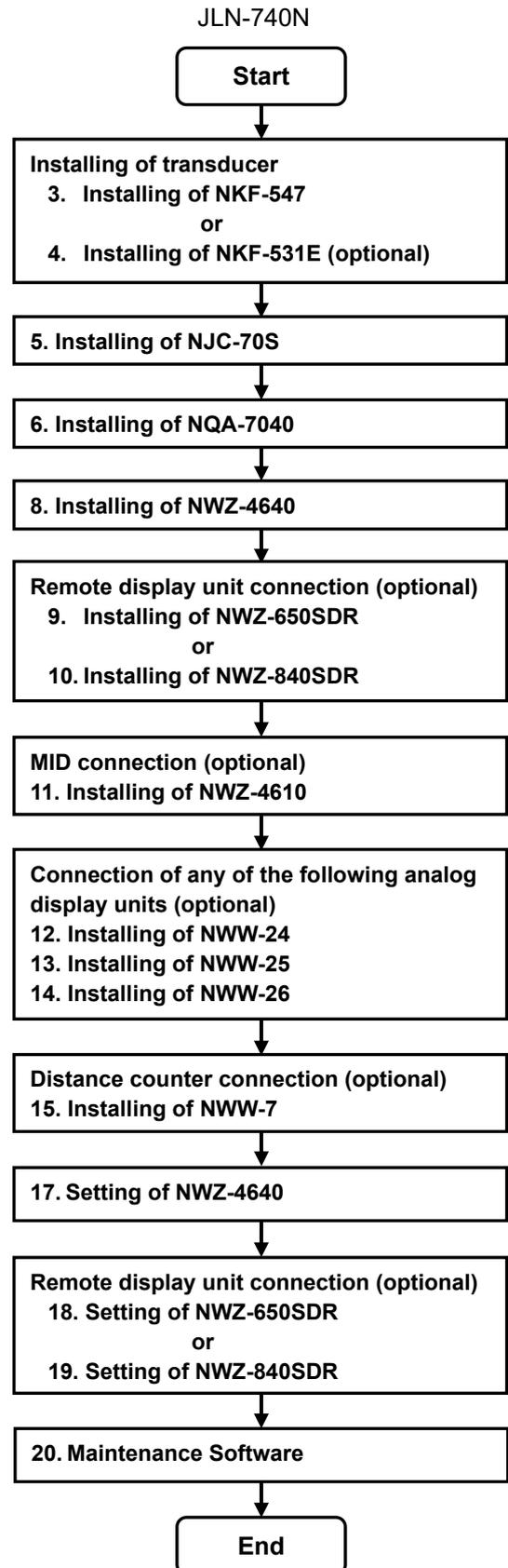
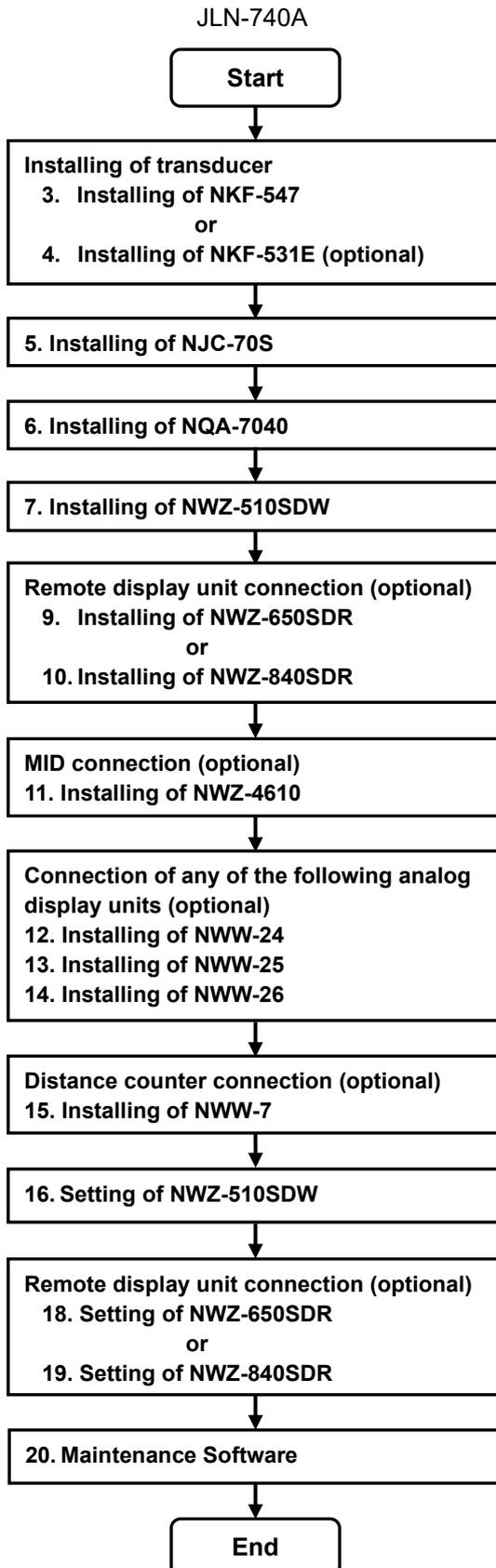
<b>Identifier</b>	<b>Cluster name</b>	<b>Description</b>	<b>Operator (example)</b>
Nav	Navigation	Navigation bridge	Navigator
Com	Communication	Ship's communication	Radio officer
Aut	Automation	Engine room domain	Engineer
Cgo	Cargo	Regarding the payload of the ship	Chief officer/Supercargo
Htl	Hotel	Passenger related services	Hotel manager (passenger vessels)
ICT	ICT	Office network	ICT manager
SSe	Safety/Security	Access monitoring	Ship security officer
Pos	Position control	Dynamic position or mooring control	DP/mooring operator
ROV	Remote operated vehicle	ROV control center	ROV operator

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## 2. Installation

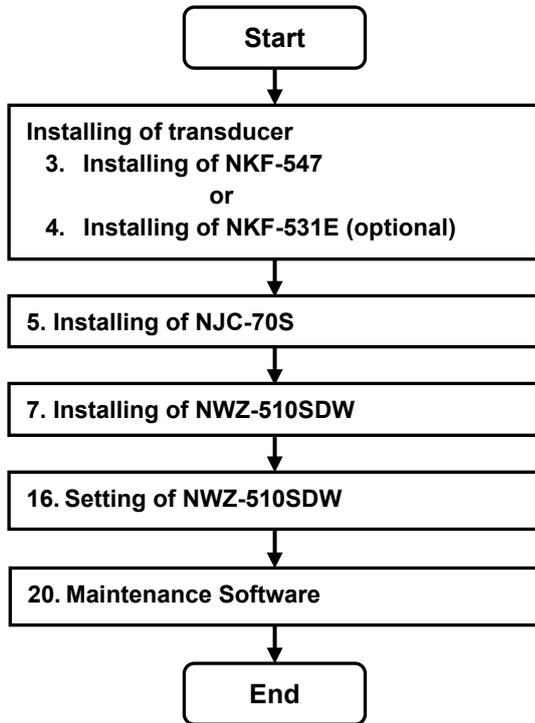
### 2.1. Installation workflow

#### 2.1.1. JLN-740A/JLN-740N

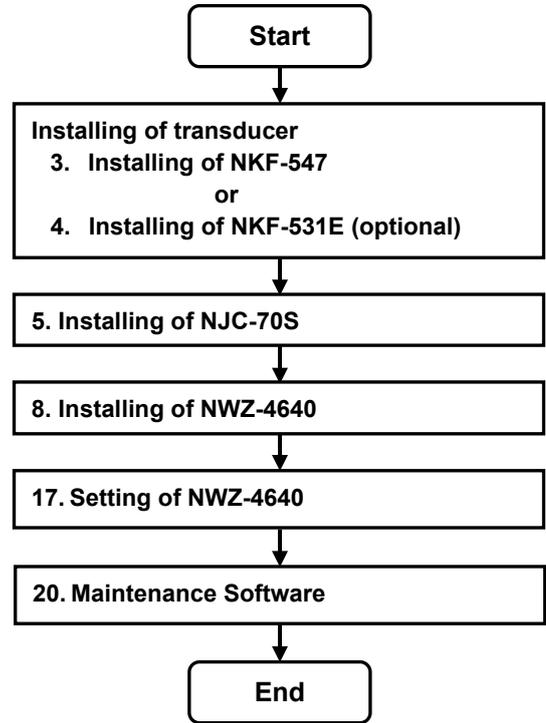


2.1.2. JLN-741A/JLN-741N

JLN-741A

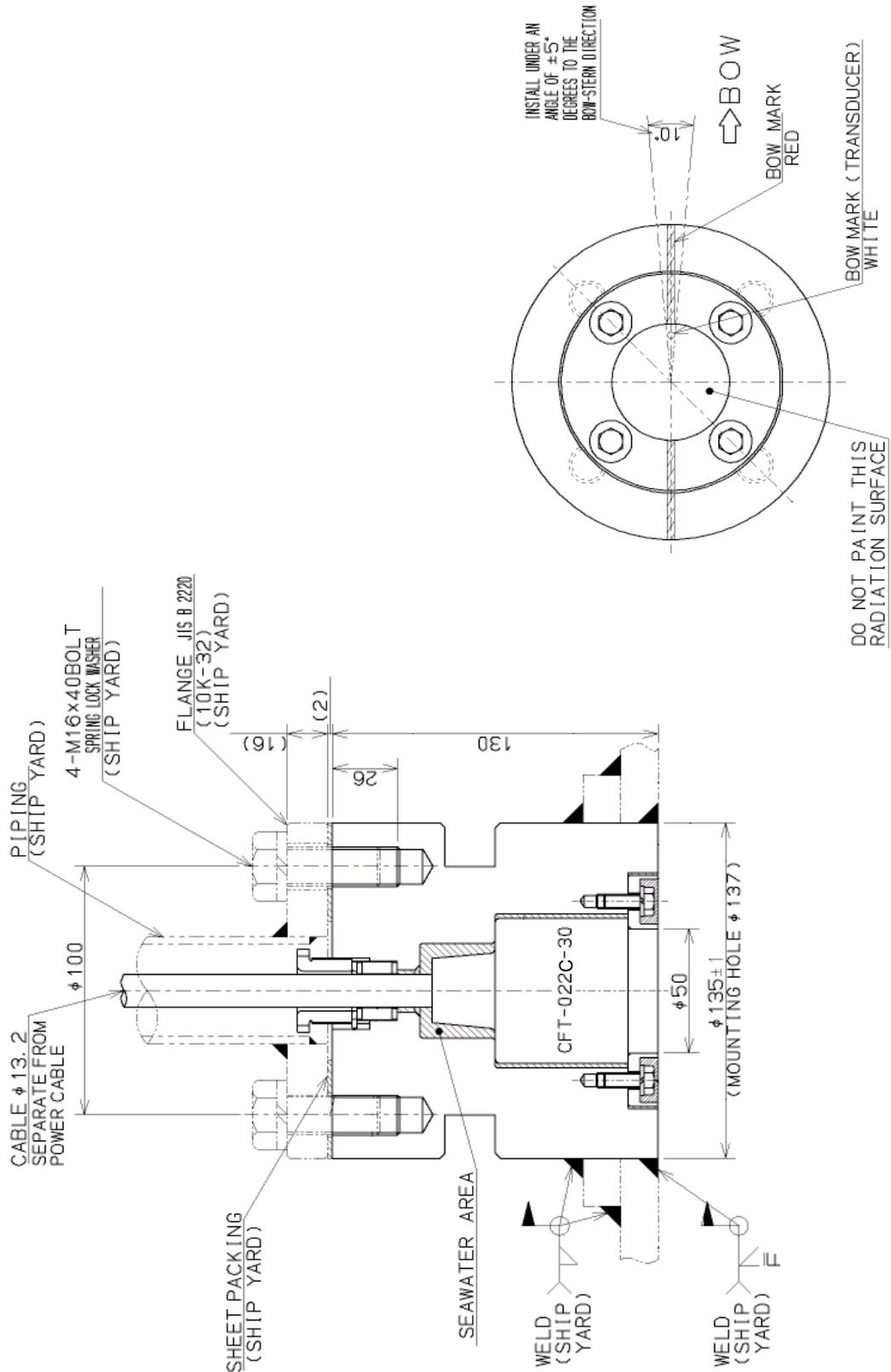


JLN-741N



### 3. Installing of NKF-547

#### 3.1. Installation Drawing



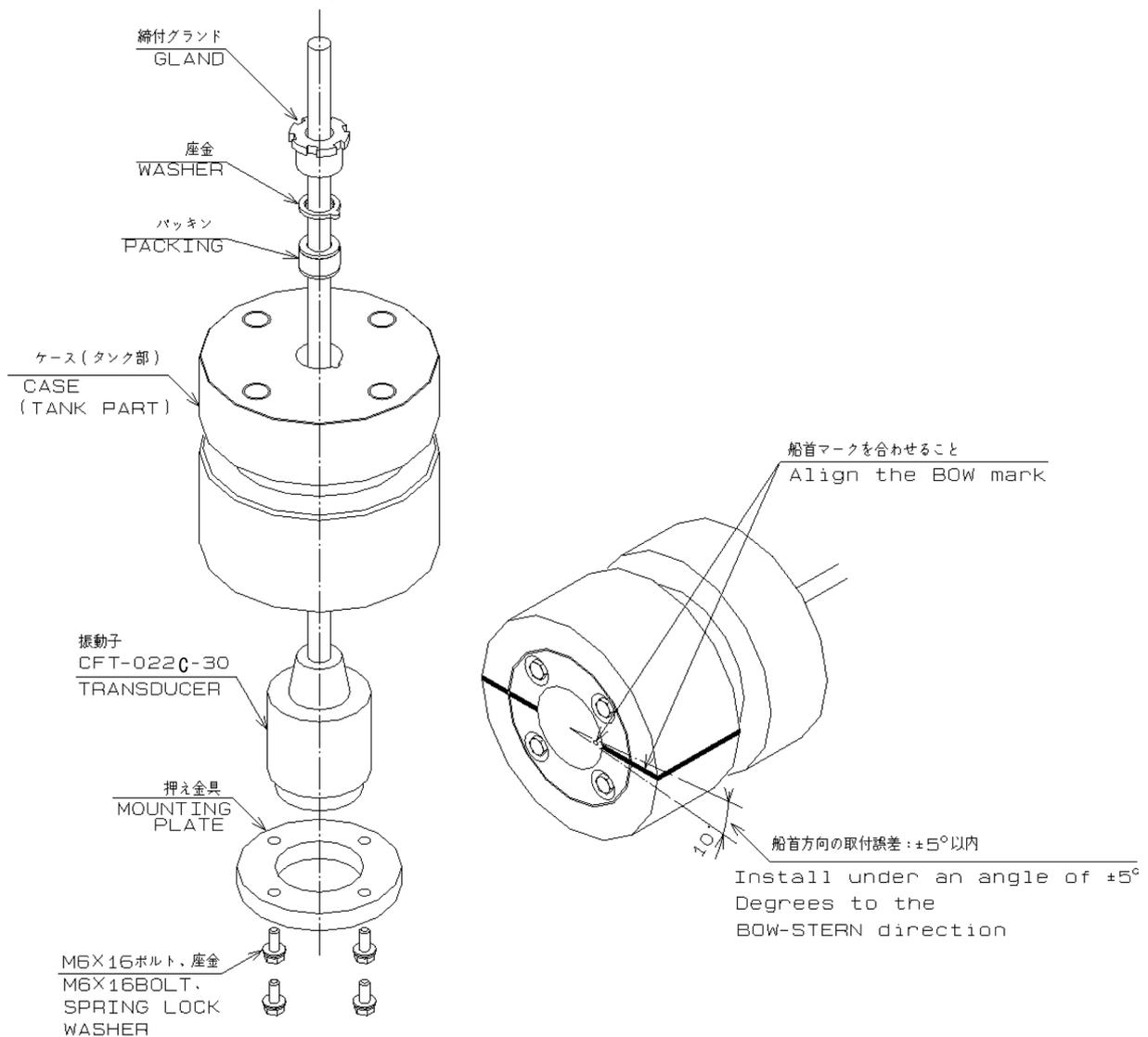
### 3.2. Installation Procedure

# ⚠ CAUTION



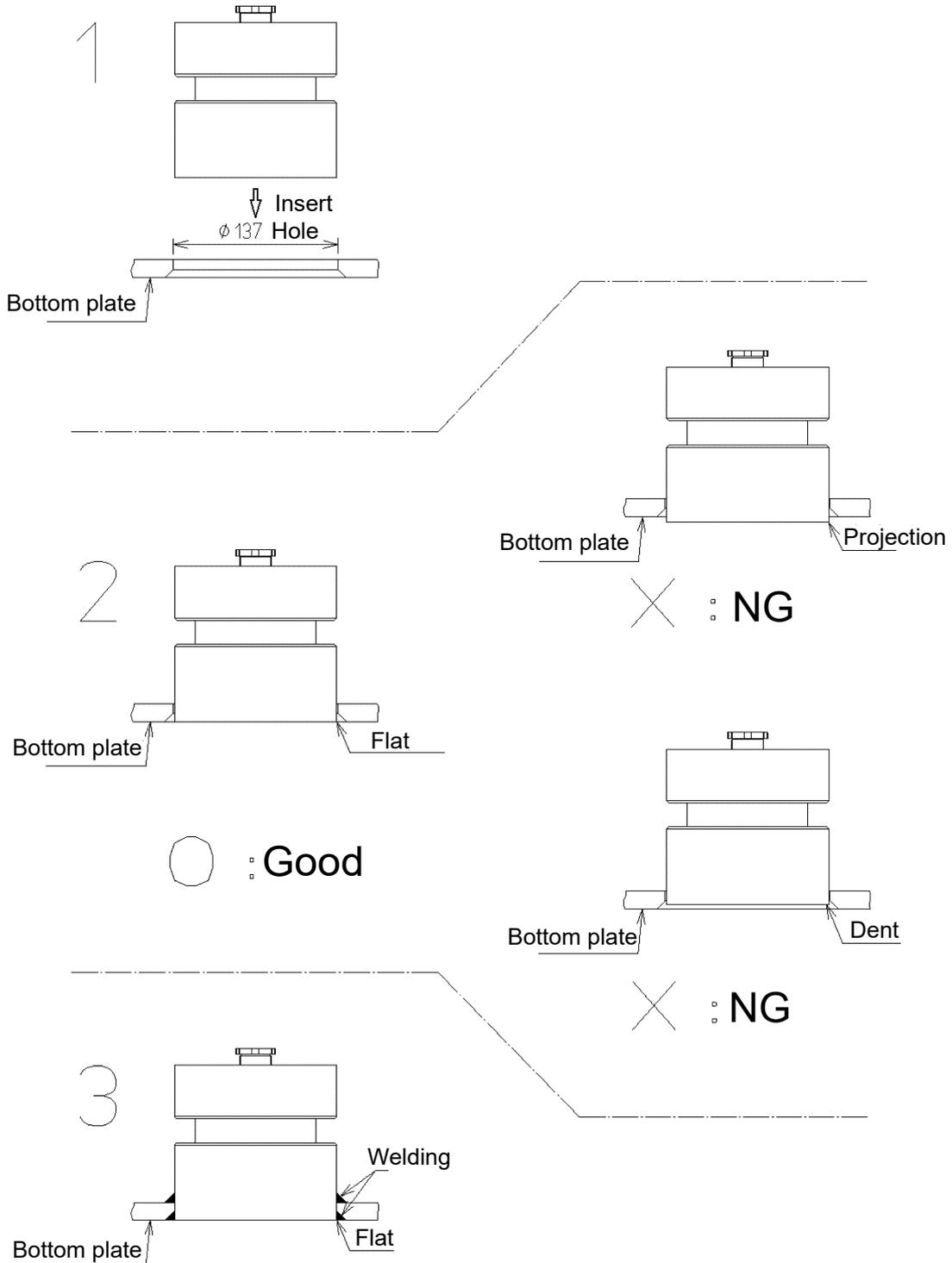
The transducer cable must not be less than 30 m.  
Cables less than 30 m in length are not supported.  
Cables outside of the range of 30 m to 40 m in length are not guaranteed.

- 1) Align the Bow mark of Tank part, and weld the Tank part to the bottom plate. At this time packing should be removed from the Tank part.
- 2) Remove a Mounting plate, a Packing, a washer and a Gland from a Tank part welded to the bottom plate.
- 3) Attach the TRANSDUCER and Mounting plate to the Tank part. At this time, align the Bow mark of the TRANSDUCER and the Tank part.
- 4) Attach the Packing, the washer, and the Gland.

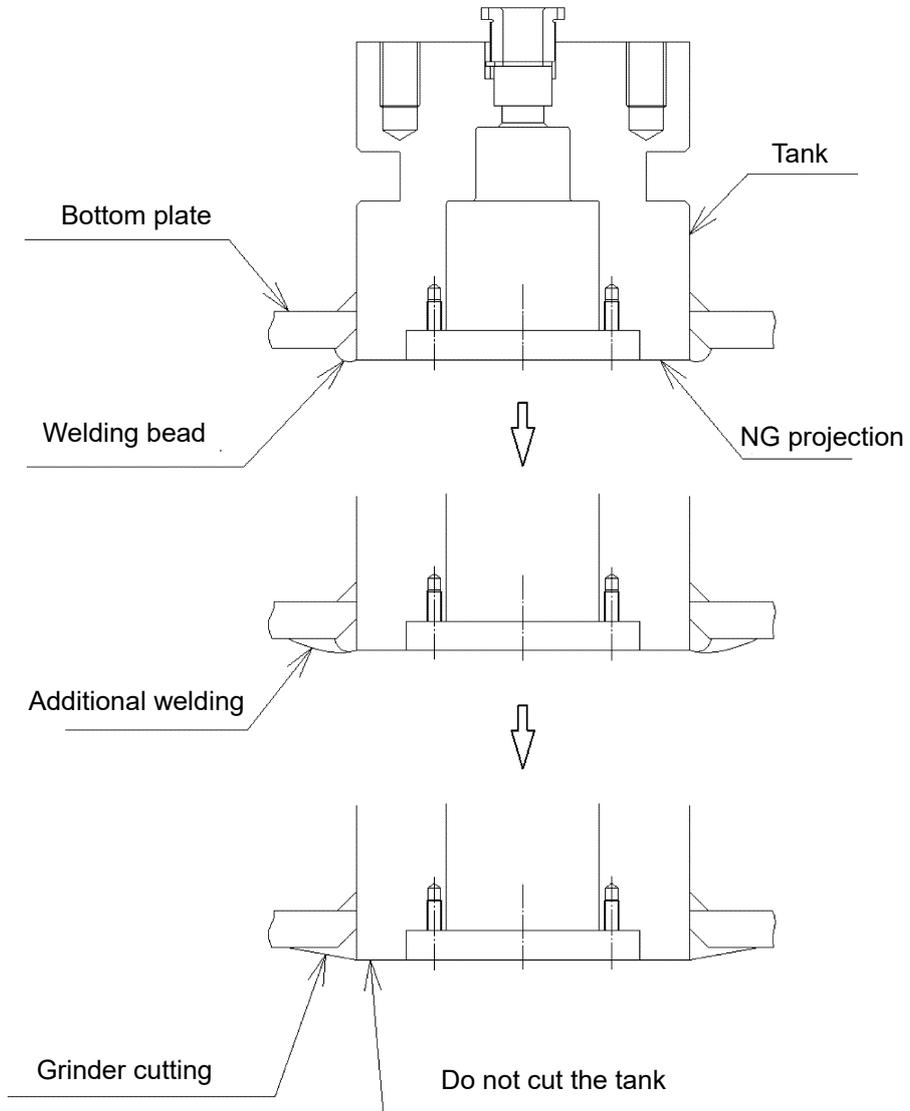


### 3.3. Welding Guide

- Weld the tank to become the same to bottom plate side.
- Design open ahead and doubling on the bottom plate side in the shipyard according to the classification.



- Repair the welding bead to form a gentle slope with the grinder processing when the tank has been projected downward by 2 mm or more and welded.



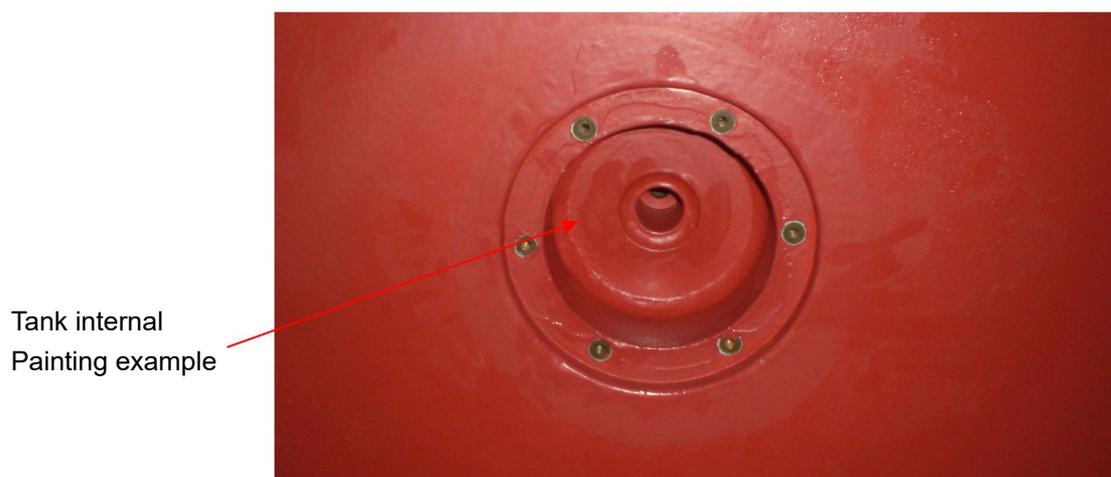
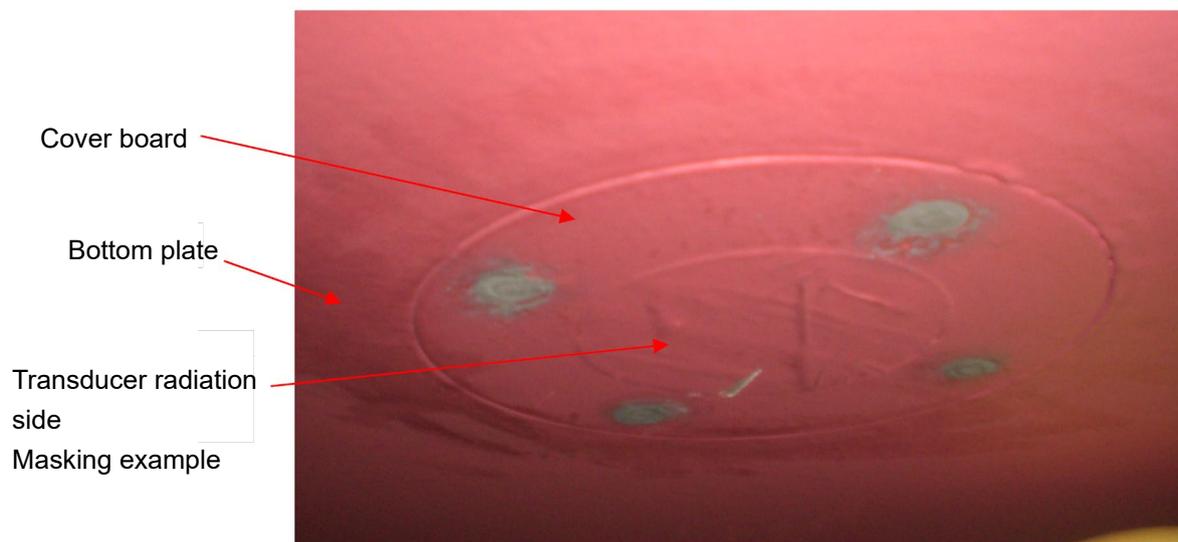
- Remove an umbo of 2 mm or more (welding character, joint connecting, outlets, and cover of another equipment etc.) within the range of 2 m forward of the transducer.



- Detach transducer and the packing when you weld the tank.
- Because the tank material uses rolled steels SM490A ( $C \leq 0.22\%$ ) for the JIS G3106 welding structure, the improvement of weldability is secured.

### 3.4. Painting Guide

- After it welds, paint the tank as well as bottom plate. (The packing side and the screw hole are excluded.)
- The groundwork processing of the tank has processed shop primer. (CERABOND 2000 made by Chugoku Marine Paints Ltd.)
- Paint the cover board as well as the bottom plate.
- Do not paint the transducer radiation side.
- The inside of the tank and the inside of the cover board are painted. Avoid thick painting that the projection becomes 2 mm or more when the cover board is installed on the tank.



### 3.5. Handling of the Transducer

- Do not lift the transducer by gripping the cable of it.



Figure 1 Good Example



Figure 2 Bad Example



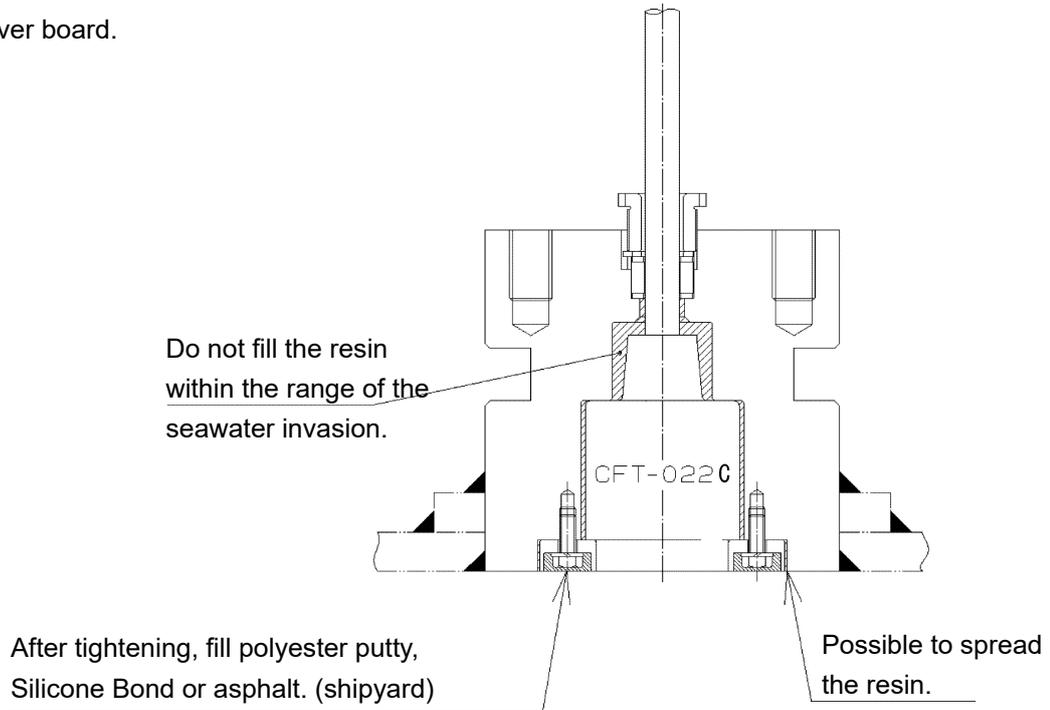
Figure 3 Good Example



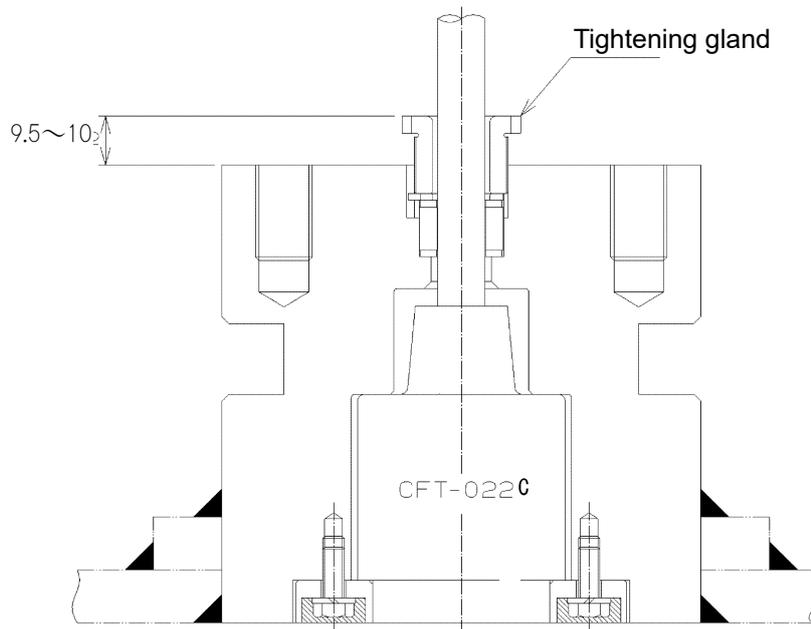
Figure 4 Bad Example

### 3.6. Mounting of the Transducer

- Do not fill the resin within the range of the seawater invasion in the tank interior. You may spread the resin on the space between the cover board and the main body of the tank. Fill the resin such as Silicone Bond, etc. to counterbored hole for the installation bolt of the cover board.

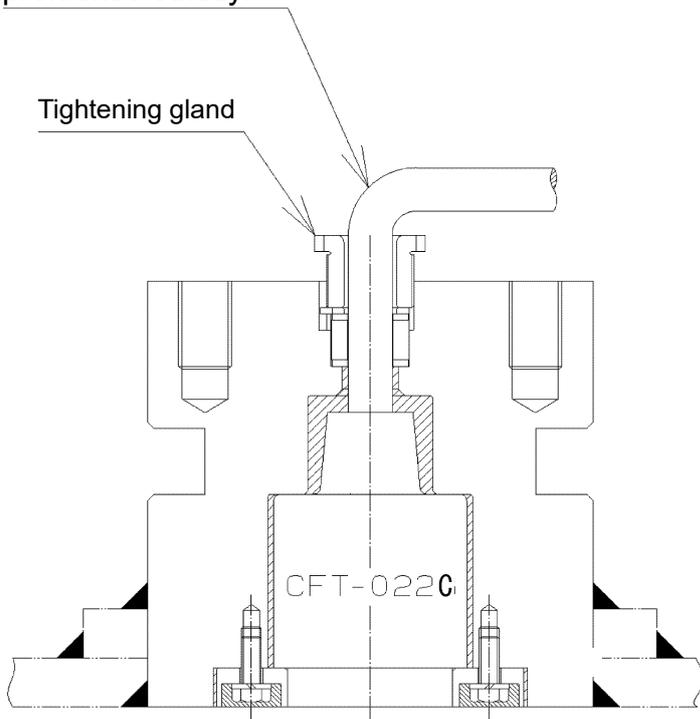


- Tighten until tightening GLAND becomes 9.5mm ~ 10mm from the upper surface of the tank.

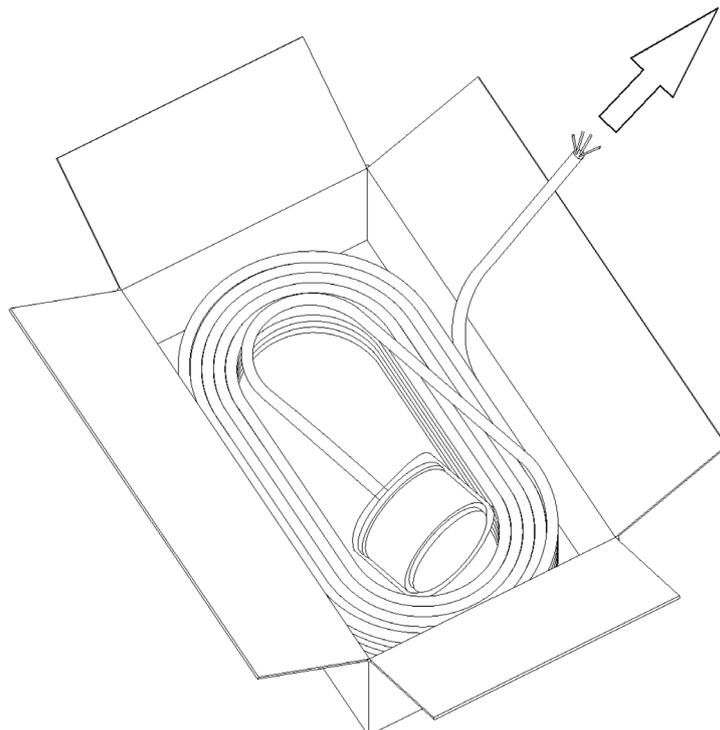


- Do not bend, and install the acute angle with the standing up part of the cable. Do the wiring processing in the cable standing up part so as not to swing by the vibration. Do not pull the cable strongly in the state of kink (It tangles, and twisted state).

An acute angle bend is prohibited strictly.

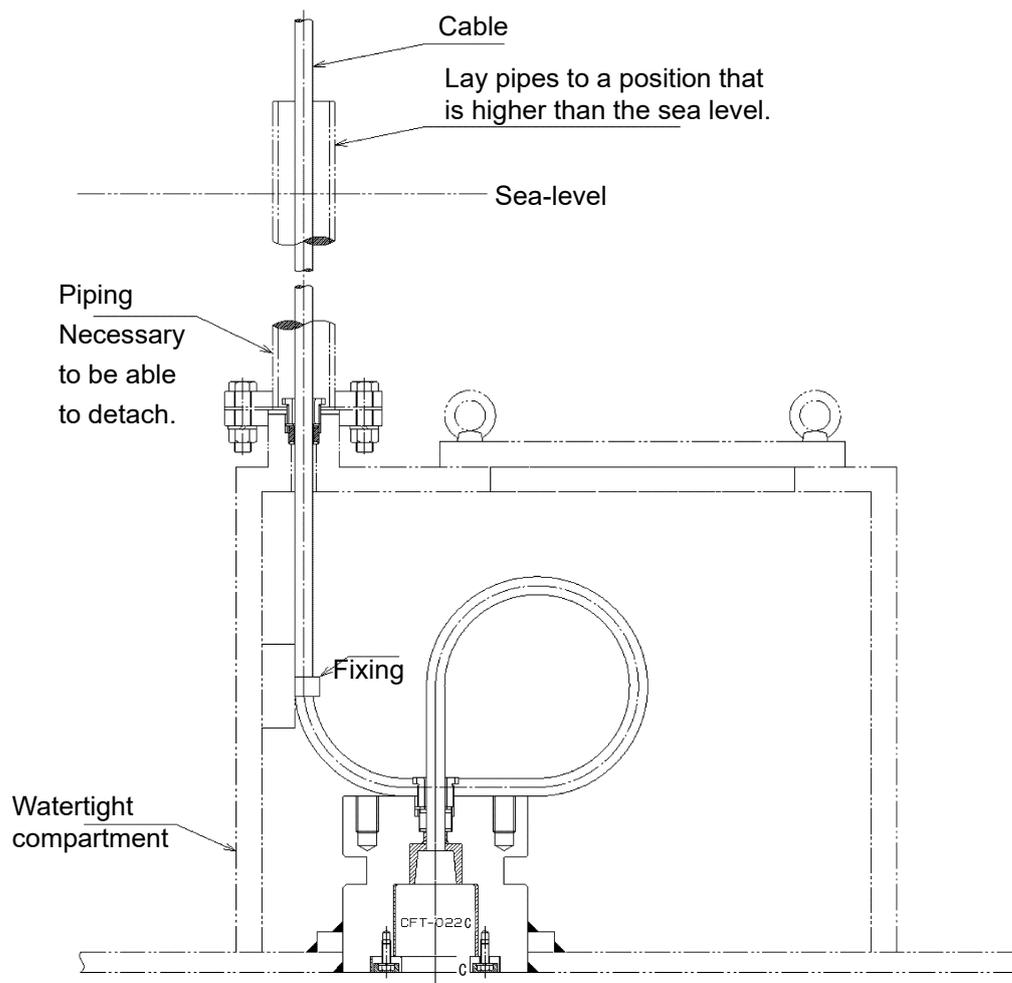


- Note that there might be the disconnection when the cable is pulled with being twisted.

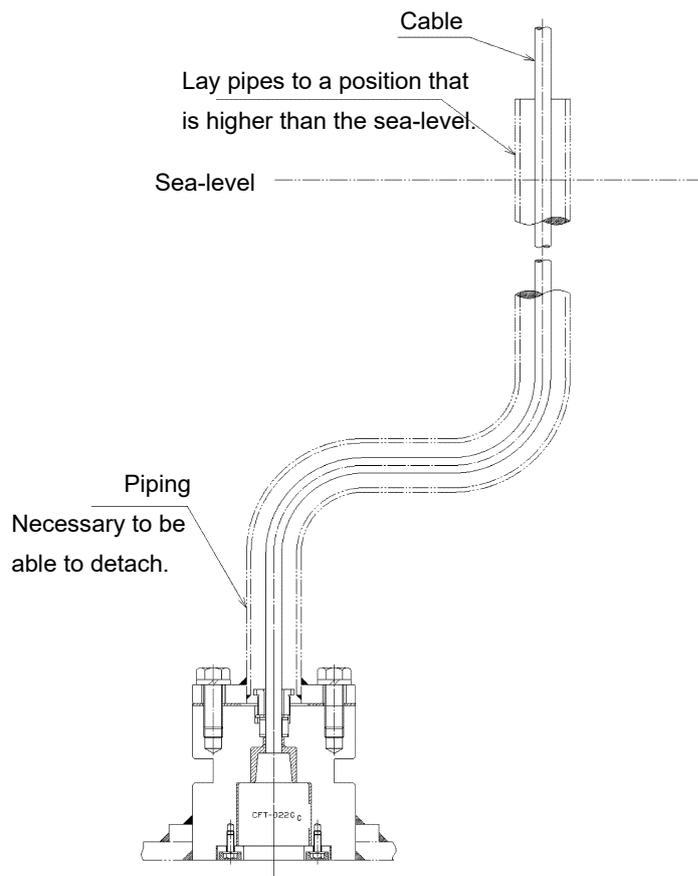


### 3.7. Cable Laying and Piping

- Separate the transducer cable by at least 50cm when the cable is run parallel with power cables, transducer cable of the echo sounder, communication cables or other equipment.
- The transducer cable shall not share pipe with other cables.
- Minimize the number of turns in the excess cable bundle.
- Give the piping waterproofed to a position that is higher than the sea-level in preparation for "Cable protection and interference prevention from other cables" and "Water leak from a tightening gland part".
- Do the vibration prevention measures and the self-weight hold measures of the cable if necessary by packing the dry sand etc. in piping.
- Fix the cable so as not to vibrate when installing it in the watertight compartment.
- Do not pull the cable strongly in the state of kink (It tangles, and twisted state) when laying the cable.

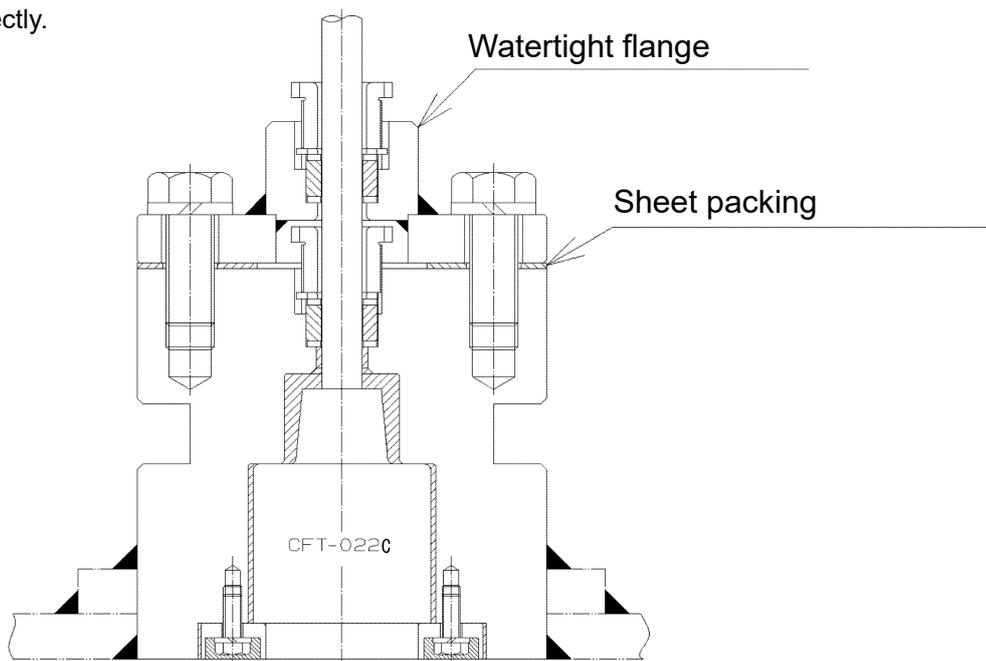


Piping Example in Watertight Compartment



Direct Tank Piping Example

- Safety improves because it can make the double watertight structure if the watertight flange and sheet packing of the option are added. However, it becomes impossible to lay the tank directly.



### 3.8. Final Check

- Confirmation of the transducer

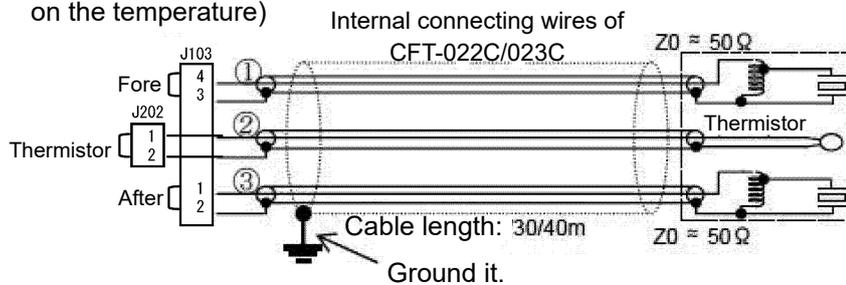
Before the vessel is unloaded from the stand, check that transducer is normal by implementing the following items [1. Checking the presence/absence of the transducer cable and 2. Checking the transducer resonance frequency].

- Confirm the presence of the disconnection of the transducer cable

- 1-1. Remove the transducer cable from the terminals J103 and J202 of Signal Processor (NJC-70S).
- 1-2. Measure the resistance of the Fore and After transducer and thermistor by the multimeter. (Don't use insulation resistance meter.)

Measurement result

- 1. If thermistor resistance is 2k to 4kΩ, thermistor is normal. (Measurements are different on the temperature)

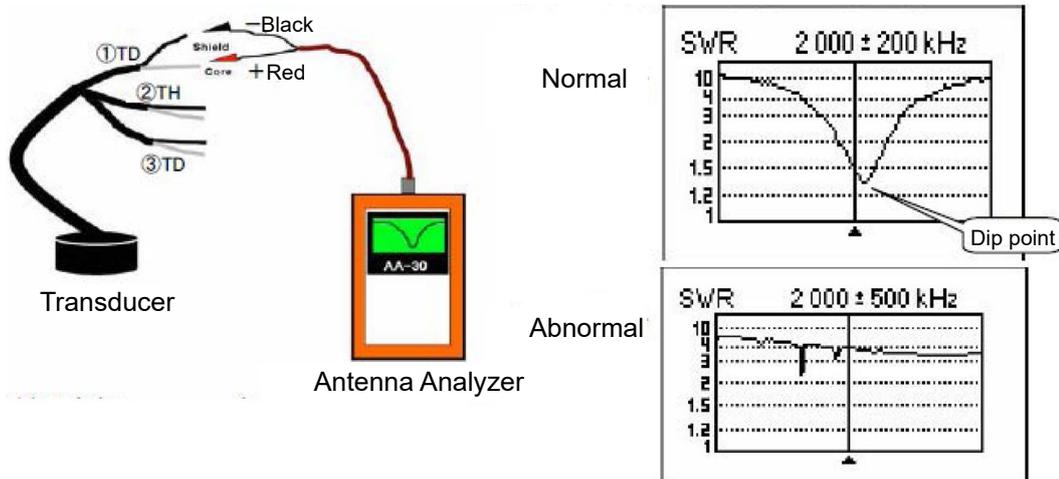


- Check the resonance frequency of transducer

- 2-1. Remove the transducer cable from the terminals J103 and J202 of Signal Processor (NJC-70S).
- 2-2. Measure the shield wire ① & ③ of the Fore and After transducer by the Antenna Analyzer (AA-30).
- 2-3. Connect the core and shield respectively as shown in the figure below.
- 2-4. Set the Antenna Analyzer (AA-30) to SWR mode and monitor the signal.
- 2-5. Frequency is scanned, and a Dip point (Signal level minimum point) is a resonance point.

Measurement result

- 1. The resonance frequency of transducer is normal if the Dip point is near 2MHz.
- 2. If the result of the measurement doesn't have Dip point, replace it because the transducer is defective.

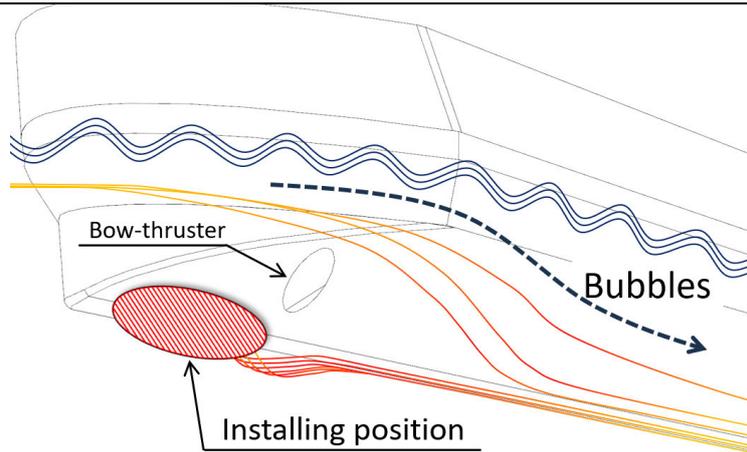


### 3.9. Others

- NKF-547 transducer cannot be exchanged in principle in the sea.  
The transducer exchange work by the diver is very dangerous.  
In the case of malfunctions, please contact your distributor or agent, or our Marine Service Department, Sales Department, Branch Office, Regional Office, or Sales Office.
- This equipment measures the speed of the ship by using the ultrasonic wave. The ultrasonic wave causes attenuation and diffusion when the influence of the bubble is received, and cannot measure an accurate speed of the ship.
- Install the transducer in a place where the bubbles (cavitation) are not generated when sailing.
- Do not mount transducers aft of bow-thruster, propeller outlets or aft of other hull installations that may create bubbles or turbulence.

**CAUTION**

Install the transducer in the place where the bubble is not generated when sailing.  
Install the transducer forward from 1/10 of the ship's lengths in the large vessel.  
Moreover, install the transducer forward from it when there is bow-thruster.



- It is recommended to be installed with Doppler log ahead of echo sounder though it usually installs from the bow in order with low frequency.
- Install it to be suitable for the direction of the bow in parallel to the bow tail line of bow mark of the transducer within about 5°.
- The tightening torques of the screws such as bolts and nuts not specially specified are based on Table 1 below.

Table 1

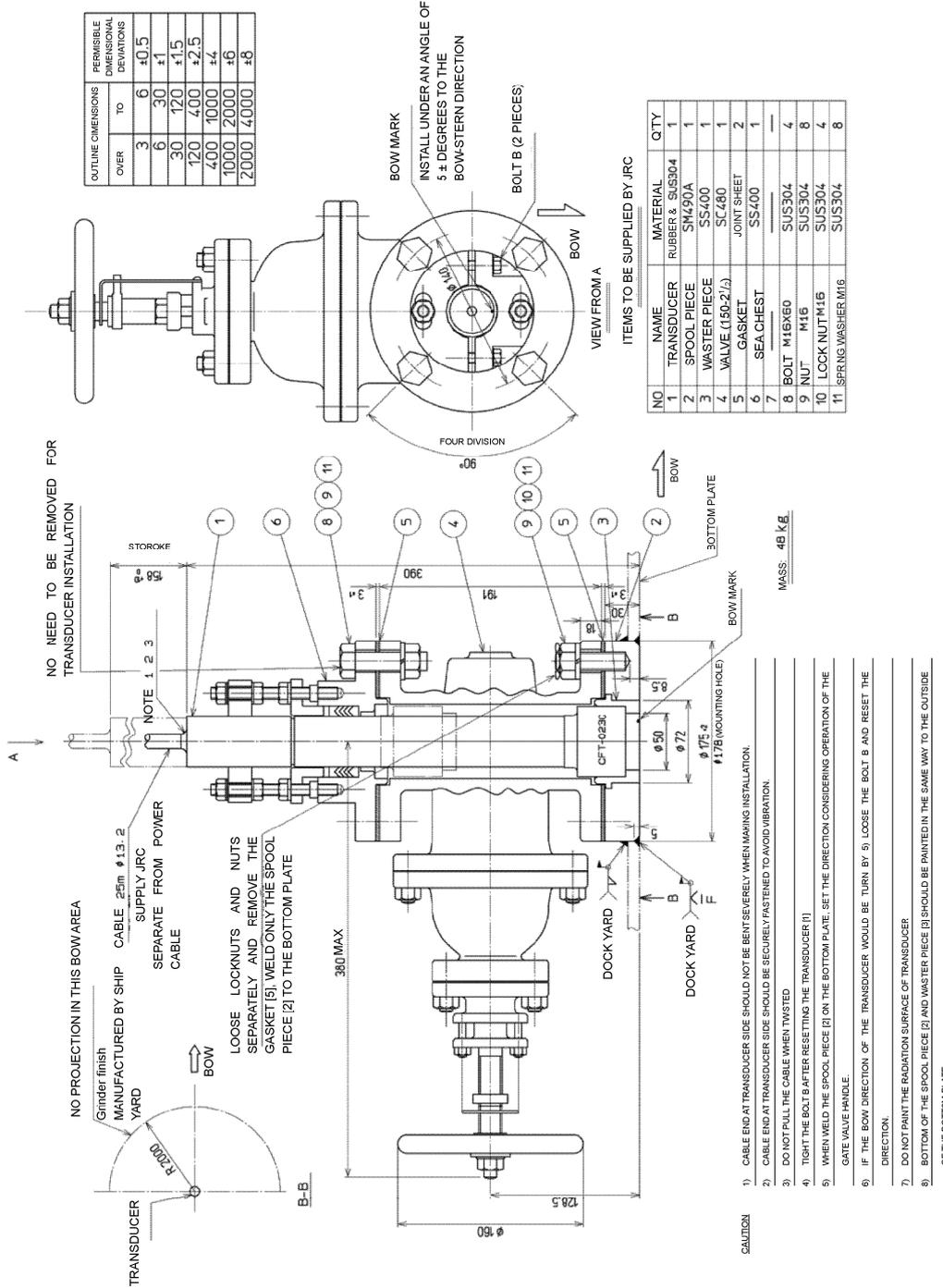
Unit: N•cm {kgf•cm}

Diameter	M2	*	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
	M2.6											
Material												
Brass	13.7 {1.4}	32.4 {3.3}	50.0 {5.1}	118 {12}	235 {24}	402 {41}	961 {98}	1960 {200}	-	-	-	-
Soft iron	15.7 {1.6}	36.3 {3.7}	56.9 {5.8}	127 {13}	265 {27}	451 {46}	1080 {110}	2160 {220}	3820 {390}	9410 {960}	18600 {1900}	32400

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# 4. Installing of NKF-531E

## 4.1. Installation Drawing





### 4.3. Welding Guide

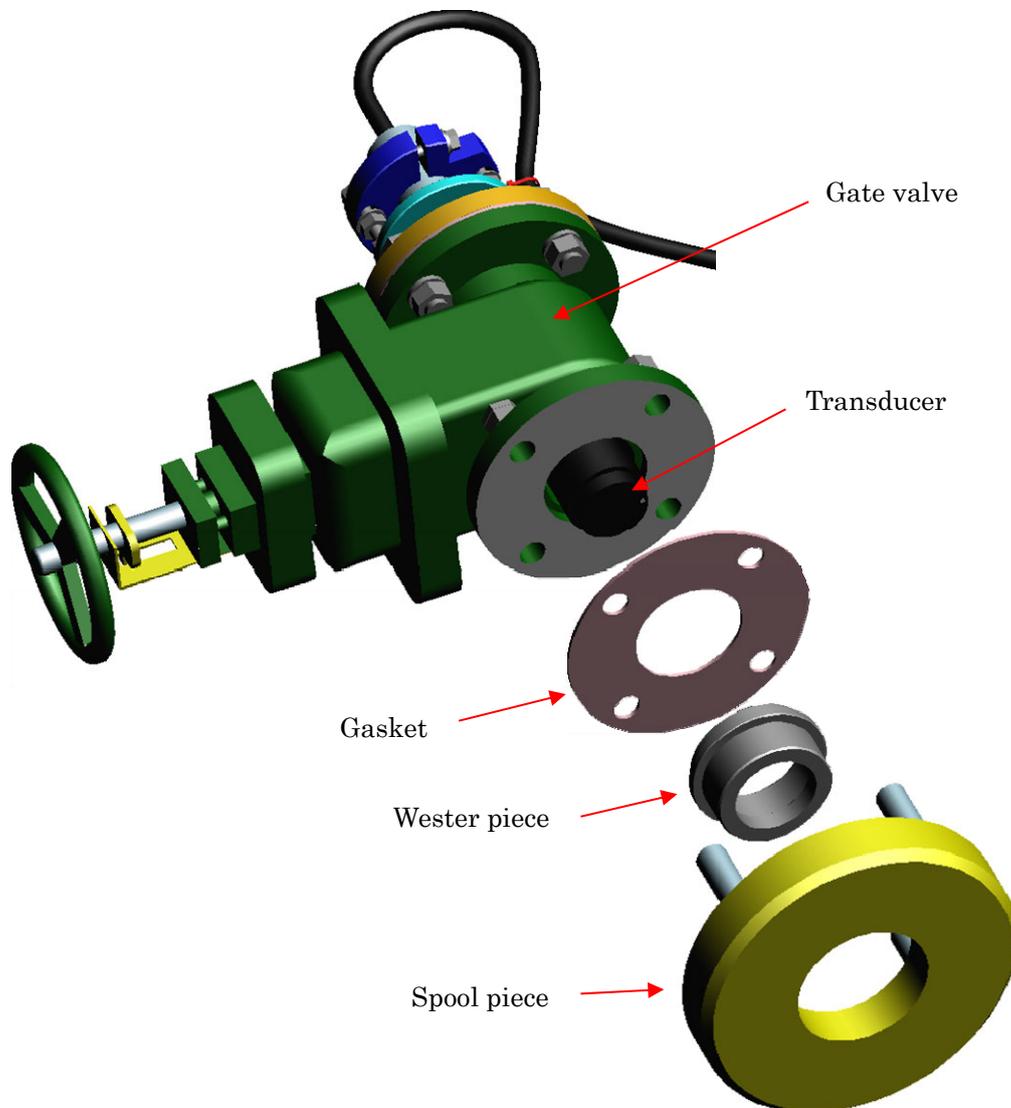
#### 4.3.1. Unpacking and Handling

- Handle the cable standing up part of transducer carefully so as not to bend it at an acute angle when you take out NKF-531E after unpacking the packing box.
- Do not lift NKF-531E main body by gripping the cable of it.
- Do not turn the handle of the gate valve.
- The gate valve body weight is 48kg. Please carry the heavy valve carefully to prevent catching your finger or foot in.



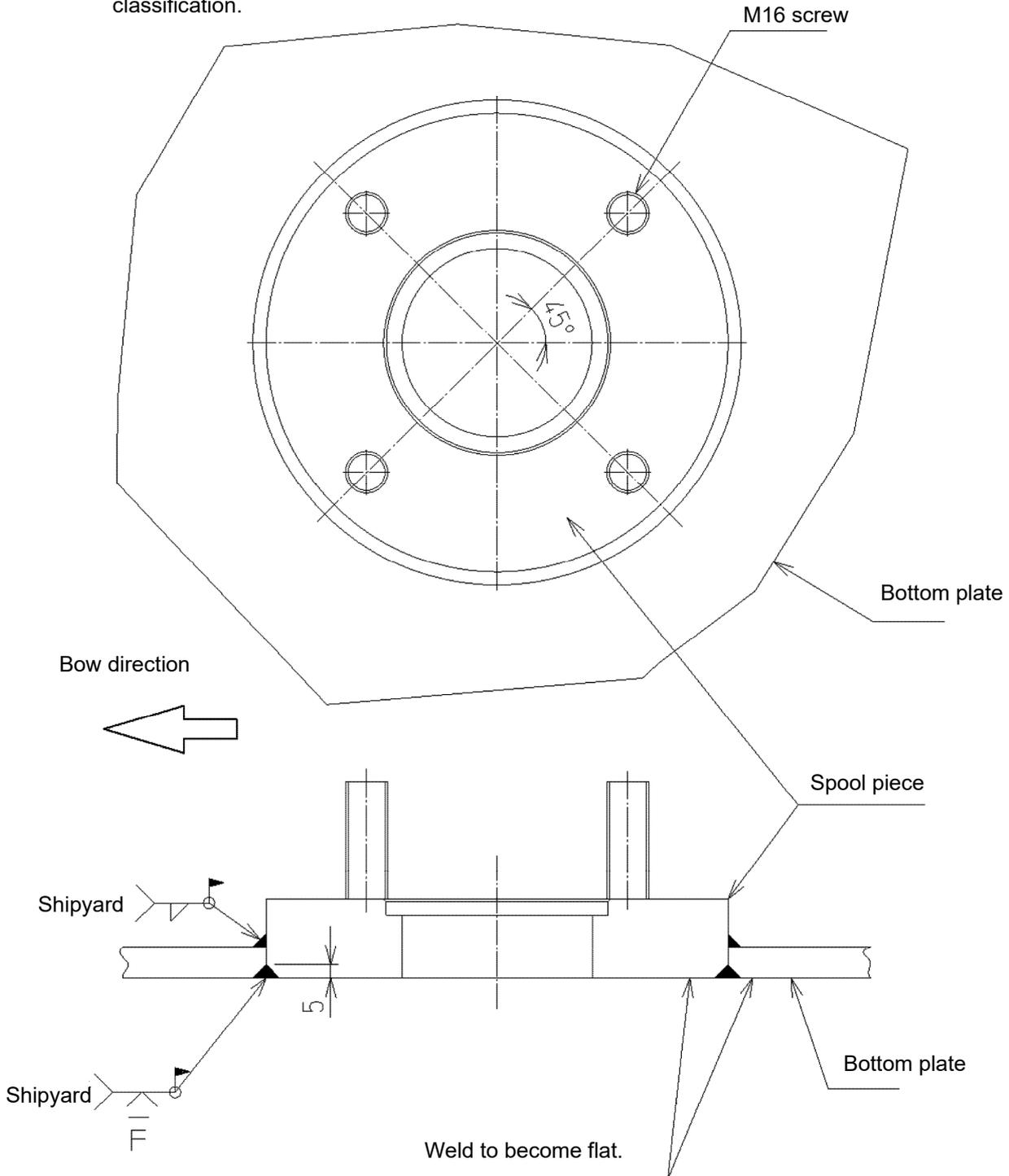
#### 4.3.2. Disassembling

- After detaching the M16 nut, the lock nut, and the spring washer, take out the spool piece, waster piece, and the gasket.
- At this time, do not turn the handle of the gate valve.
- Do not detach the transducer from the gate valve.
- After disassembling it, protect it so as not to add the impact to the transducer point.
- Handle the cable standing up part of transducer carefully so as not to bend it at an acute angle.
- Do not lift the main body of NKF-531E gate valve by gripping the cable.

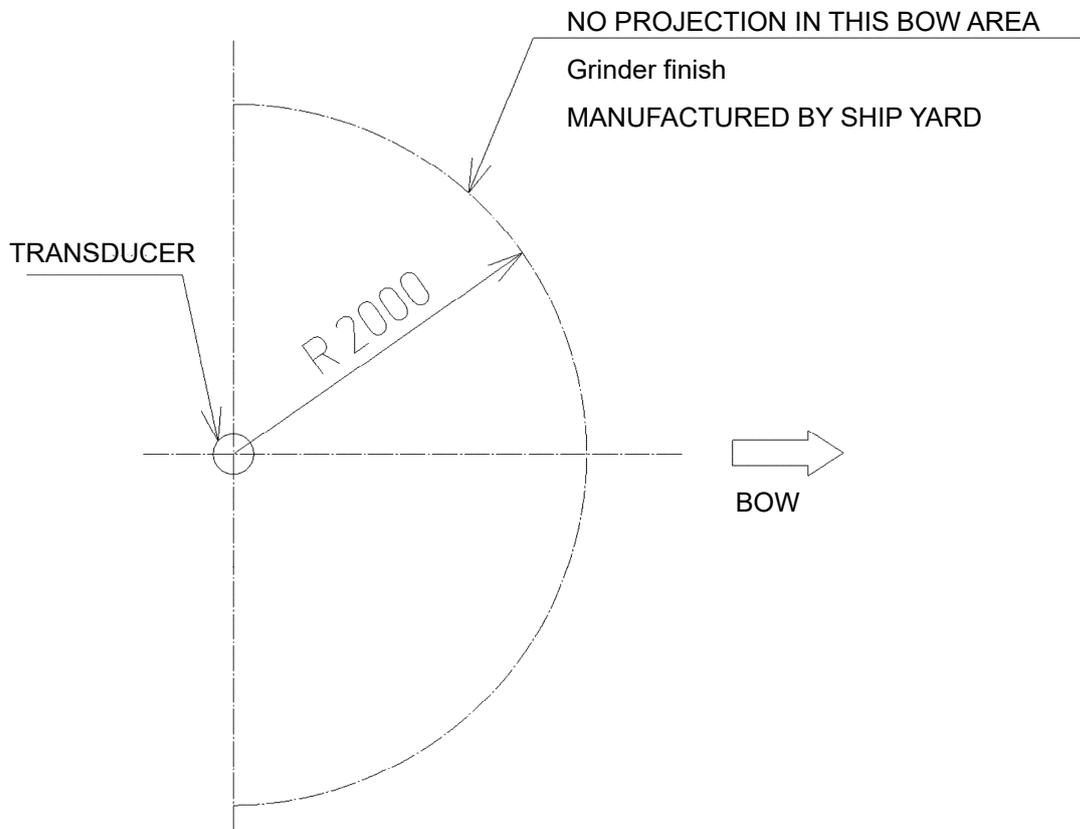


### 4.3.3. Welding

- Weld so that the lower side of spool piece and bottom plate become the flat same sides.
- Weld noting the direction of the M16 screw to the direction of the bow because the direction of handle of the gate valve is decided in the direction where spool piece is welded.
- Weld the spool piece of NKF-531E in the place that becomes the horizontal toward the sea bottom.
- Design open ahead and doubling on the bottom plate side in the shipyard according to the classification.



- Remove an umbo of 2 mm or more (welding character, joint connecting, outlets, and cover of another equipment etc.) within the range of 2 m forward of the transducer.

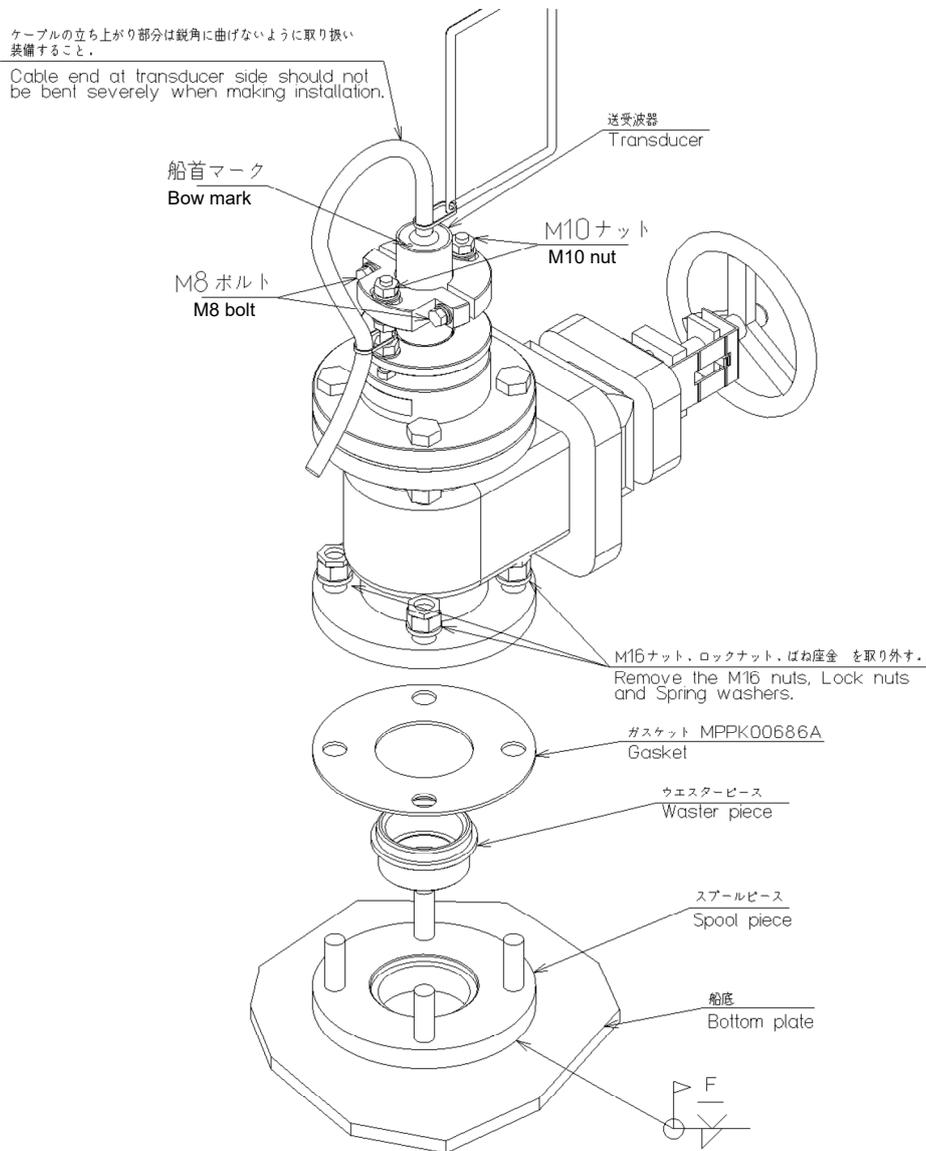


#### 4.4. Mounting Guide of the Transducer

- After putting the waster piece and the gasket in spool piece welded on the bottom plate, install the gate valve including transducer.
- There is no problem in the watertight even if only the gasket is used. However, you may spread the liquid seal material.
- Handle it noting so as not to add the impact to the transducer point.
- Handle the cable standing up part of transducer carefully so as not to bend it at an acute angle.
- Do not lift the main body of NKF-531E gate valve by gripping the cable.
- Do not turn the handle of the gate valve.
- Install it noting the direction of the bow

#### <Changing method of the transducer bow direction>

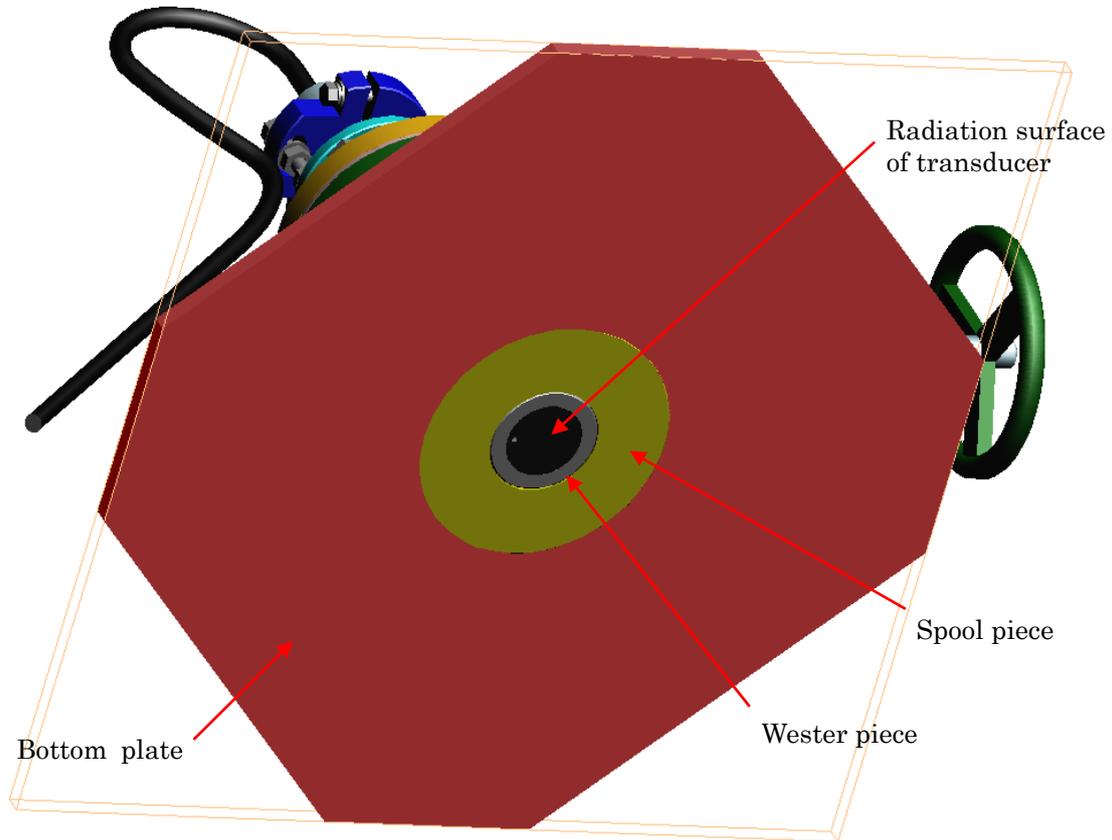
- \* After the M10 nut (two nuts at the upper part only) and the M8 bolt (2 pieces) are loosened, tighten the M10 nut and the M8 bolt again after adjusting it angling arbitrary rotating transducer.



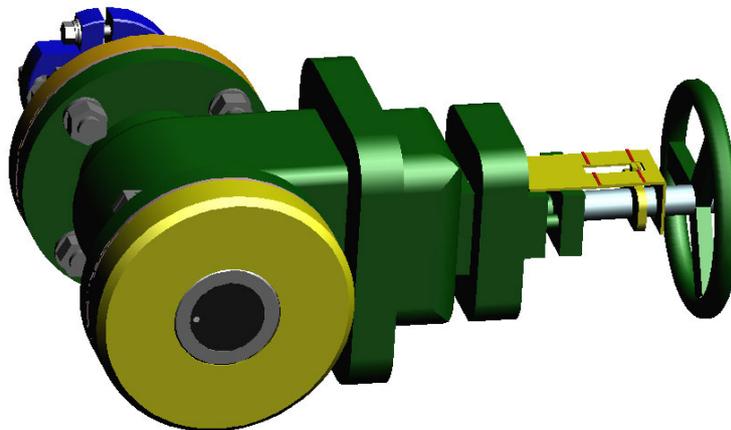
\* Note that the gasket doesn't keep airtight though it keeps watertight.

#### 4.5. Painting Guide

- Paint the lower side of spool piece and waster piece as well as the bottom plate. However, do not paint the radiation surface of the transducer.

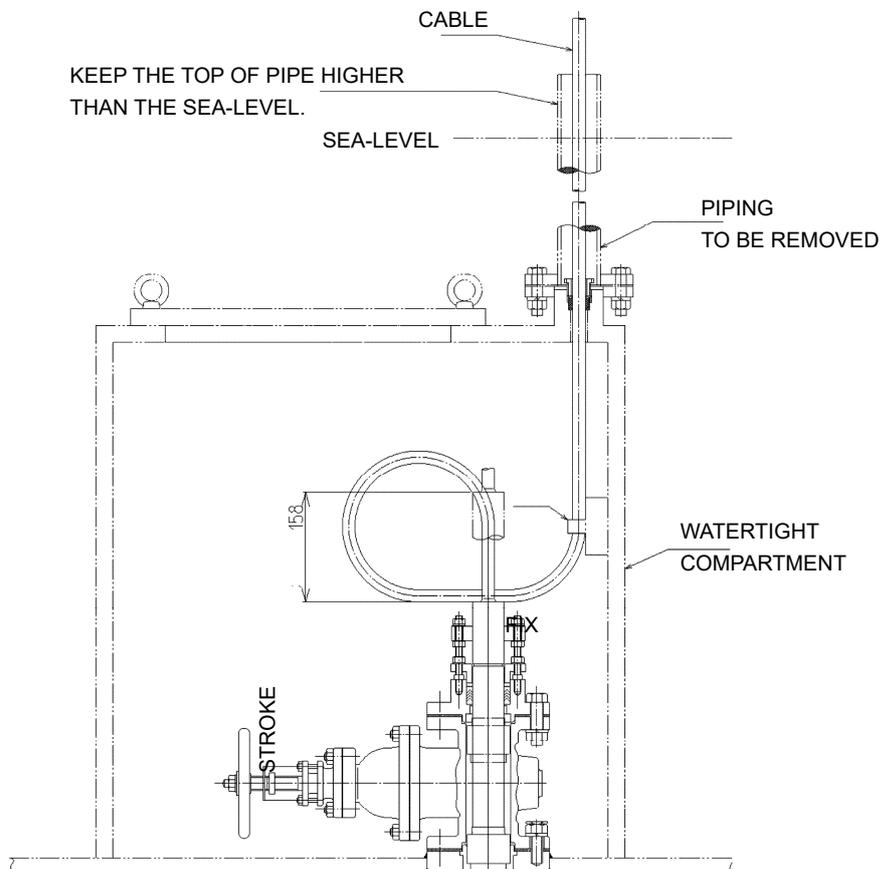


- Though you may paint the part where green paints of the gate valve main body were painted, do not paint other parts.



#### 4.6. Maintenance Space and Piping

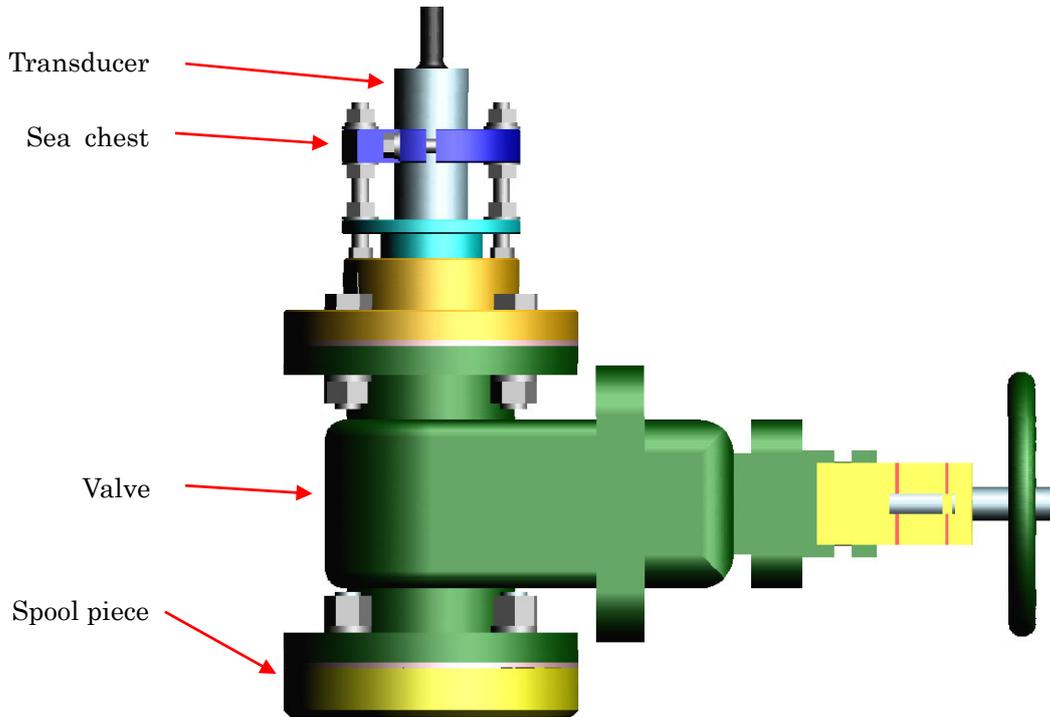
- Separate the transducer cable by at least 50cm when the cable is run parallel with power cables, transducer cable of the echo sounder, communication cables or other equipment.
- The transducer cable shall not share pipe with other cables.
- Excess cables should be bundle away from other cables, or bundle the near the transducer.
- Install NKF-531E in the watertight compartment.
- Do not flood the installed watertight compartment.
- Give the piping waterproofed to a position that is higher than the sea-level in preparation for "Cable protection and interference prevention from other cables" and "Water leak from a tightening gland part".
- Take the vibration prevention measures and the self-weight hold measures of the cable if necessary by packing dry sand etc. in piping.
- Fix the cable so as not to vibrate when installing it in the watertight compartment.
- Do not pull the cable strongly in the state of kink (It tangles, and twisted state) when you lay the cable.
- Secure enough maintenance space to be able to do the transducer replacing work etc.



#### 4.7. Replacing Guide of the Transducer

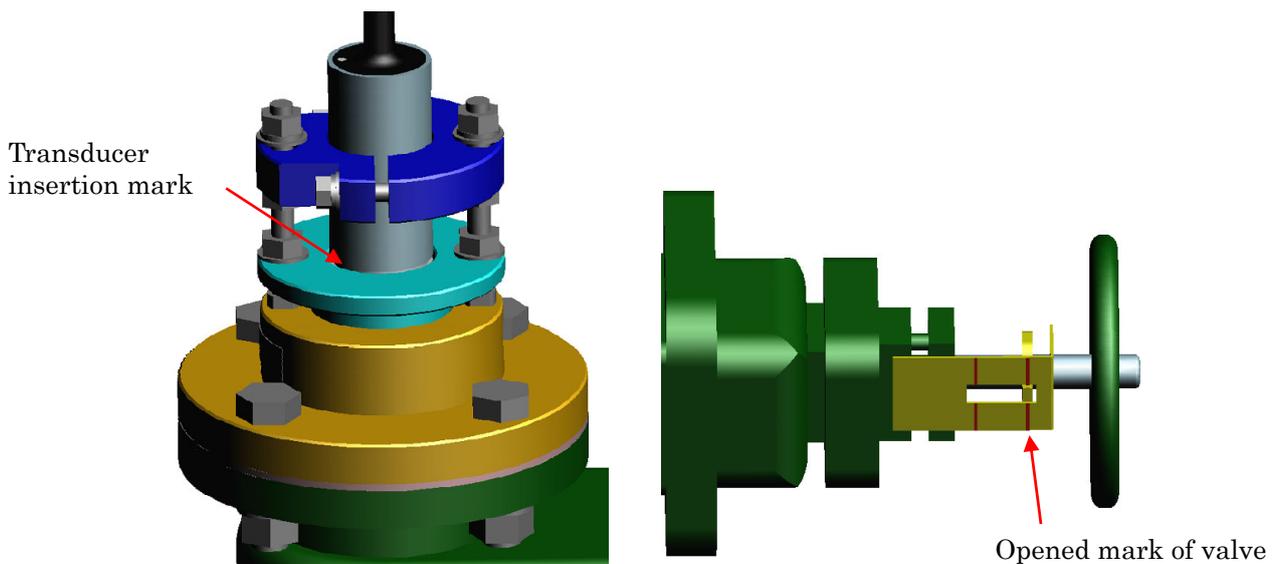
This chapter shows the procedure when exchanging it in the sea for the transducer damage after beginning to operate it.

Carry the gas detector to confirm enough oxygen is secured when it goes down to the bottom of a ship.



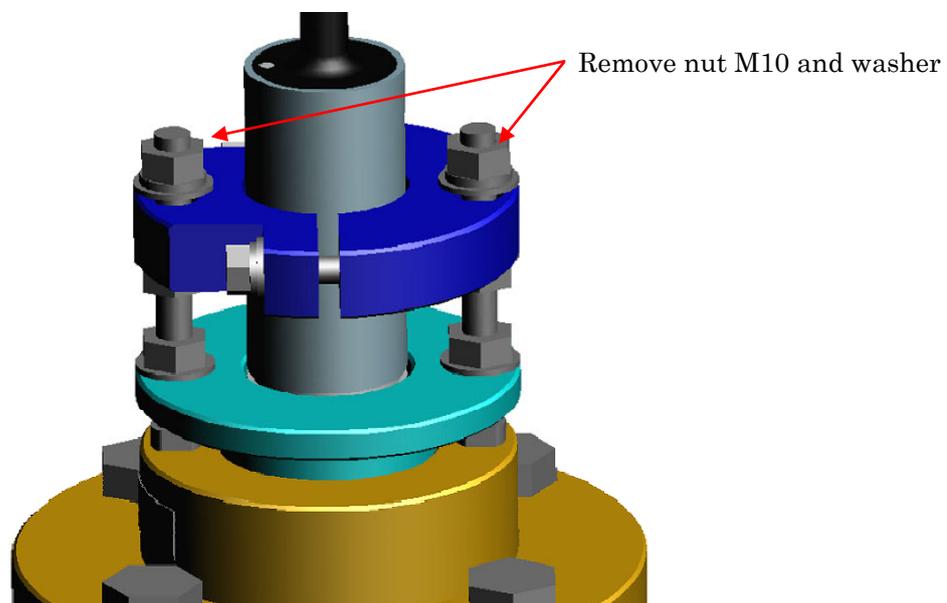
##### 4.7.1. Check the mark

Check the transducer insertion mark. And check the opened mark of valve.



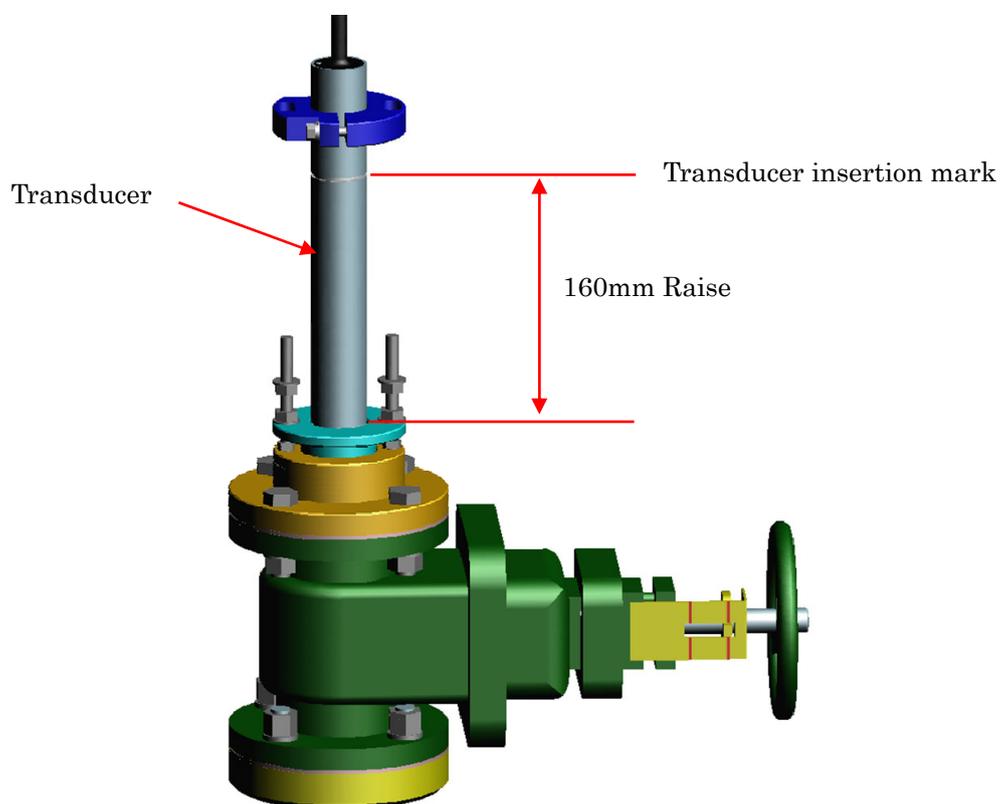
#### 4.7.2. Remove the nut

Remove the nuts of sea chest.



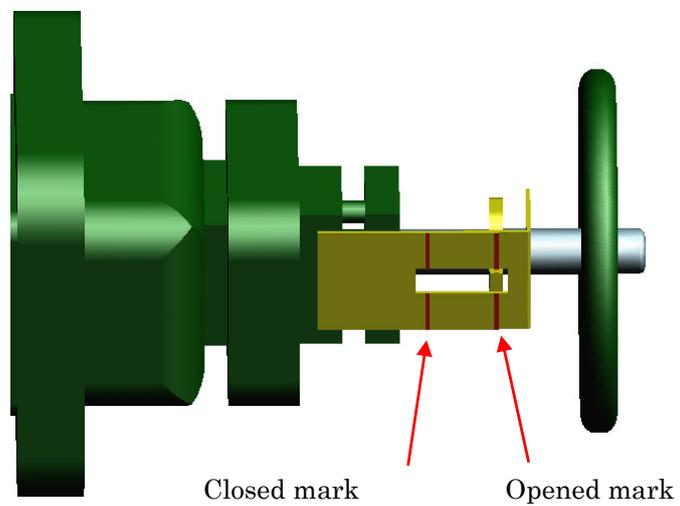
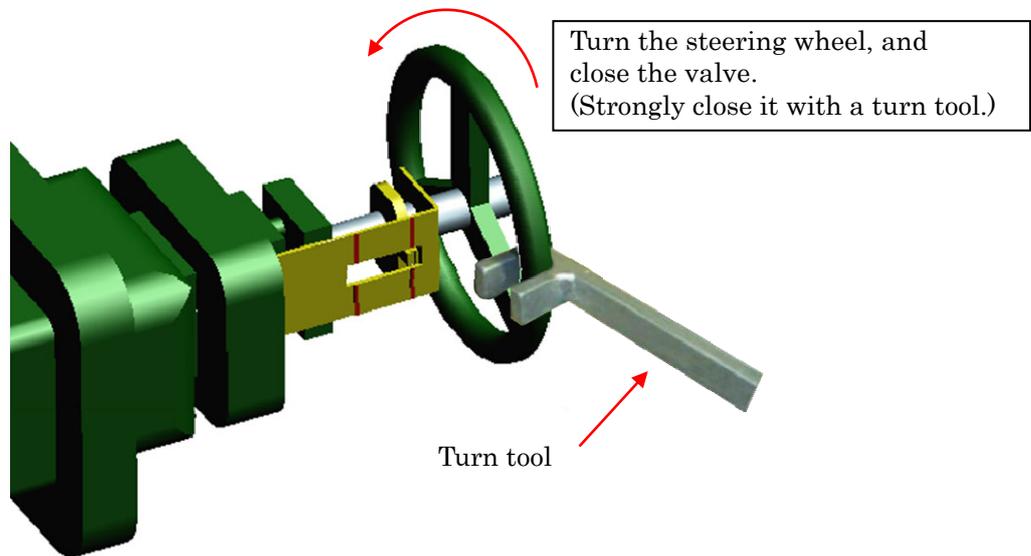
#### 4.7.3. Raise the transducer

Raise the transducer by 160 mm.



#### 4.7.4. Close the valve

Check the mark.

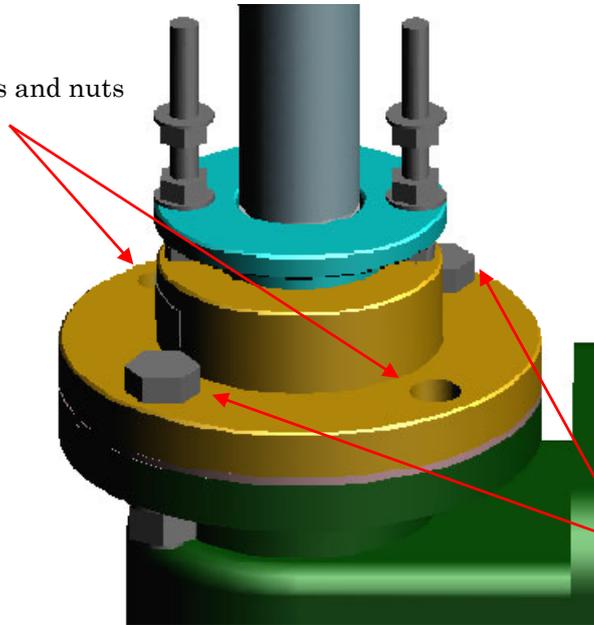


\* There is no change in external size because the position of handle doesn't move even if handle is turned.

4.7.5. Remove bolts and nuts

Remove only two places of bolt and nuts.

Remove the M16 bolts and nuts only at two places.

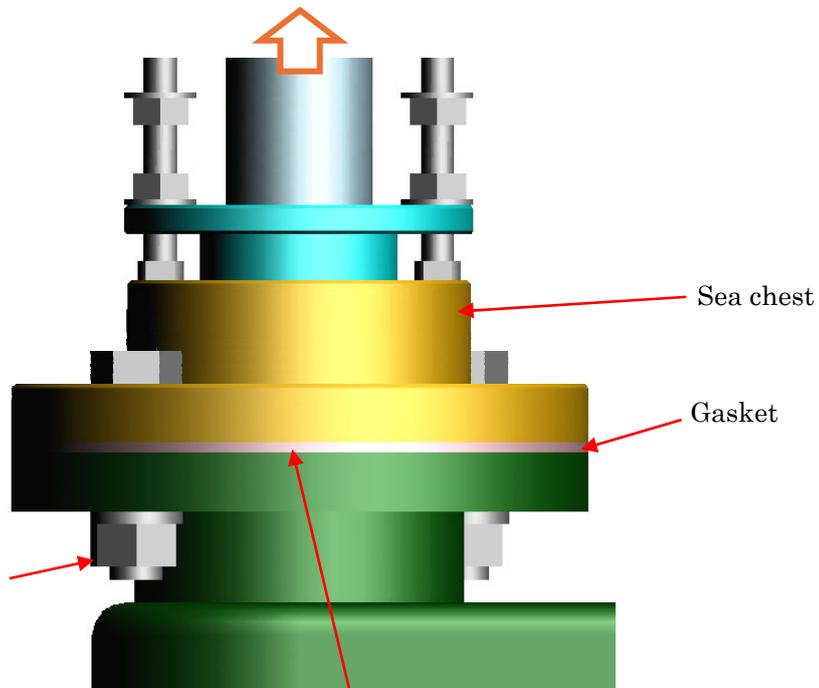


For safety purposes, do not remove all the bolts and nuts. Leave the bolts and nuts at the other diagonal positions as is.

4.7.6. Remove the sea chest

Lift up the sea chest.

Loosen the 2-M16 bolts and nuts, and lift up the sea chest.



Loosen the M16 bolts and nuts. (two places)

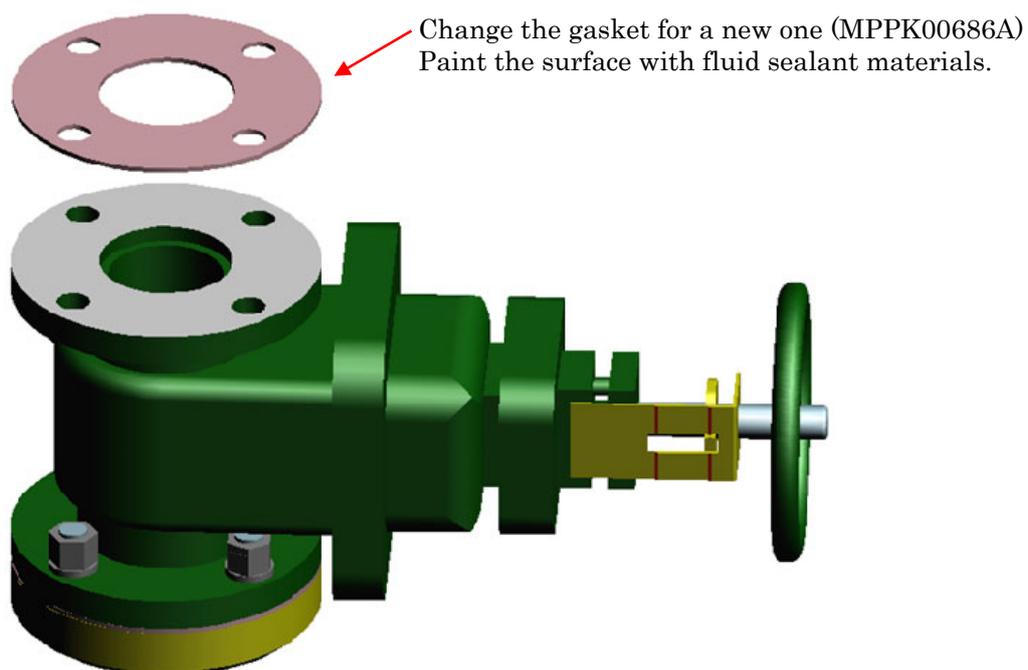
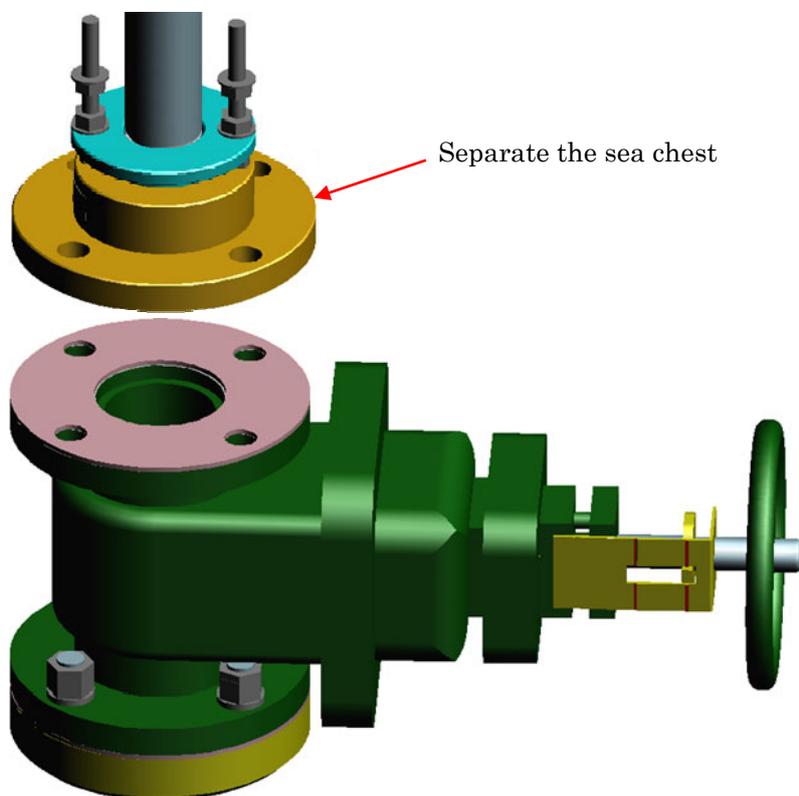
Make a gap. Seawater inside the valve appears.

When water breaks out in large quantities, close the bolts and nuts. Then confirm valve shutting.

Sea chest and gasket adhere, and there is the case that can not easily lift up.

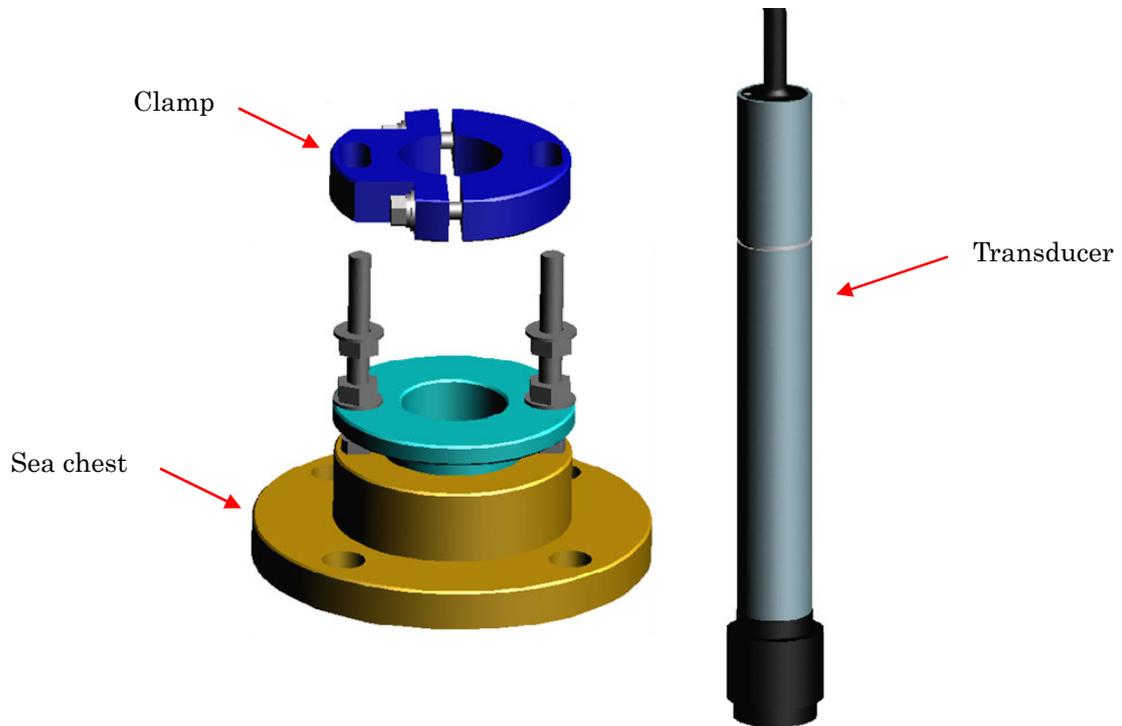
#### 4.7.7. Sea chest separation

Remove sea chest completely.



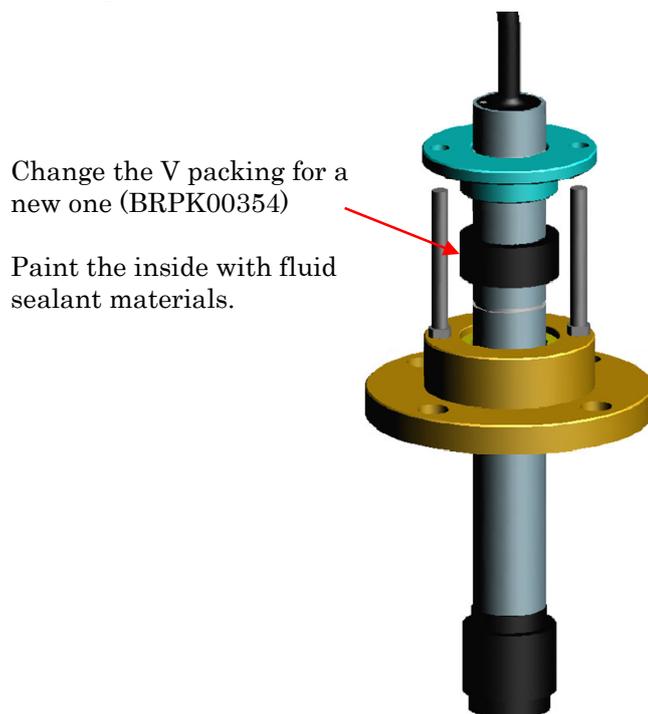
#### 4.7.8. Replace the transducer

Remove metal fittings.

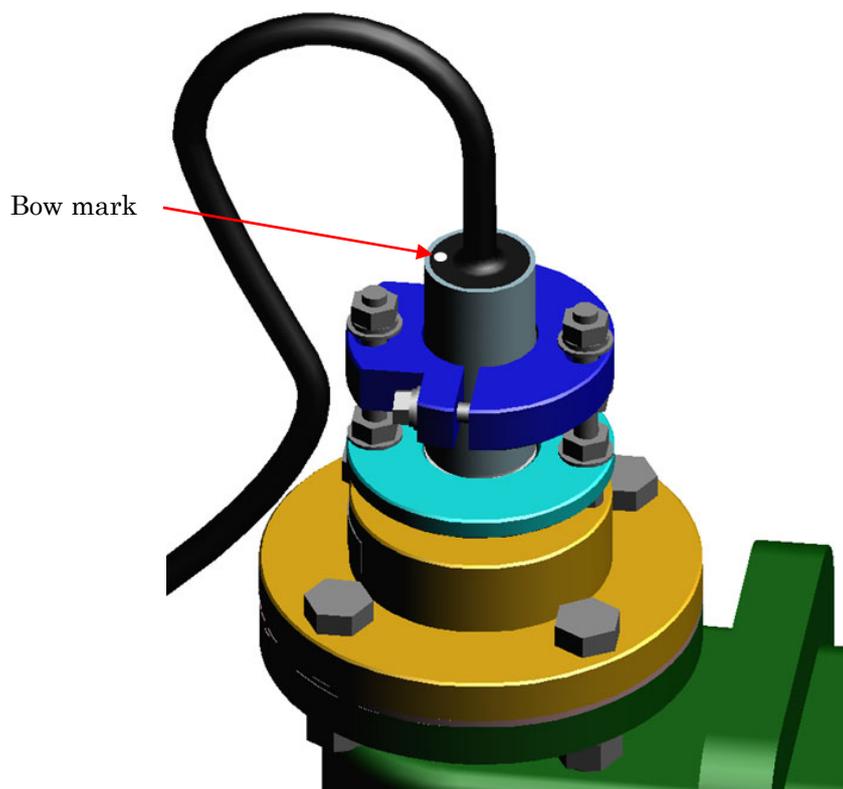
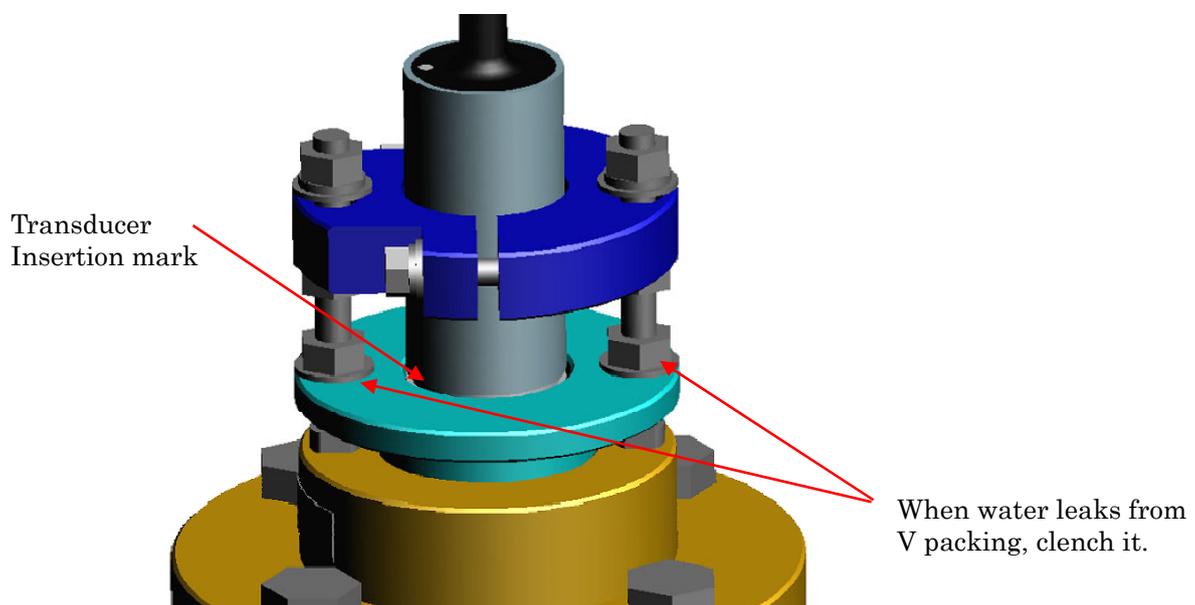


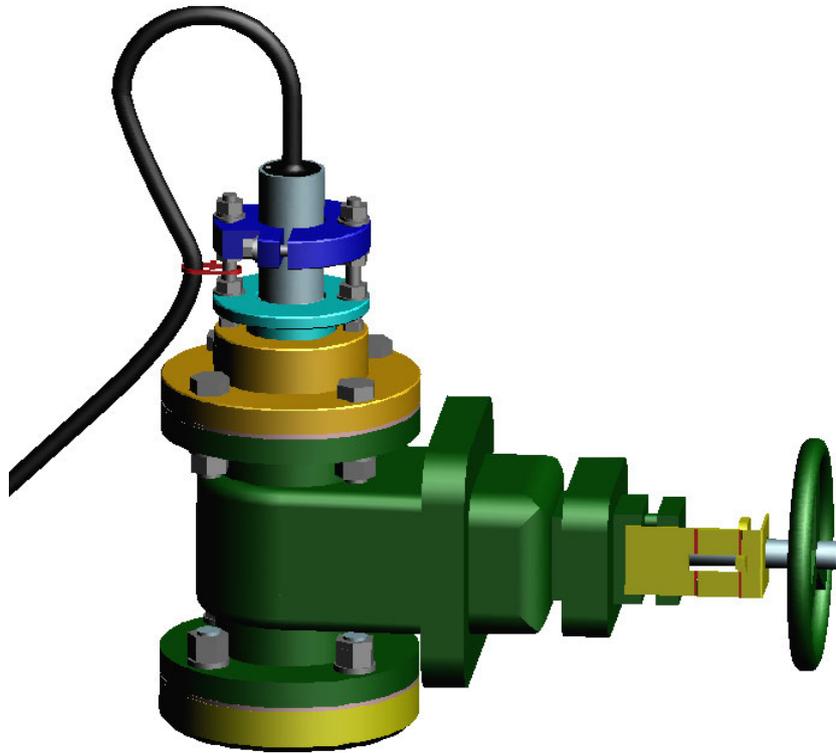
#### 4.7.9. Reassemble it

Replace the transducer with a new one and assemble it again in the reverse procedure of disassembling.



#### 4.7.10. Final confirmation





#### Required tools

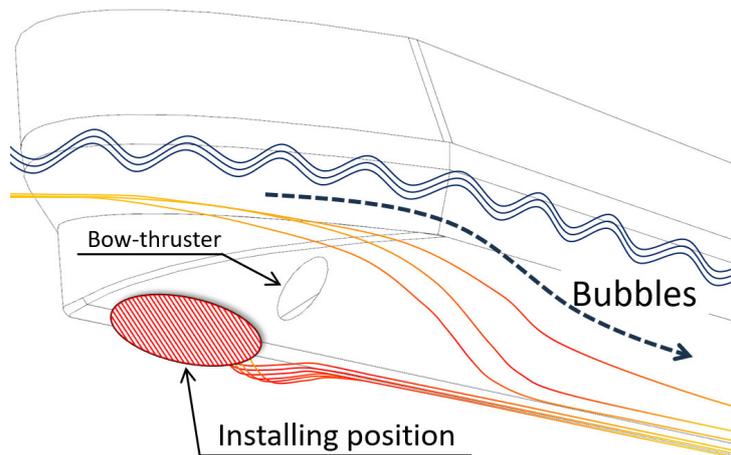
- Gasket MPPK00686A One
- V packing BRPK00354 One
- Jig for steering wheel One
- Fluid sealant materials One  
NIHON HERMETICS CO., LTD  
HERME OIL SEAL No. 1 equivalent
- Spanner Two each of the following:  
M16 (wrench No. 24)  
M20 (wrench No. 30)
- (Gas detector)

#### 4.8. Precautions for tank / sea valve installation

- This equipment measures the speed of the ship by using the ultrasonic wave. The ultrasonic wave causes attenuation and diffusion when the influence of the bubble is received, and cannot measure an accurate speed of the ship.
- Install the transducer in a place where the bubbles (cavitation) are not generated when sailing.
- Do not mount transducers aft of bow-thruster, propeller outlets or aft of other hull installations that may create bubbles or turbulence.

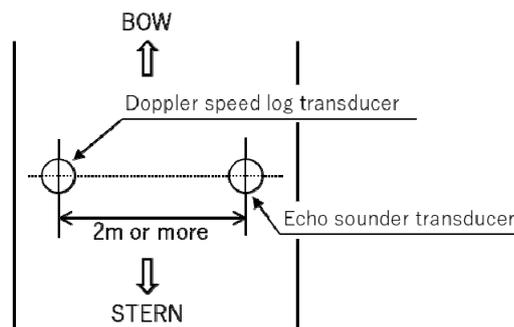
#### CAUTION

Install the transducer in the place where the bubble is not generated when sailing.  
Install the transducer forward from 1/10 of the ship's lengths in the large vessel.  
Moreover, install the transducer forward from it when there is bow-thruster.



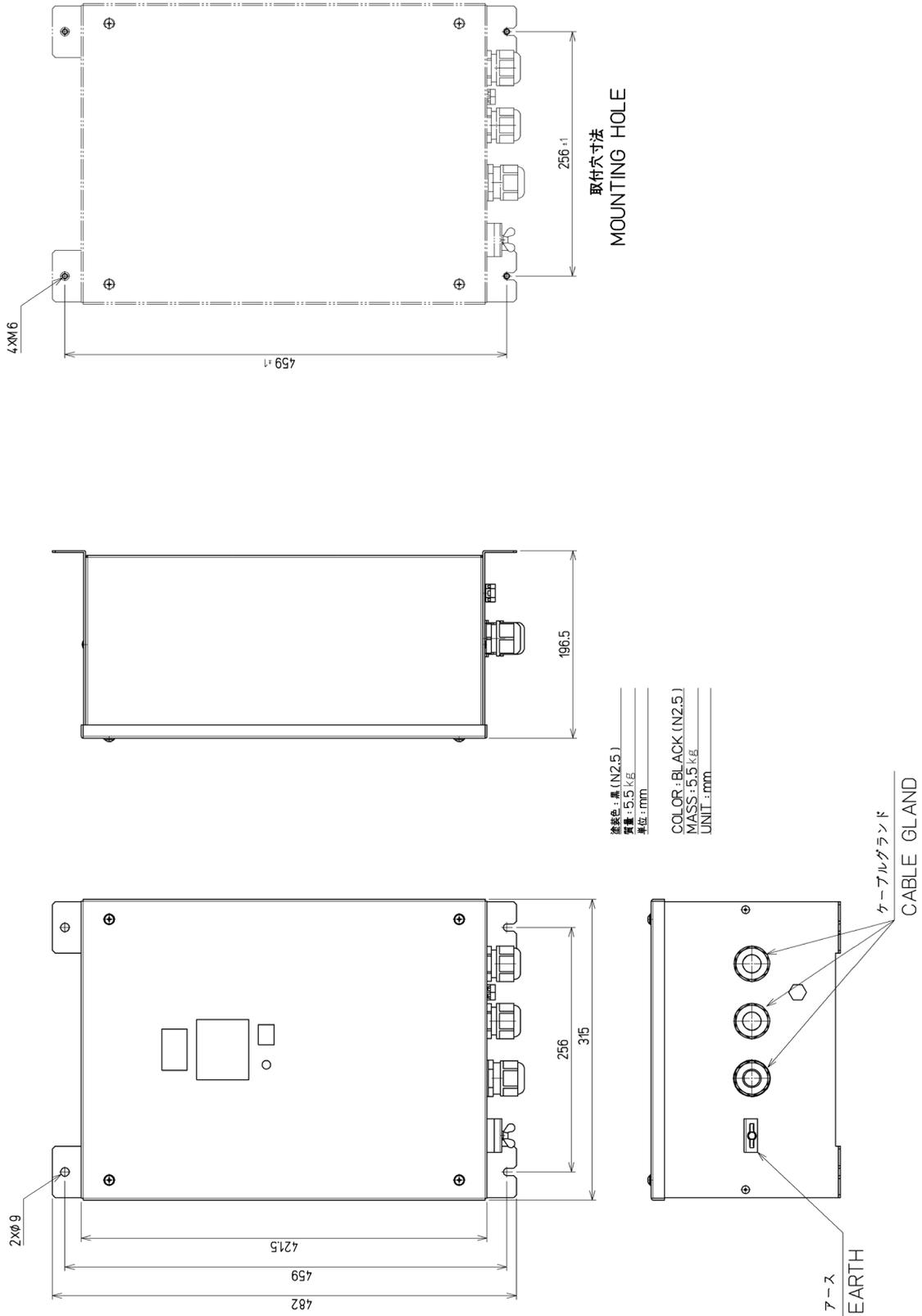
- Install it the place separated from the transducer of another piece of equipment by 2m or more for the interference prevention.
- It is recommended to be installed with Doppler log ahead of echo sounder though it usually installs from the bow in order with low frequency.
- Install it to be suitable for the direction of the bow in parallel to the bow tail line of bow mark of the transducer within about 5°.

#### Recommended location



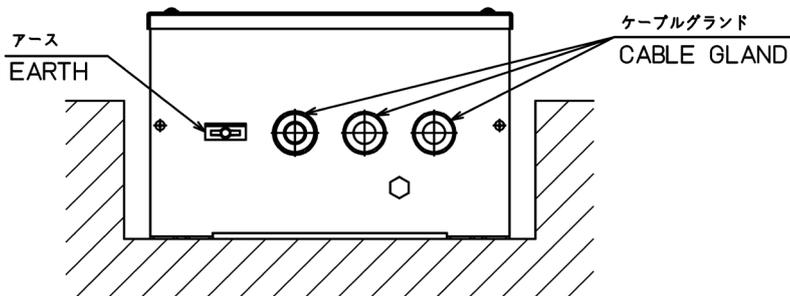
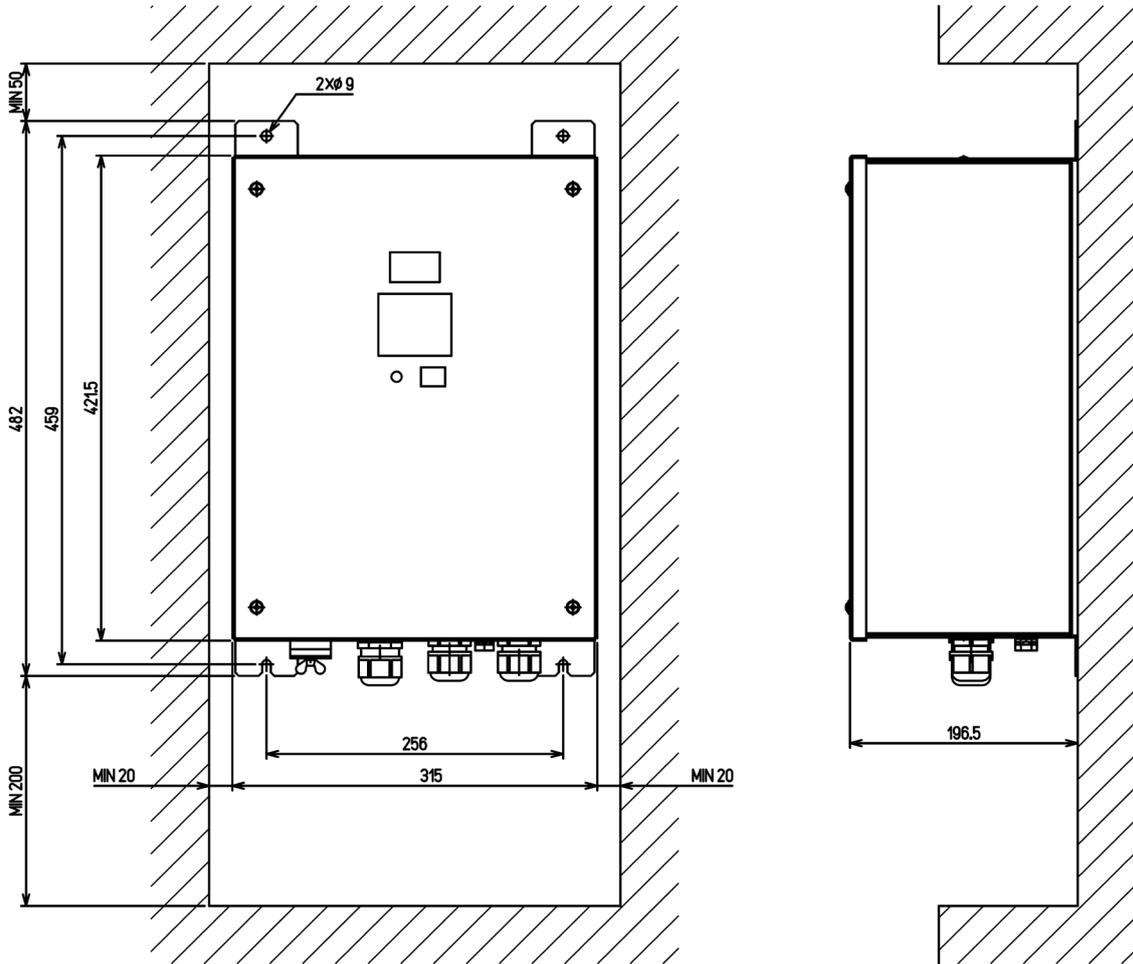
# 5. Installing of NJC-70S

## 5.1. Installation Drawing



- Installation Drawing

- Install with the space indicated by the following drawing.

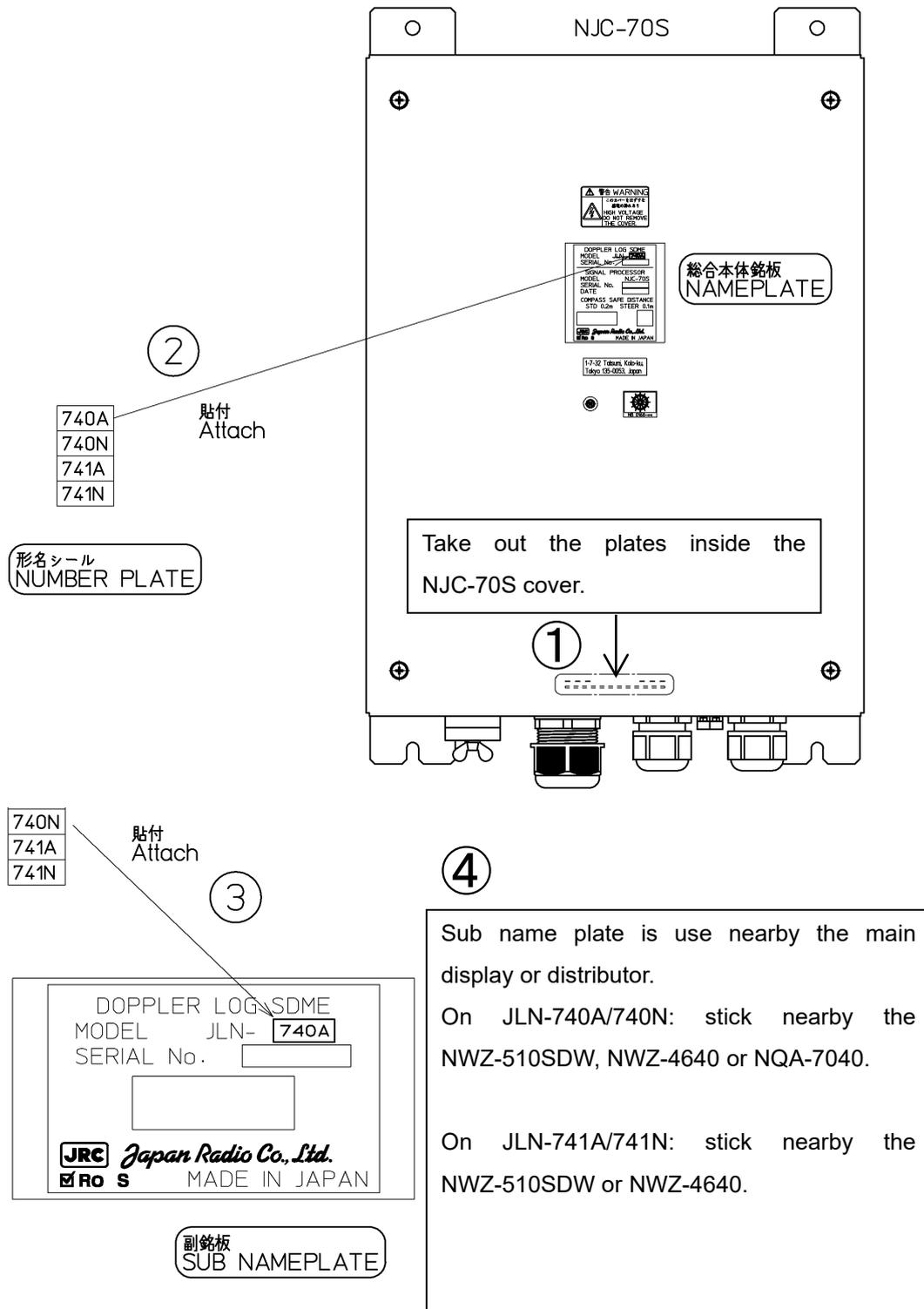


Unit: mm

 <b>CAUTION</b>	<p>This unit is for wall mounting only. Mount it on a flat wall.</p>
--	--

## 5.2. Name plate sticking

- Stick the attached plates as follows. The plates are attached in NJC-70S body.
- Choose the correct model number plate and stick it.



### 5.3. Installation Procedure

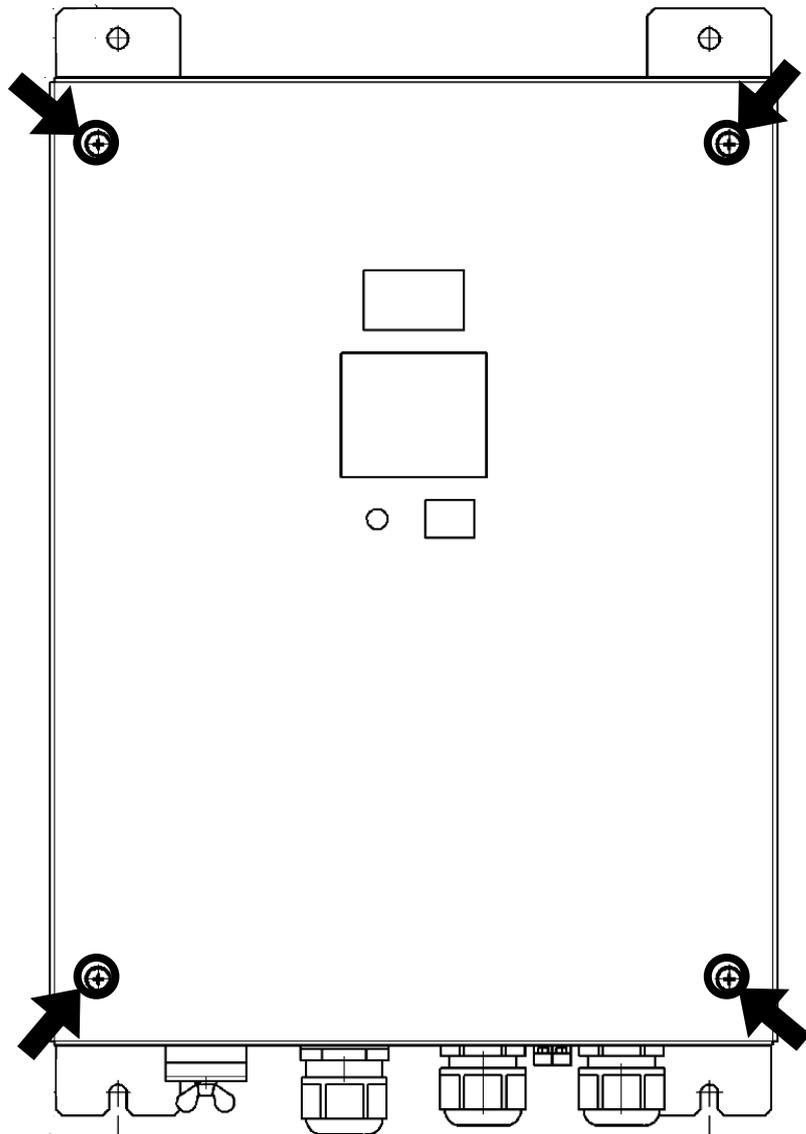


## CAUTION

This unit is for wall mounting only.  
Mount it on a flat wall.

#### 5.3.1. Removal of the cover

Loosen the screws (4 pcs) from the front side of NJC-70S and remove the cover.



### 5.3.2. Connection of the equipment

Connect cables by referencing the wiring diagram

#### 5.3.2.1. Precautions

	<b>CAUTION</b>	Do not touch the part protected with the plastic cover.
		High voltage is applied to the part protected with the plastic cover.

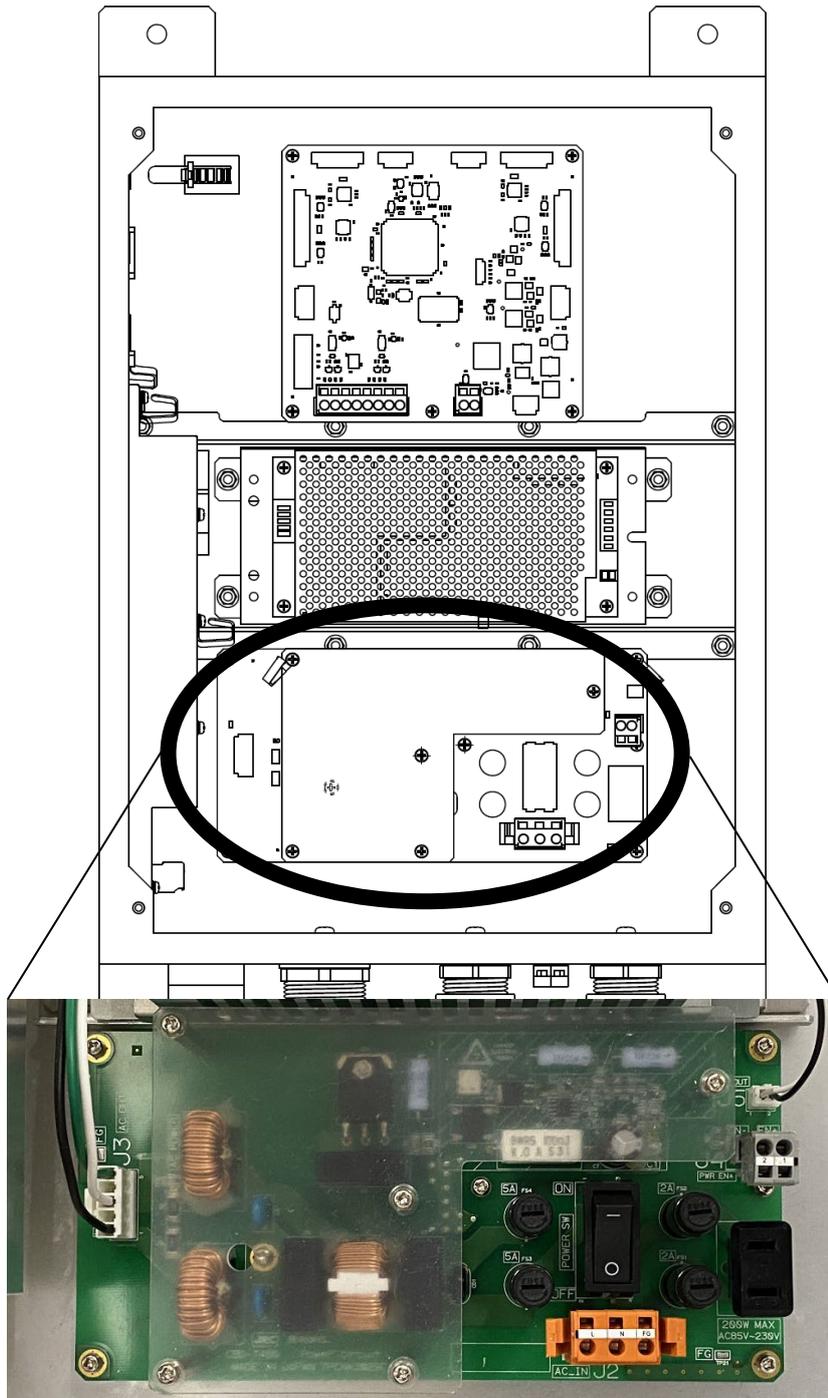


Figure 5.1 Protected Part Sealed with the Plastic Cover

- Check that the MAIN SW is OFF before the connection.

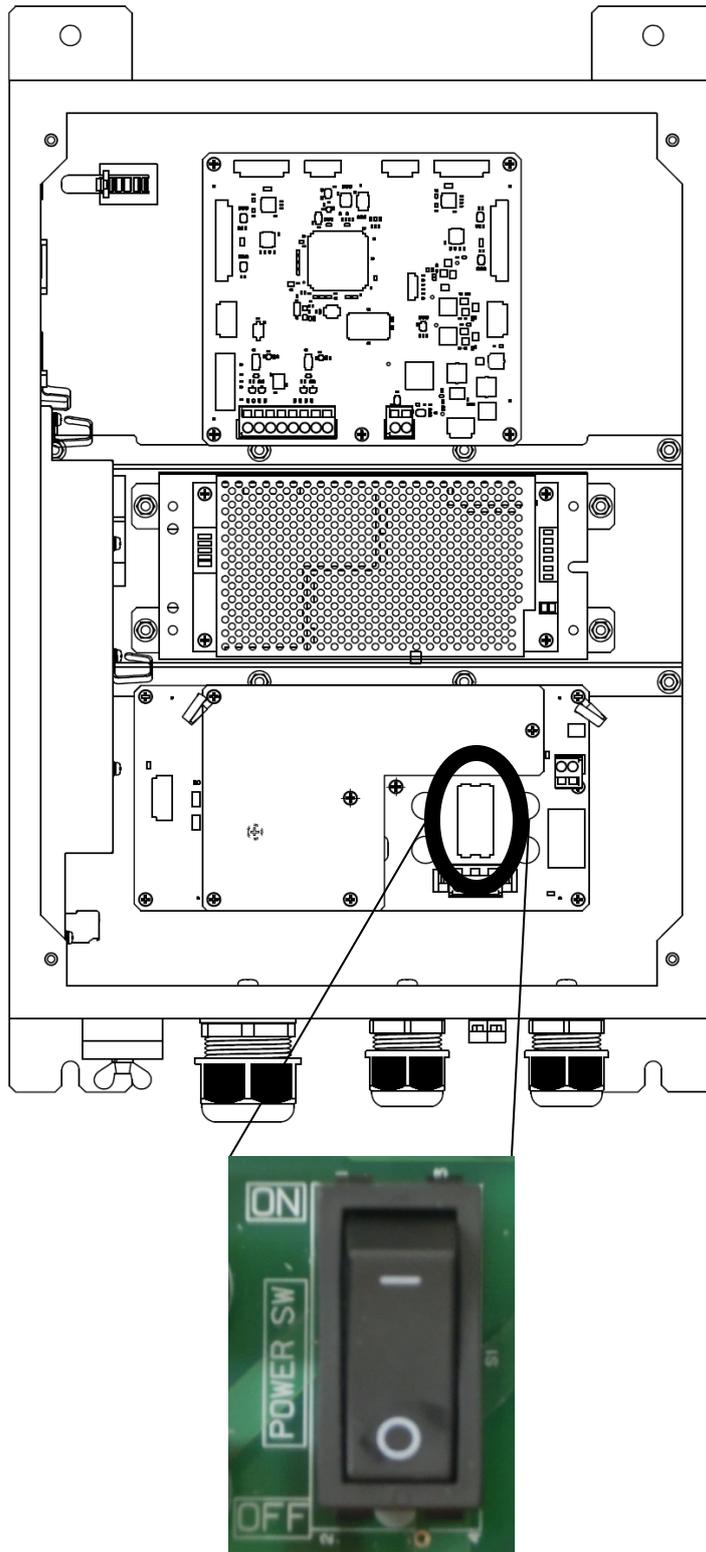
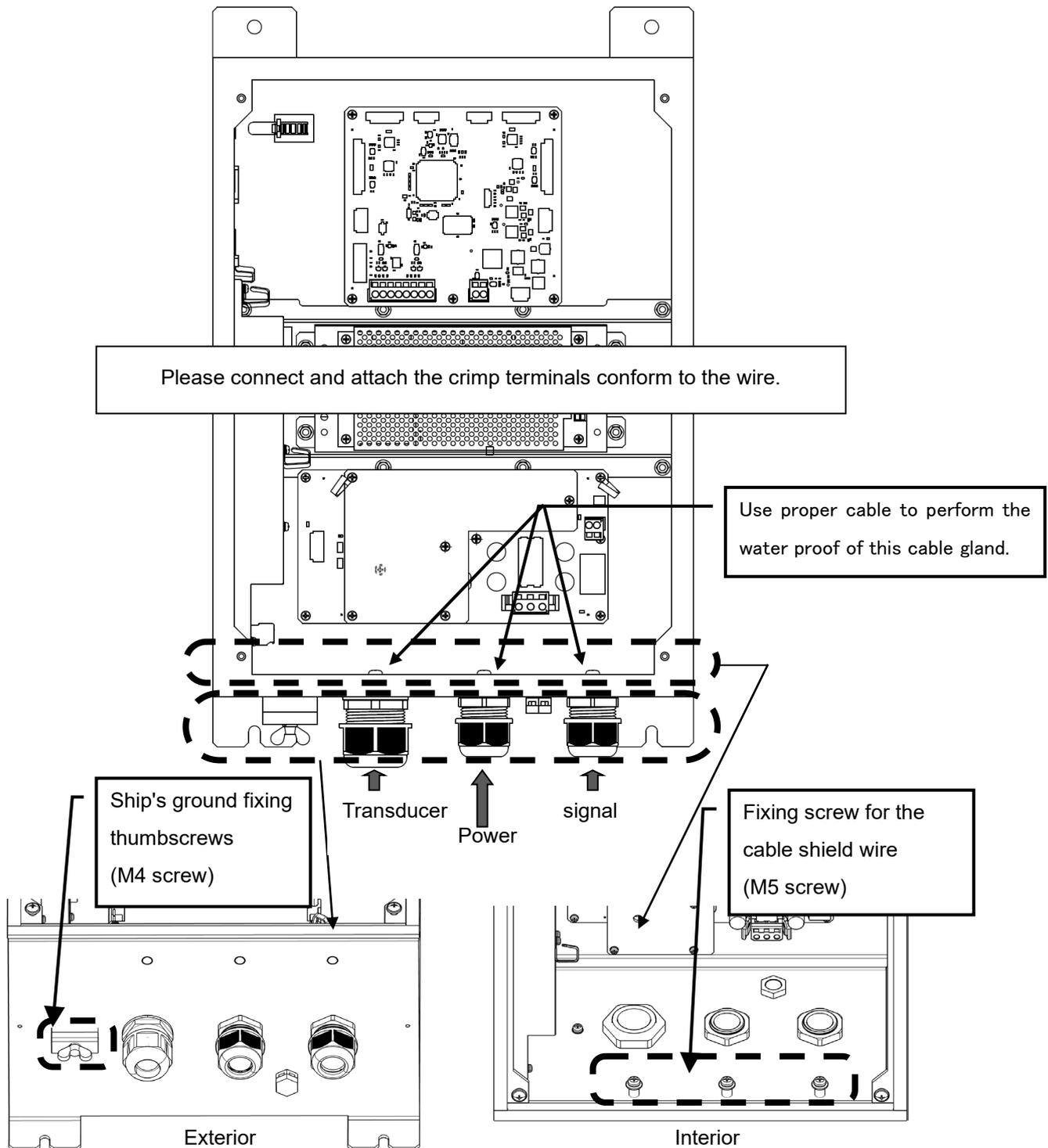


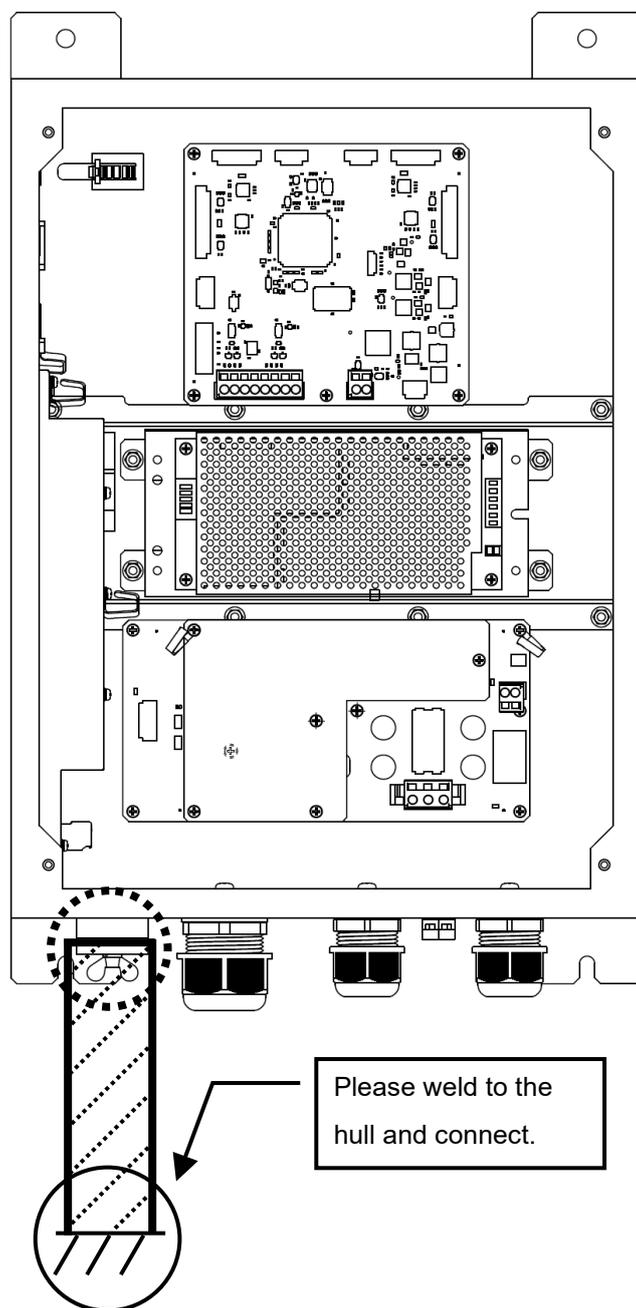
Figure 5.2 MAIN SW OFF

- You must be properly connected to the ship's ground the distribution processor in order to continue the stable operation.  
Please connect from fixing thumbscrews (M4 screw) to the ship's ground.
- Connect the shield wire of the cable to the fixing screws (M5) (3 places)

**CAUTION** Do not use silicon sealant to the cable gland. The cable gland perform by hand fastening.



- Connection of ship's ground
- Connect copper plate (width 30 mm) to the ship's ground.



### 5.3.2.2. Connection of Power Supply

#### 5.3.2.2.1. AC Power supply (100V or 230V) (JLN-740A, JLN-740N)

- Method of Inserting Power Supply Cable

While pressing the upper part ① of the connector with a flathead screwdriver having a thin top end, insert the cable to the lower part ② by using the following figure as a reference

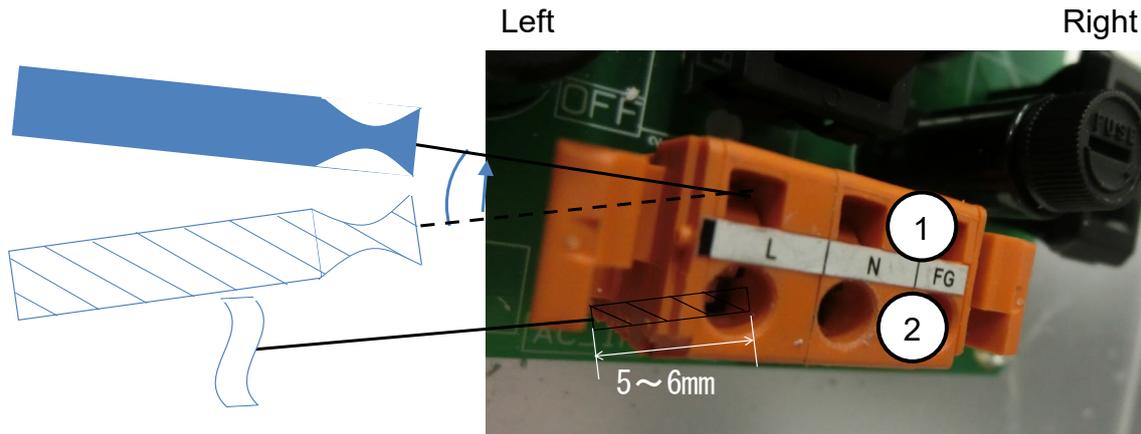


Figure 5.3 Connector Part

- 1) Insert three cables, L, N, and FG, by using the following figure as a reference.

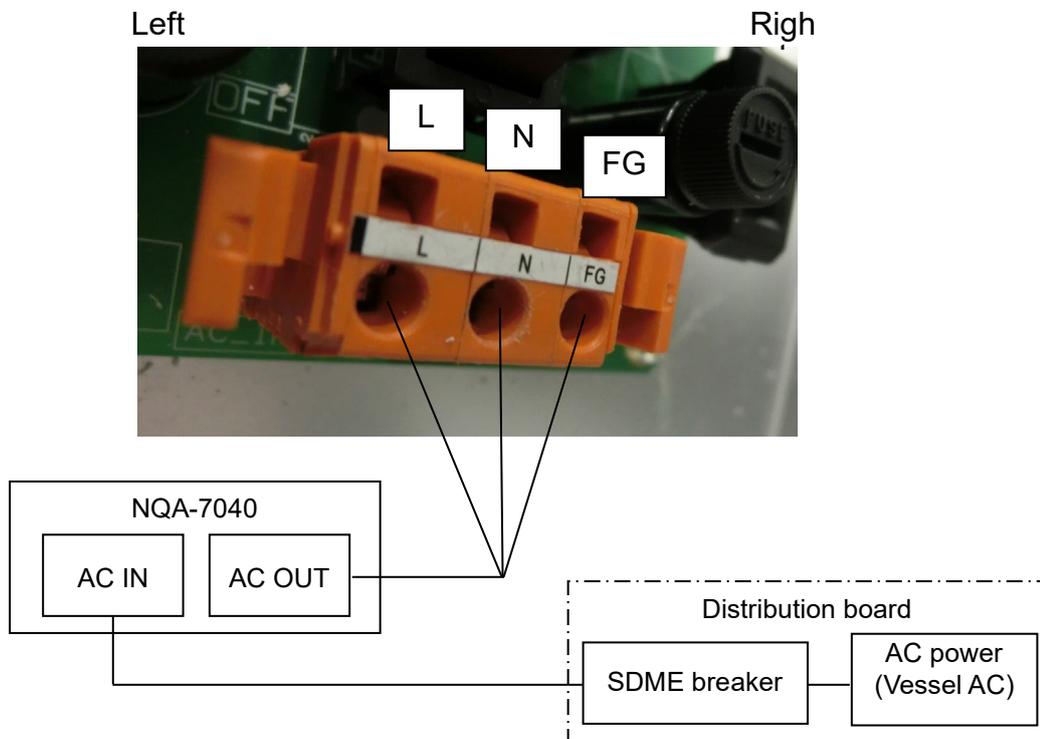
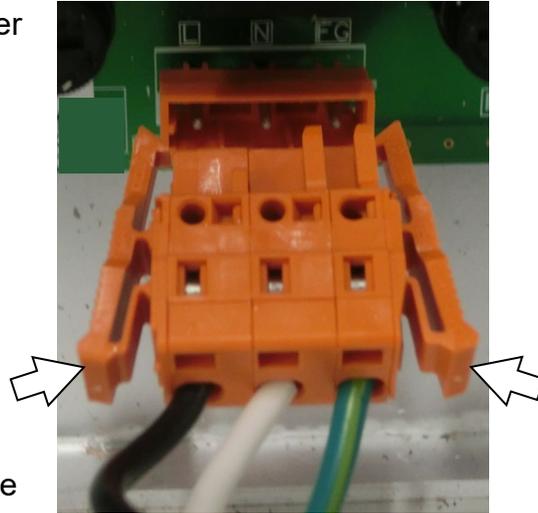


Figure 5.4 Cable Insertion

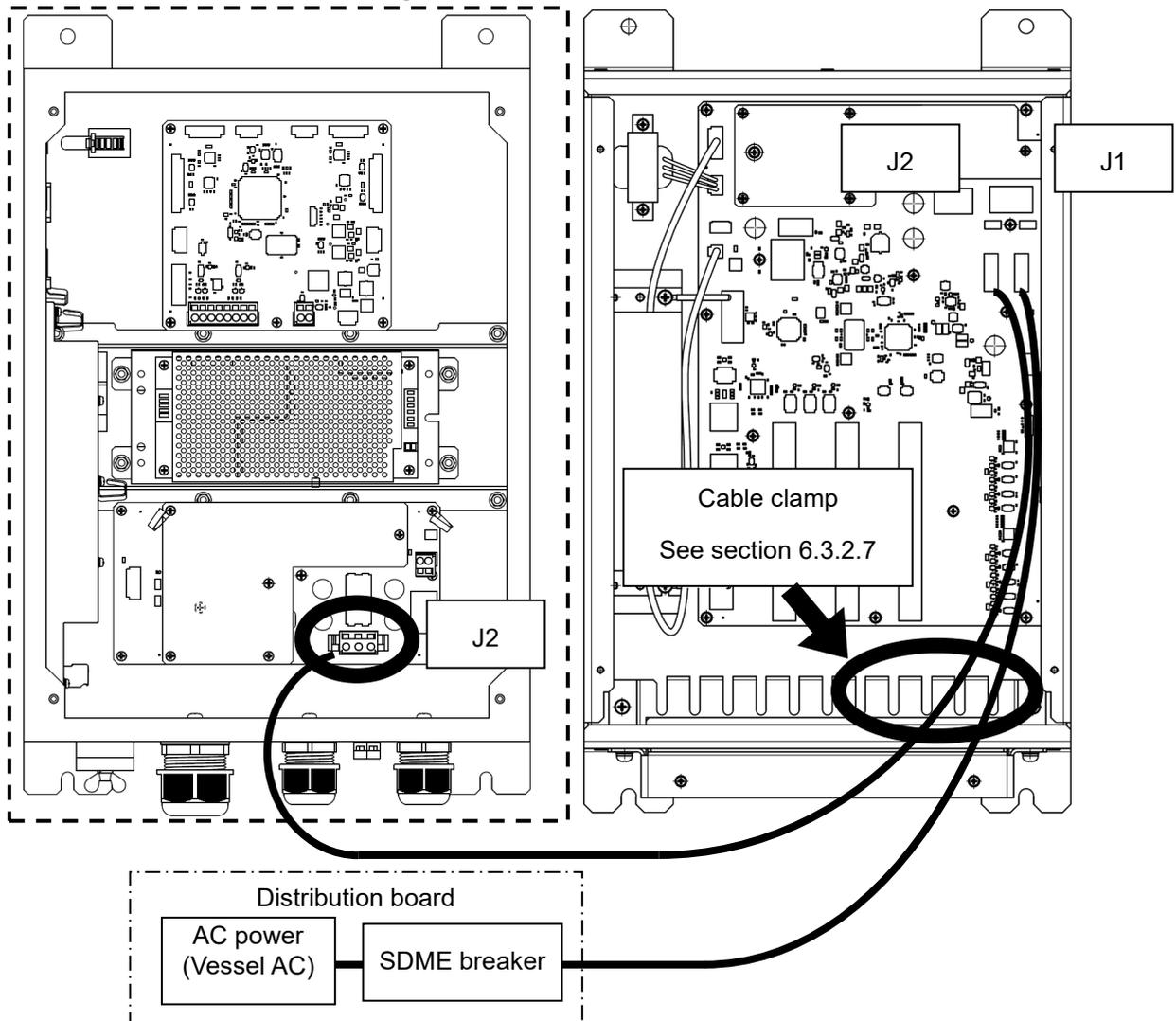
- 2) Hold the positions marked with the arrows as below and connect by pressing into J2 till a click sound is heard.
- 3) Connect the shield wire to the ship's ground referring to the picture on the next page. Shield wire should cover with insulating tape or tube.

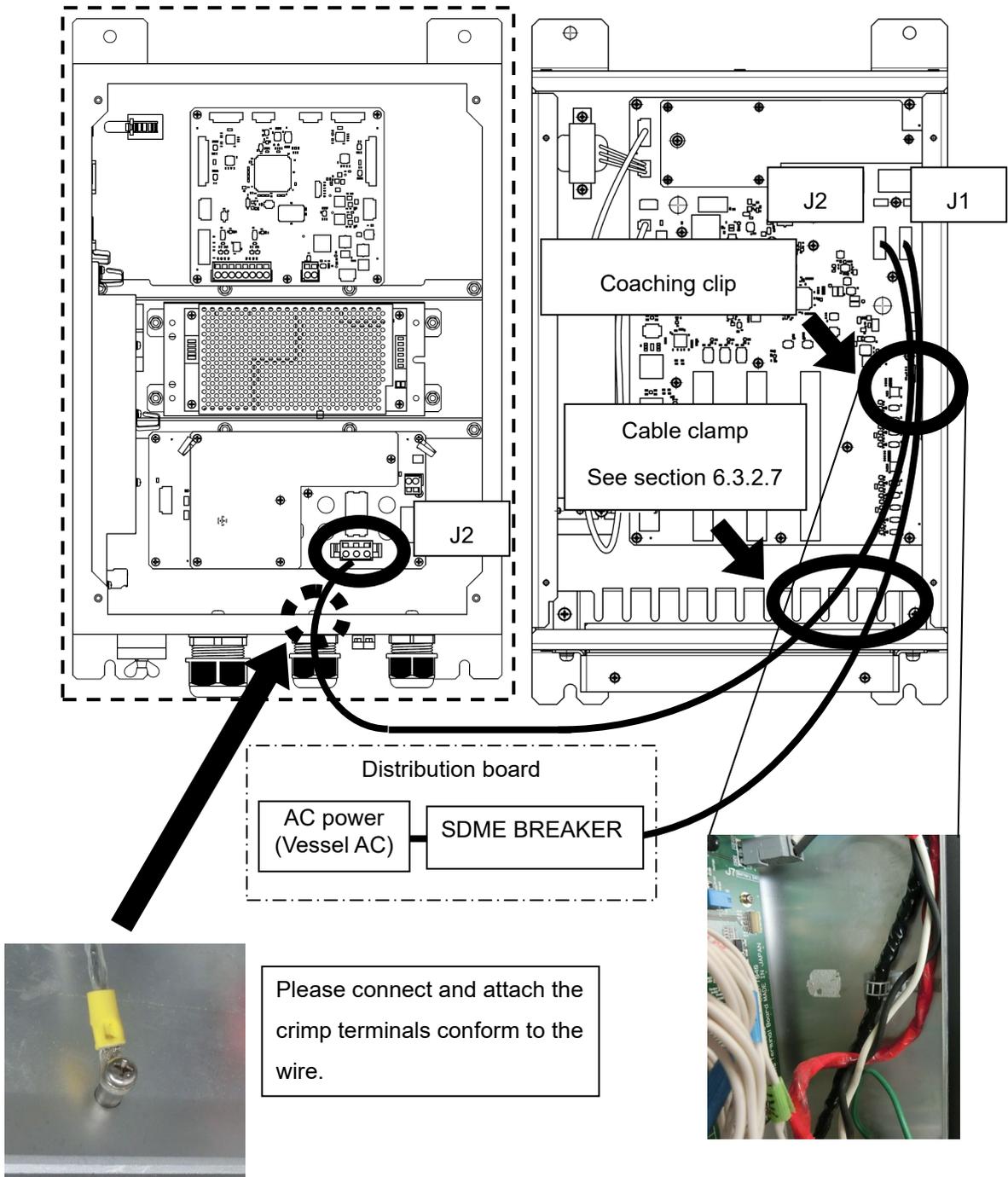
Upper



Lower

Figure 5.5 Connector Insertion





- 4) Fix firmly the two AC cables by using a cable clamp.
- 5) Fix firmly by using the comb shape clamp.

5.3.2.2.2. AC Power supply (100V or 230V) (JLN-741A, JLN-741N)

- Method of Inserting Power Supply Cable

While pressing the upper part ① of the connector with a flathead screwdriver having a thin top end, insert the cable to the lower part ② by using the following figure as a reference

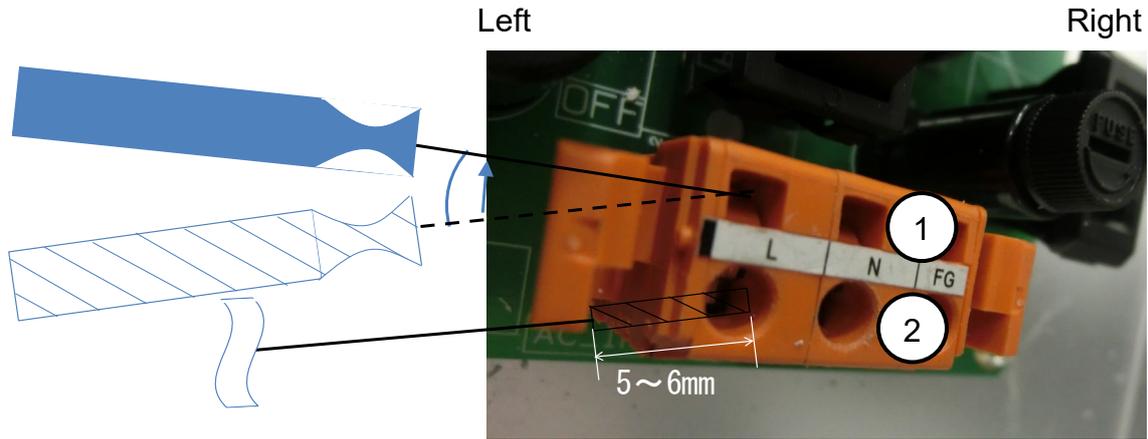


Figure 5.6 Connector Part

- 1) Insert three cables, L, N, and FG, by using the following figure as a reference.

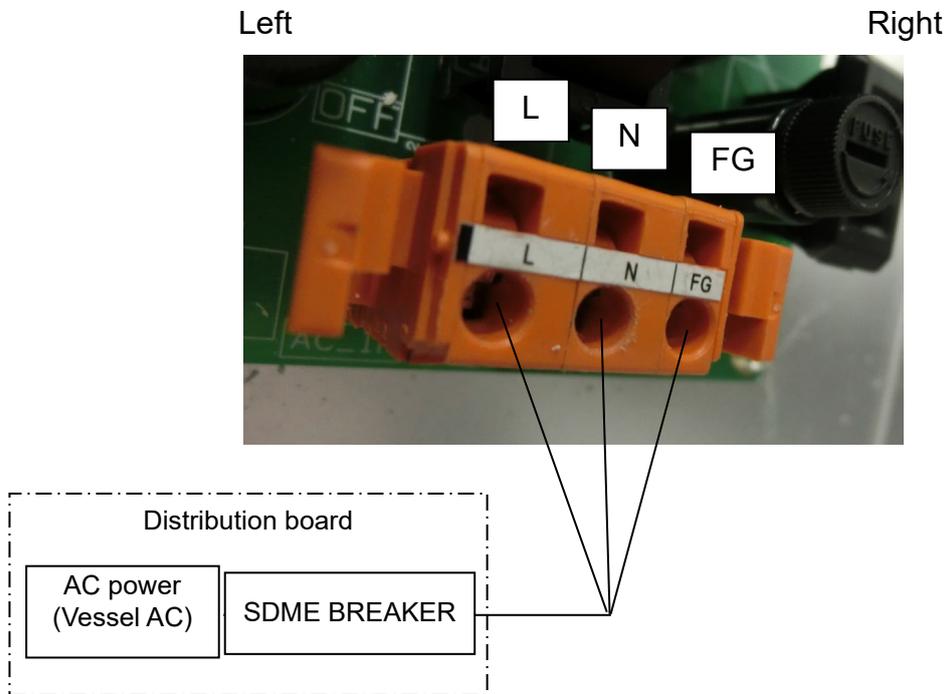


Figure 5.7 Cable Insertion

- 2) Hold the positions marked with the arrows as below and connect by pressing into J2 till a click sound is heard.
- 3) Connect the shield wire to the ship's ground referring to the picture below.

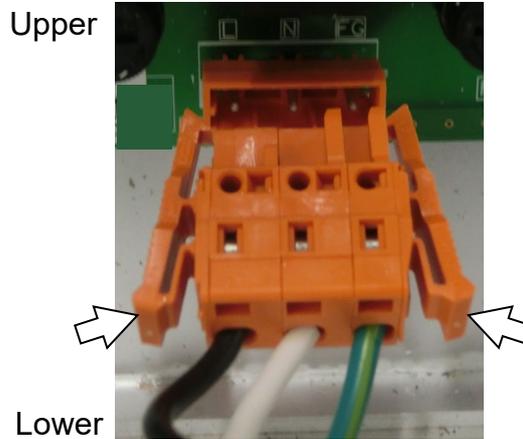
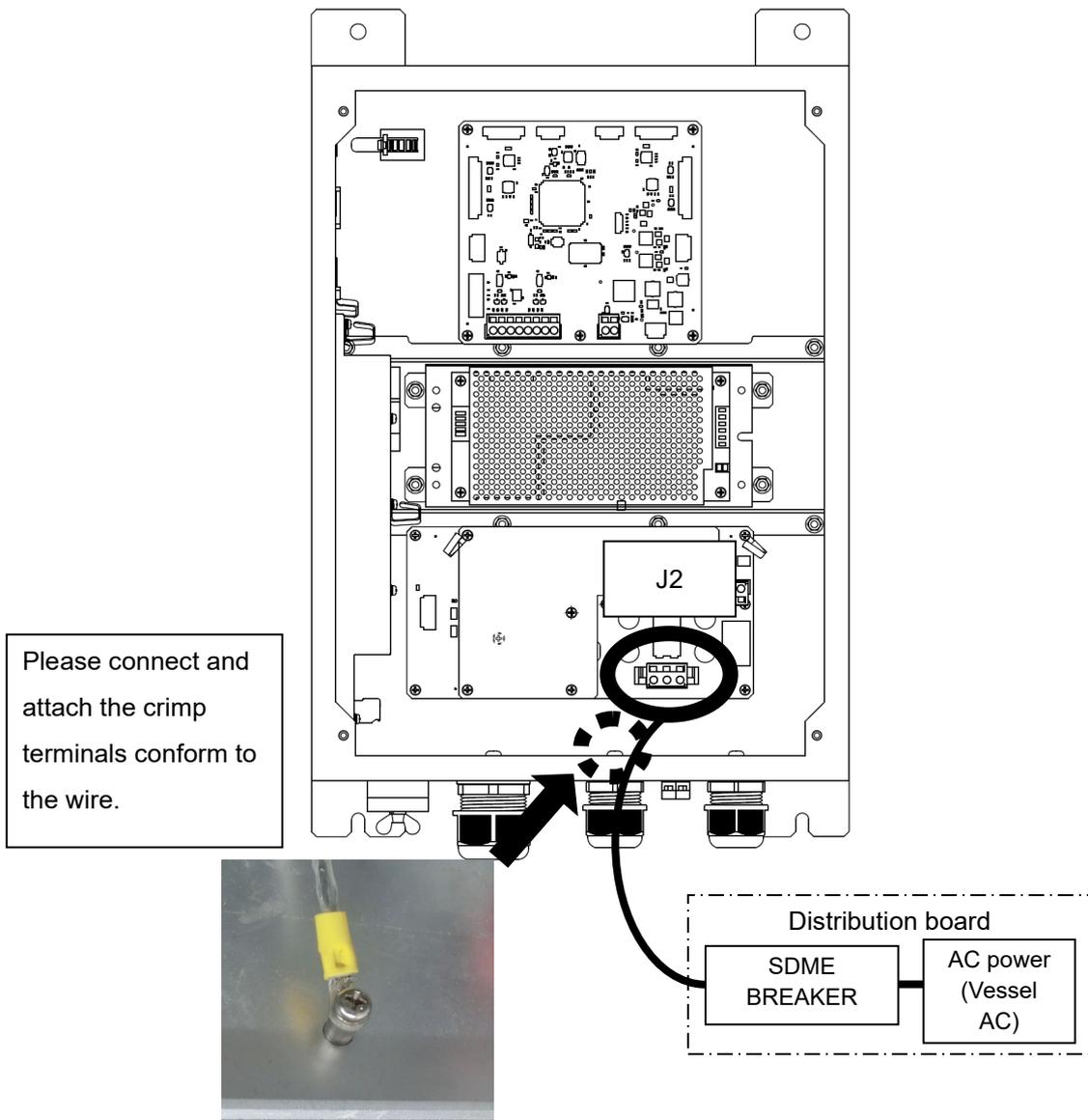
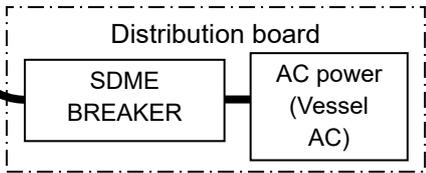
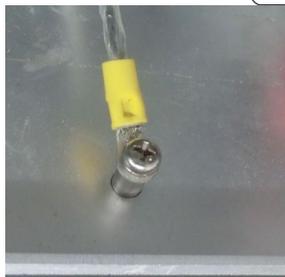


Figure 5.8 Connector Insertion



Please connect and attach the crimp terminals conform to the wire.



### 5.3.2.3. Connecting the transducer

(Common to JLN-740A, JLN-740N, JLN-741A, and JLN-741N)

#### 5.3.2.3.1. Processing the transducer cable

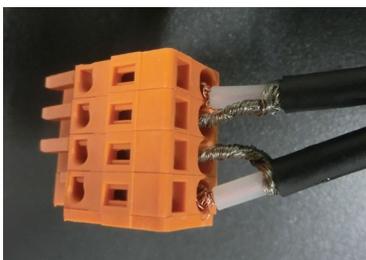
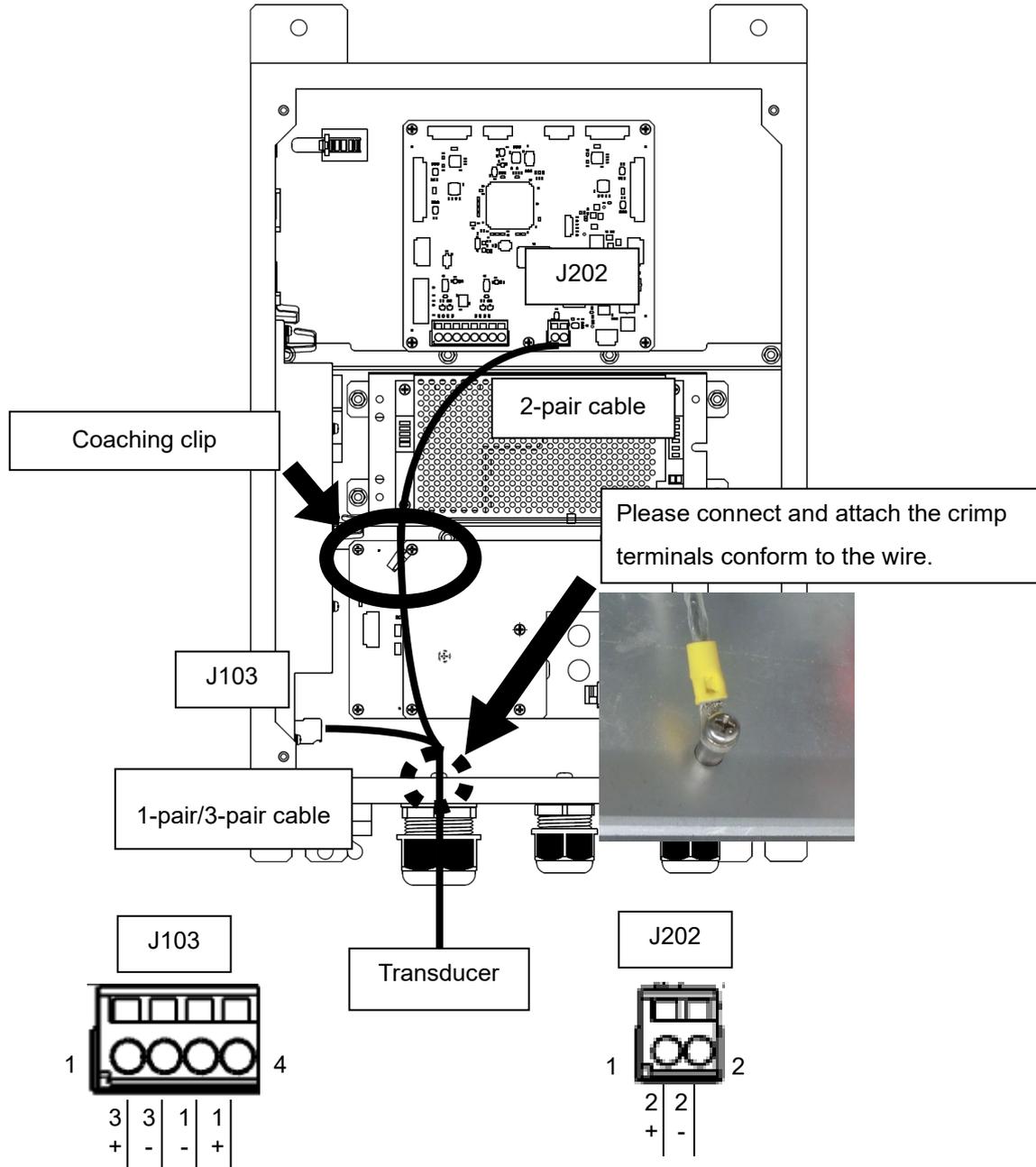
- 1) Peel off the sheath of the transducer cable by 30 cm.
- 2) Peel off the sheath of the 2-pair cable by 15 mm.
- 3) Twist the shield into the shield wire.
- 4) Peel off the tube by 10 mm.
- 5) Cut the 1-pair cable and 3-pair cable by 10 cm.
- 6) Peel off the sheath of the 1-pair cable and 3-pair cable by 20 mm.
- 7) Twist the shield into the shield wire.
- 8) Peel off the tube by 15 mm.
- 9) Each pair cable end terminal processes as below.



10) Connect the cables as shown below.

Fix the RX-pair cable and TX-pair cable firmly by using the coaching clip.

11) Connect the shield wire to the ship's ground referring to the picture below. Shield wire should cover with insulating tape or tube.



### 5.3.2.4. Connecting the distribution processor and the signal processor

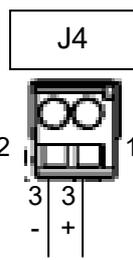
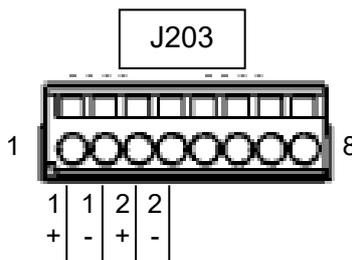
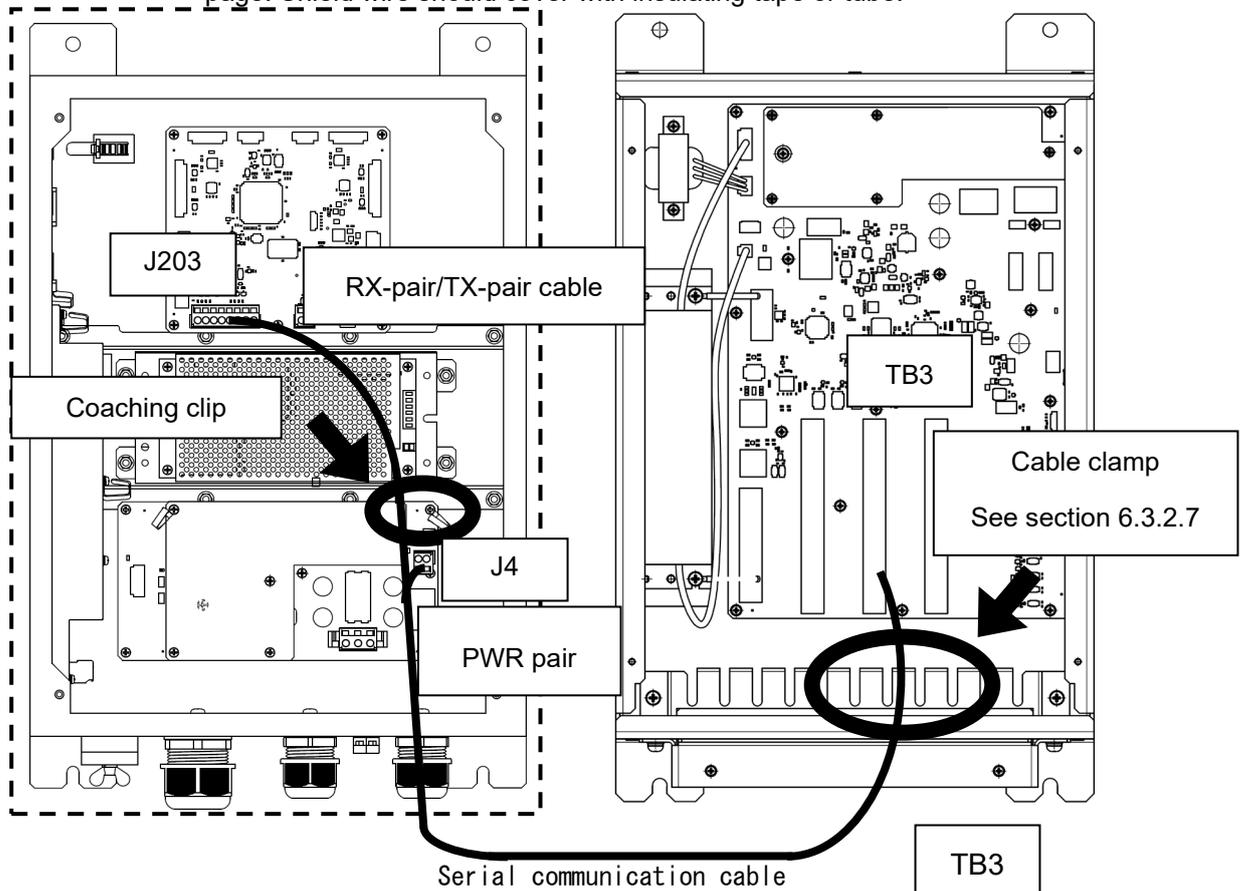
#### 5.3.2.4.1. Connecting distribution processor NQA-7040 (for JLN-740A and JLN-740N)

##### 1. Processing the distribution processor cable

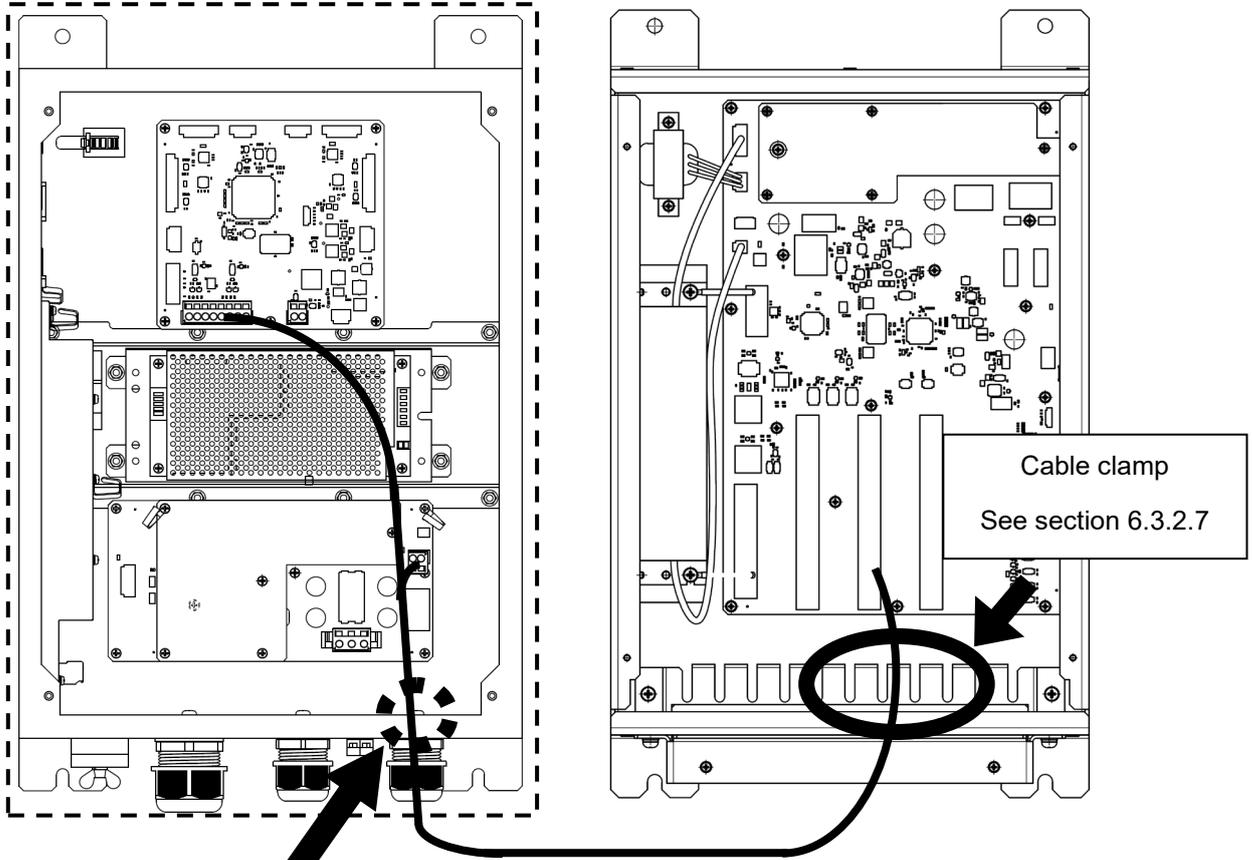
- 1) Peel off the distribution processor cable by 35 cm.
- 2) Peel off the edges of the RX pair-cable and TX-pair cable by 5 mm to 6 mm.
- 3) Trim the PWR-pair cable by 18 cm and peel off the edge by 5 mm to 6 mm..
- 4) Connect the cables as shown below.

Fix the RX-pair cable and TX-pair cable firmly by using the coaching clip.

- 5) Connect the shield wire to the ship's ground referring to the picture on the next page. Shield wire should cover with insulating tape or tube.



19	Signal Processor	RX-A	1+
20		RX-B	1-
21		TX-A	2+
22		TX-B	2-
23		PWR-EN+	3+
24		PWR-EN-	3-



Cable clamp  
See section 6.3.2.7

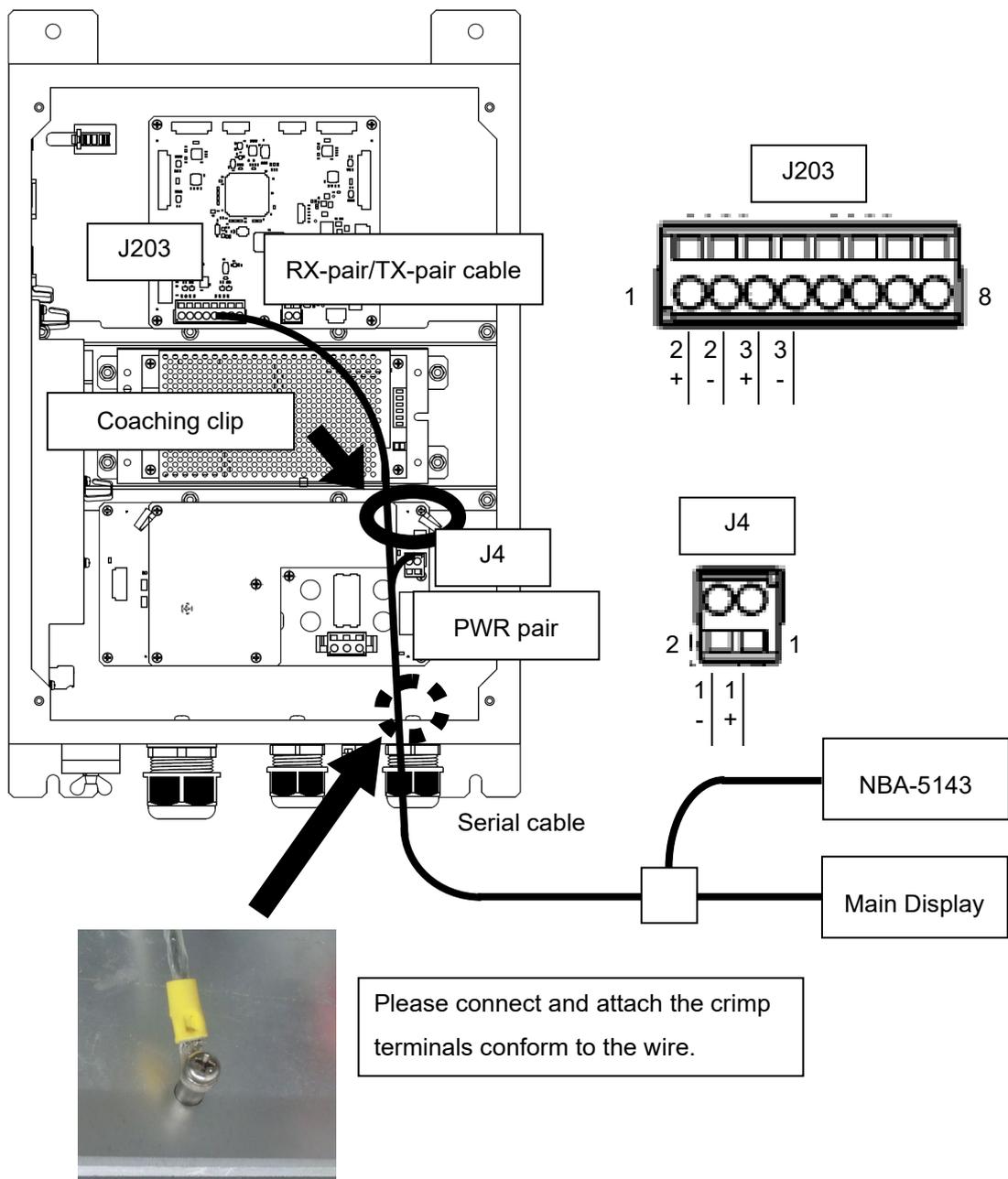


Please connect and attach the crimp terminals conform to the wire.

6) Please secure firmly using cable clamp.

### 5.3.2.4.2. Connecting the main display unit (for JLN-741A and JLN-741N)

1. Processing the main display unit cable
  - 1) Peel off the main display unit cable by 35 cm.
  - 2) Peel off the edges of the RX pair-cable and TX-pair cable by 5 mm to 6 mm.
  - 3) Trim the PWR-pair cable by 18 cm and peel off the edge by 5 mm to 6 mm.
  - 4) Connect the cables as shown below.  
Fix the RX-pair cable and TX-pair cable firmly by using the coaching clip.
  - 5) Connect the shield wire to the ship's ground referring to the picture below.



5.3.3. Supplying the power  
Turn on the MAIN SW.

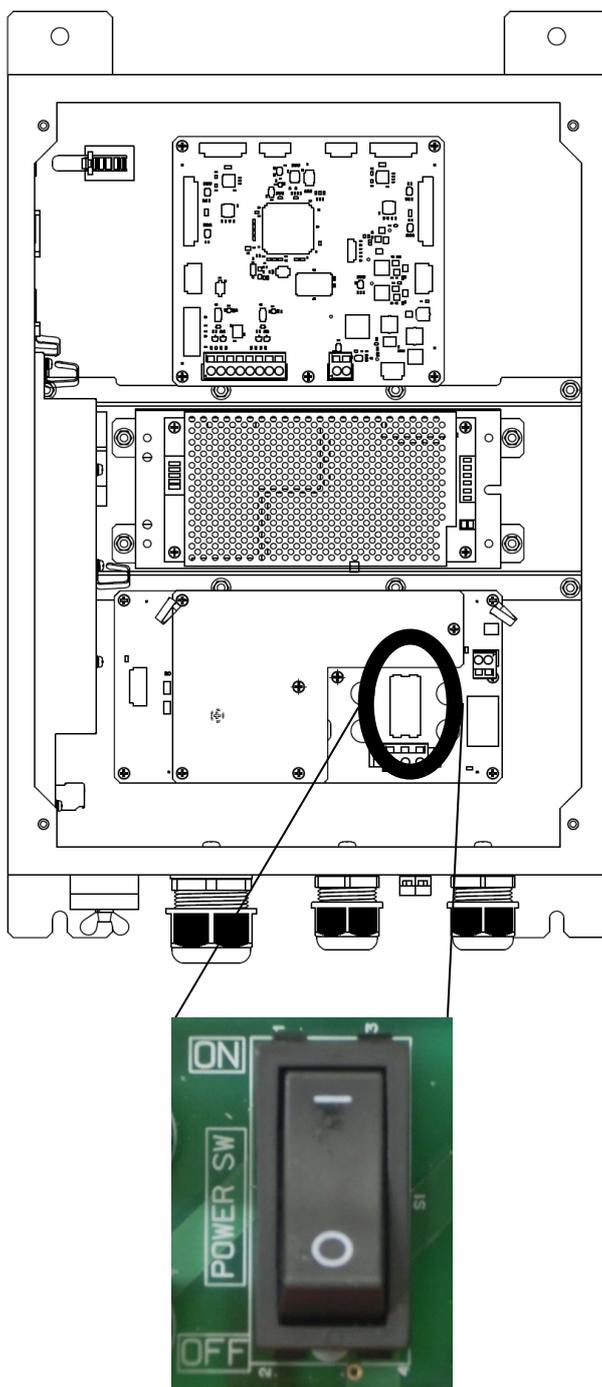
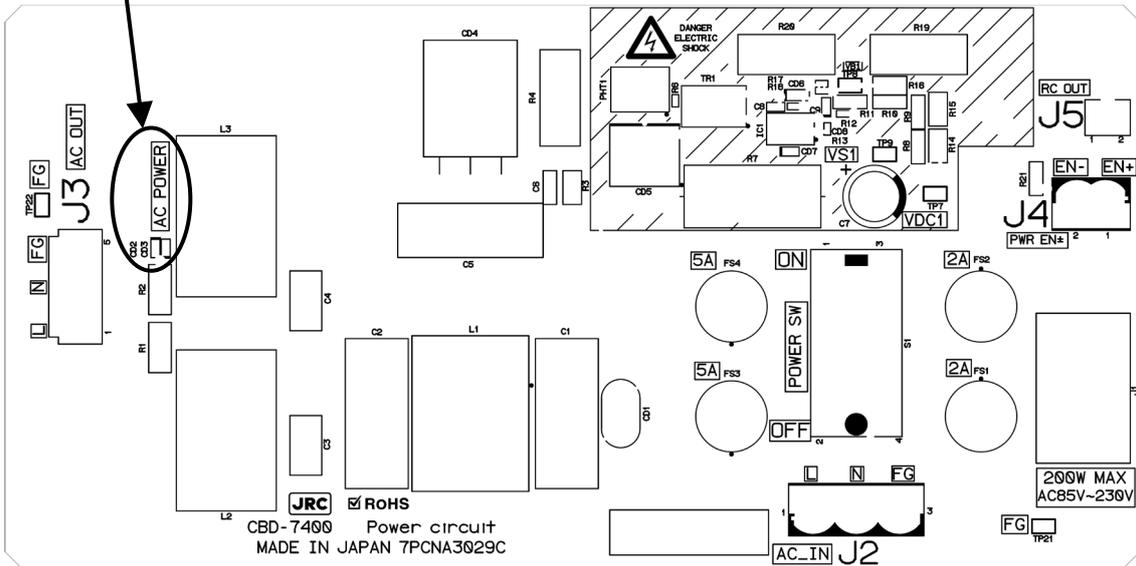
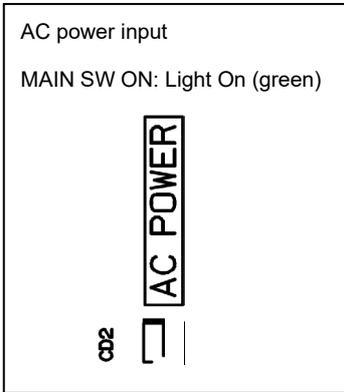


Figure 5.11 MAIN SW ON

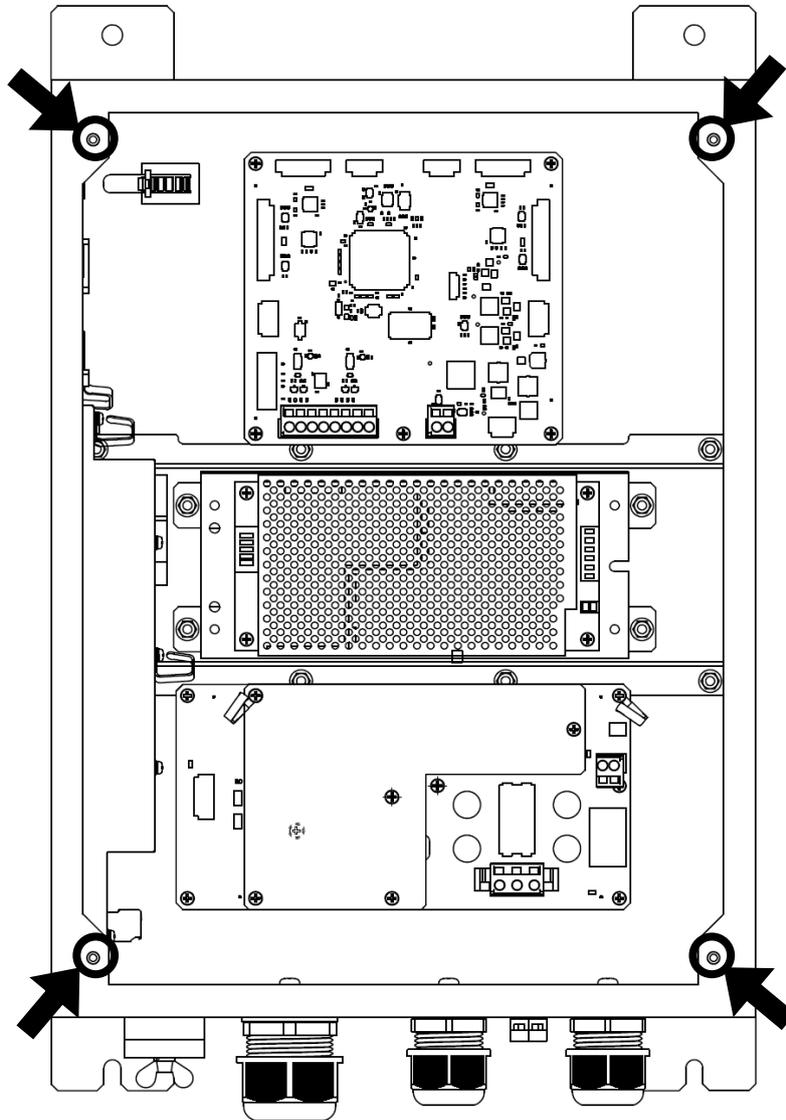
\* Description of LED of the signal processor

CBD-7400 Power unit



#### 5.3.4. Attachment of the cover

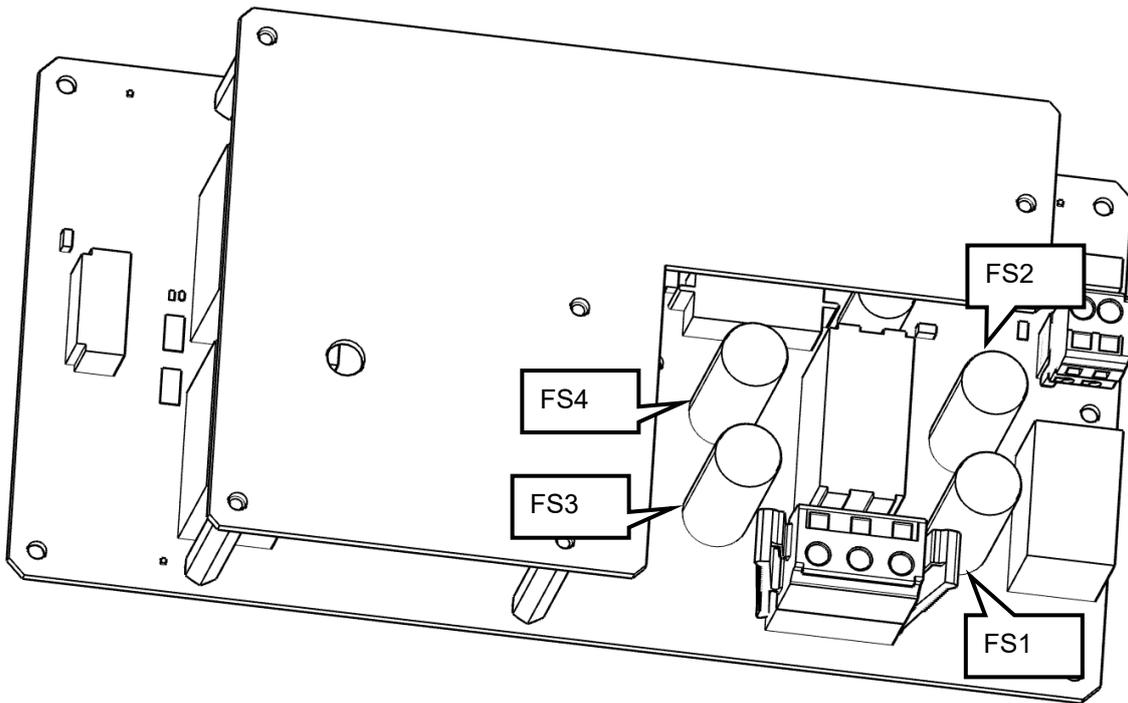
Attach the cover to the front side of the NJC-70S and tighten the screws (4 pcs).



#### 5.4. Fuse Replacement Procedure

 <b>CAUTION</b>	Be sure to switch off the power breaker of the power supply before starting the work.
--	---

Fuse holder Part No.	Fuse		Fuse Specification	Used for:
	Type	JRC Material Code		
FS1	MF51NR 250V 2	5ZFGD00200	250V/2A	AC input
FS2	MF51NR 250V 2	5ZFGD00200	250V/2A	
FS3	MF51NR 250V 5	5ZFGD00183	250V/5A	
FS4	MF51NR 250V 5	5ZFGD00183	250V/5A	



CBD-7400  
Power Circuit

#### 5.4.1. NJC-70S fuse replacement procedure

##### 5.4.1.1. Replacement of 2A Fuse

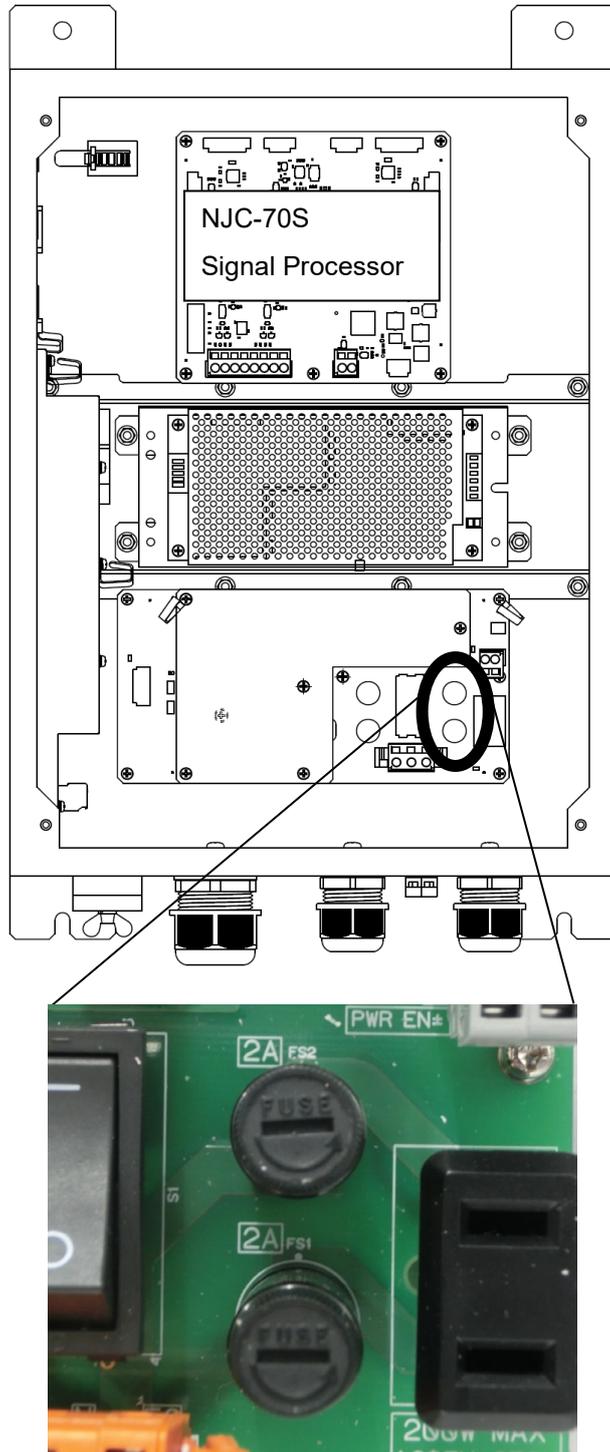


Figure 5.12 2A Fuse

- 1) Loosen the upper part of the fuse cover as below, and remove the fuse.

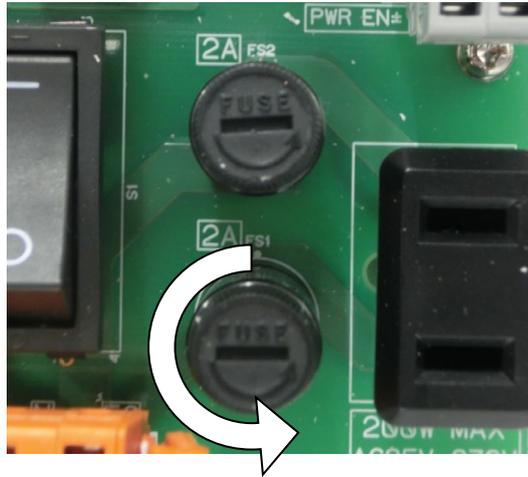


Figure 5.13 Removal of Fuse



Figure 5.14 Removed Fuse

- 2) Attach a new fuse and tighten the upper part of the fuse cover as below.

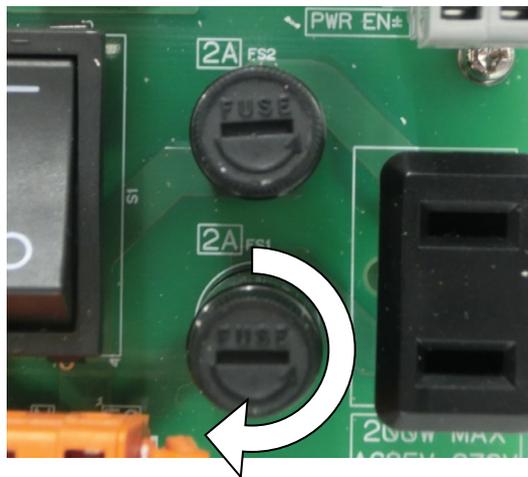


Figure 5.15 Attachment of Fuse

### 5.4.1.2. Replacement of 5A Fuse

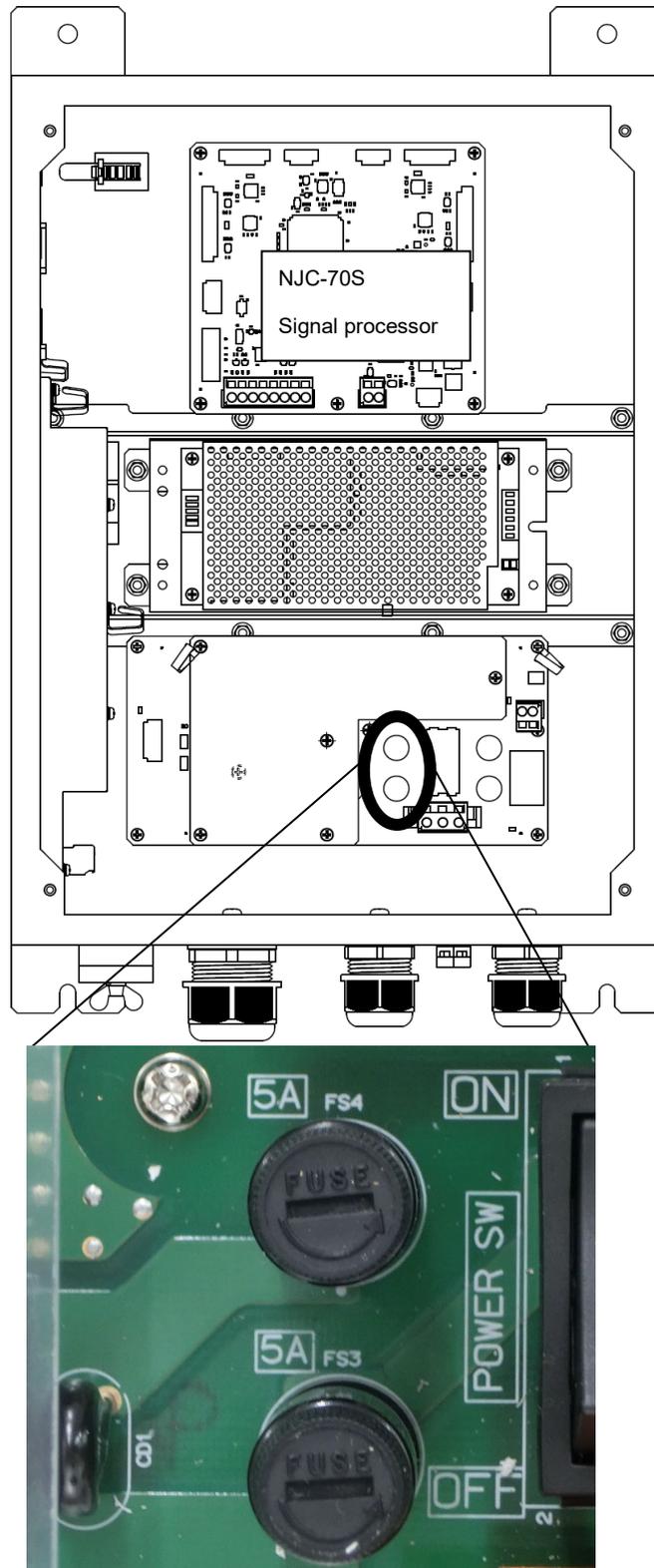


Figure 5.16 5A Fuse

- 1) Loosen the upper part of the fuse cover as below, and remove the fuse.

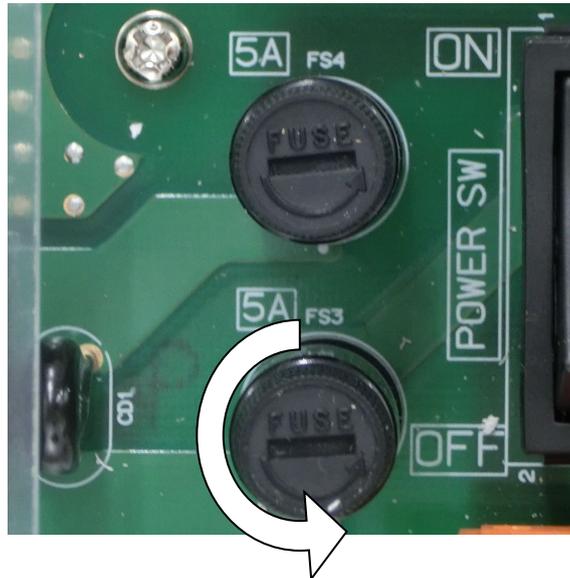


Figure 5.17 Removal of Fuse



Figure 5.18 Removed Fuse

- 2) Attach a new fuse and tighten the upper part of the fuse cover as below.

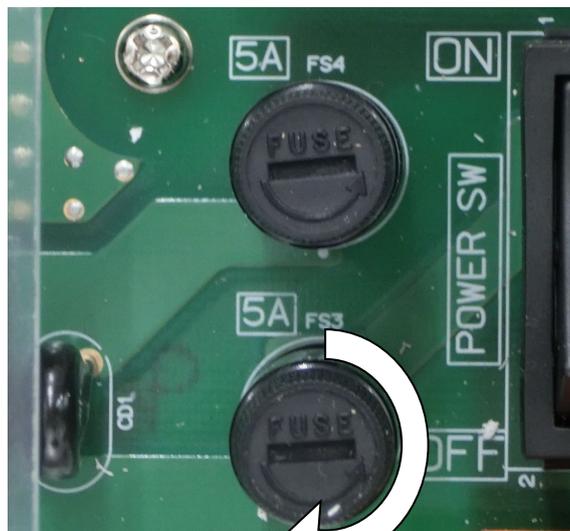


Figure 5.19 Attachment of Fuse

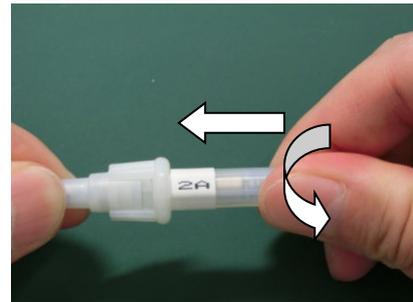
5.4.2. How to replace the fuse for power cable.

Model Name	Cable Model Name	Fuse		Spec
		Type	JRC Material Code	
NWZ-510SDW	CFS-5680	MF60NR 250V 2	5ZFGD00010	250V / 2A
NWZ-650SDR · NWZ-840SDR	CFS-6680A			
NWZ-4640/4610	CFQ-5766A	MF60NR 250V 1	5ZFGD00205	250V / 1A

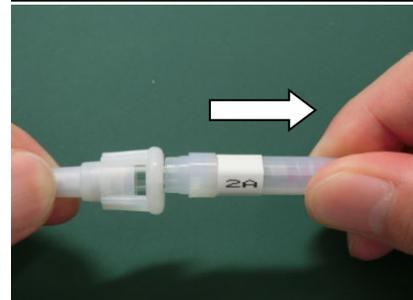
1) Hold the left side of fuse holder.



2) Push and twist the right side of fuse holder.



3) Pull the right side of fuse holder.



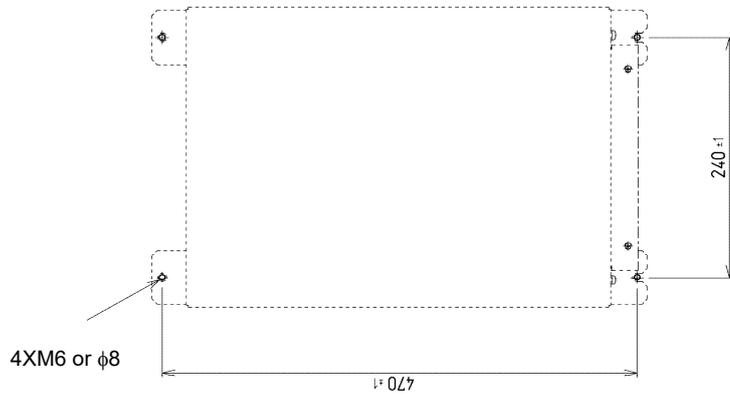
4) Replace the blown fuse to new one.

Note: same ampere fuse should be use.

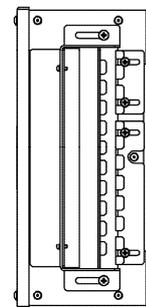
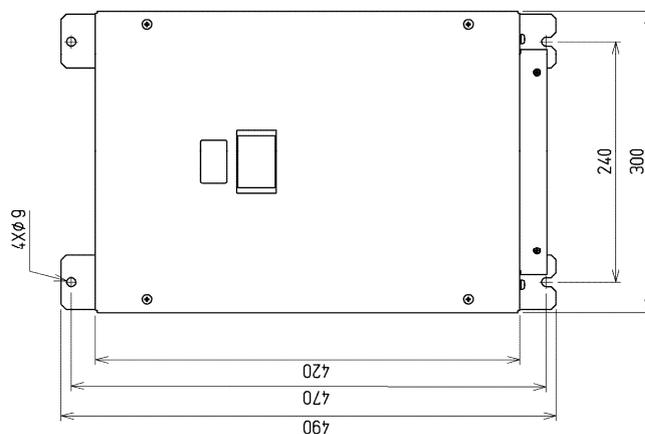
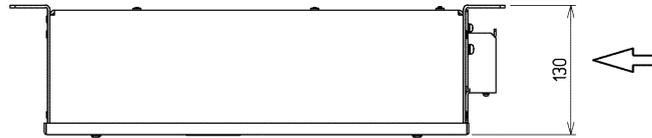


# 6. Installing of NQA-7040

## 6.1. Installation Drawing

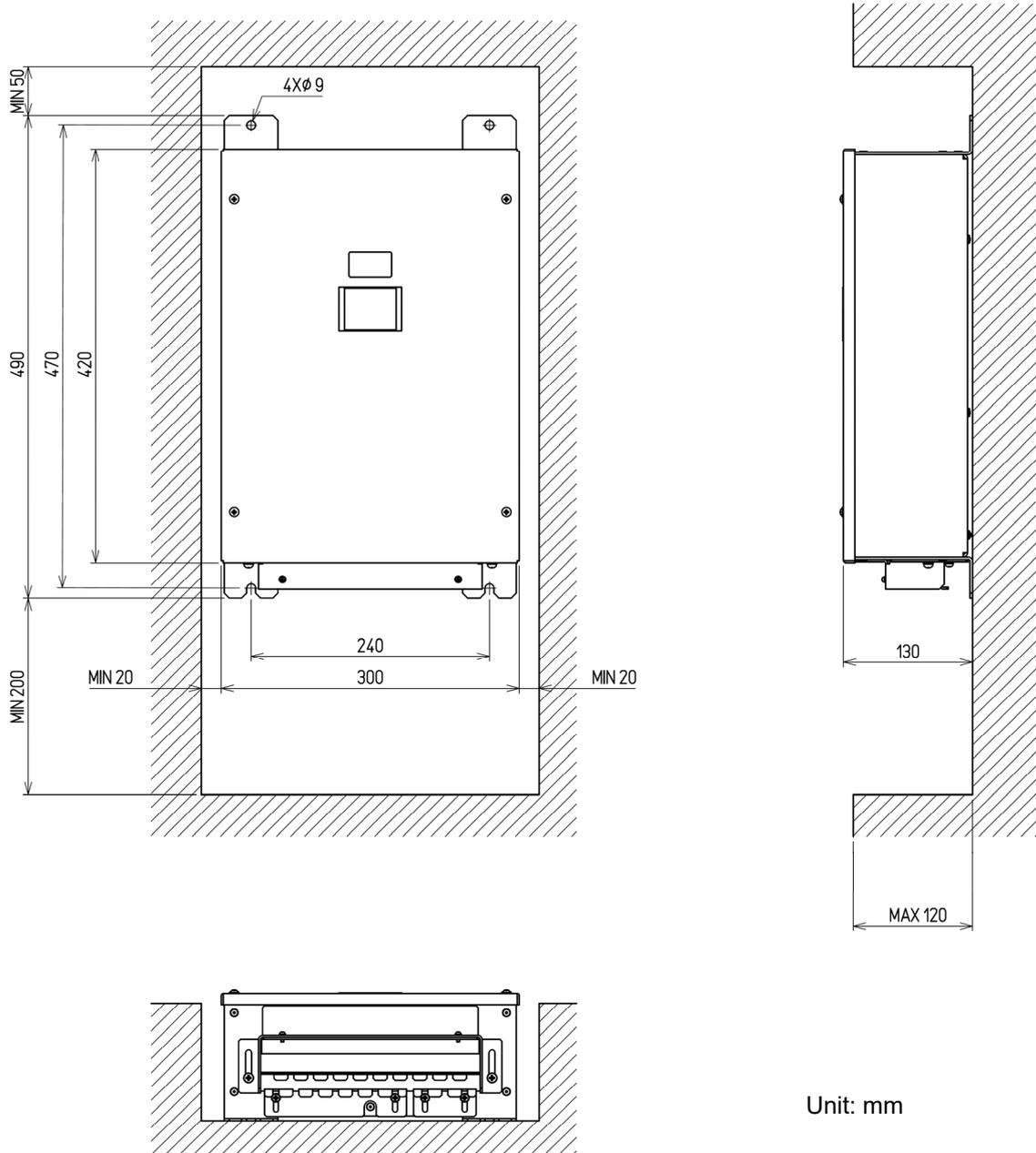


Mounting hole size diagram



● Installation Drawing

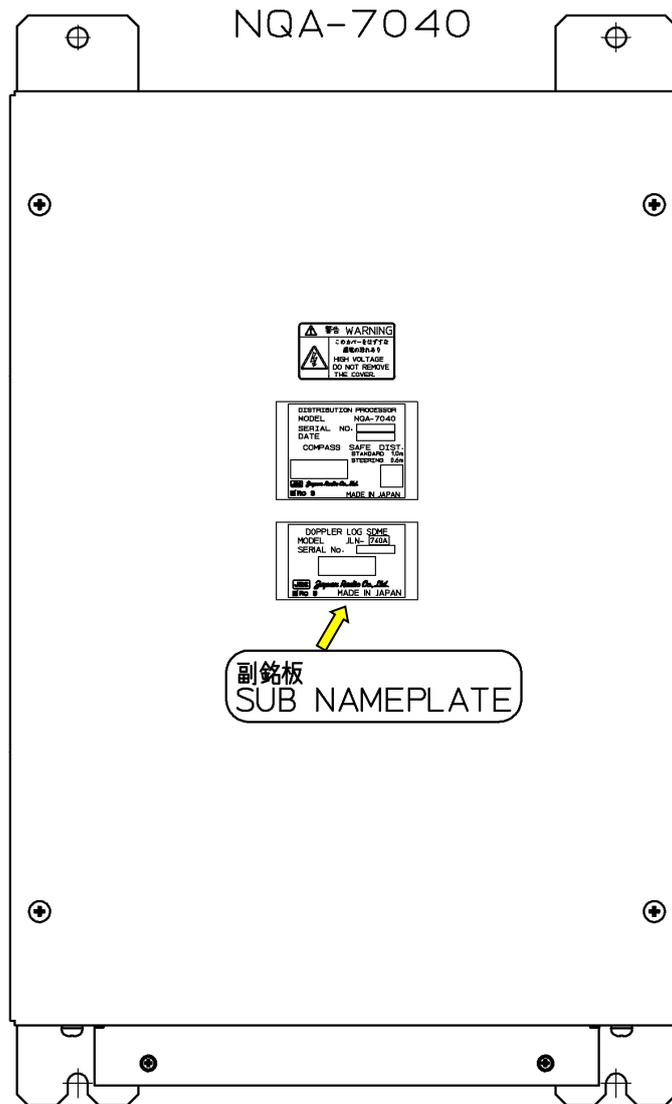
- Install with the space indicated by the following drawing.



 **CAUTION** This unit is for wall mounting only.  
Mount it on a flat wall.

## 6.2. Sub name plate sticking

- The sub name plate is attached in the NJC-70S chassis.
- Stick the sub name plate on NQA-7040 cover.

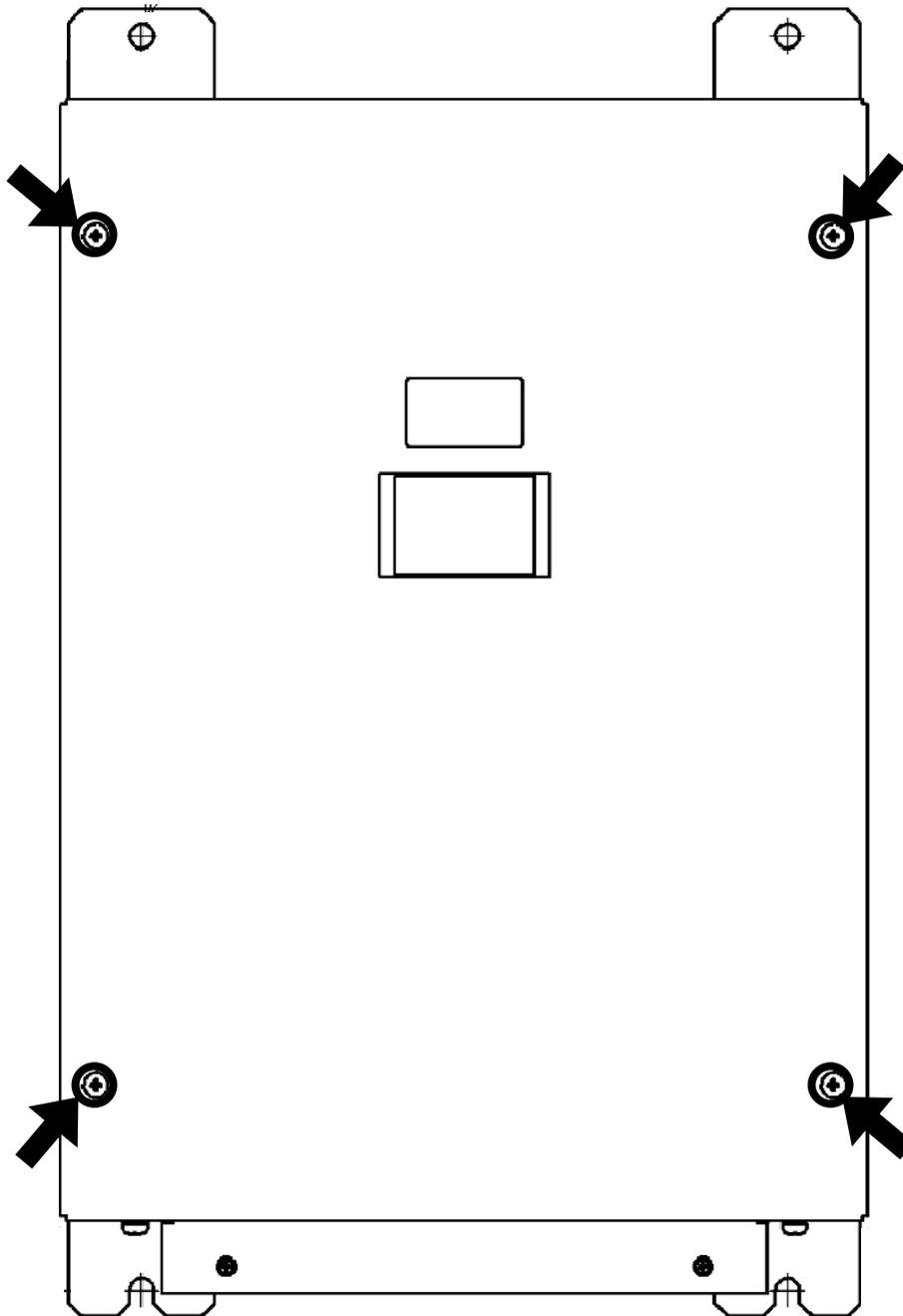


### 6.3. Installation Procedure

Note: This unit is for wall mounting only.  
Mount it on a flat wall.

#### 6.3.1. Removing the cover

Loosen the screws (4 pcs) from the front side of NQA-7040 and remove the cover.



### 6.3.2. Connecting the equipment

Connect cables by referencing the wiring diagram

#### 6.3.2.1. Precautions

	<b>CAUTION</b>	Do not touch the part protected with the plastic cover. High voltage is applied to the part protected with the plastic cover.
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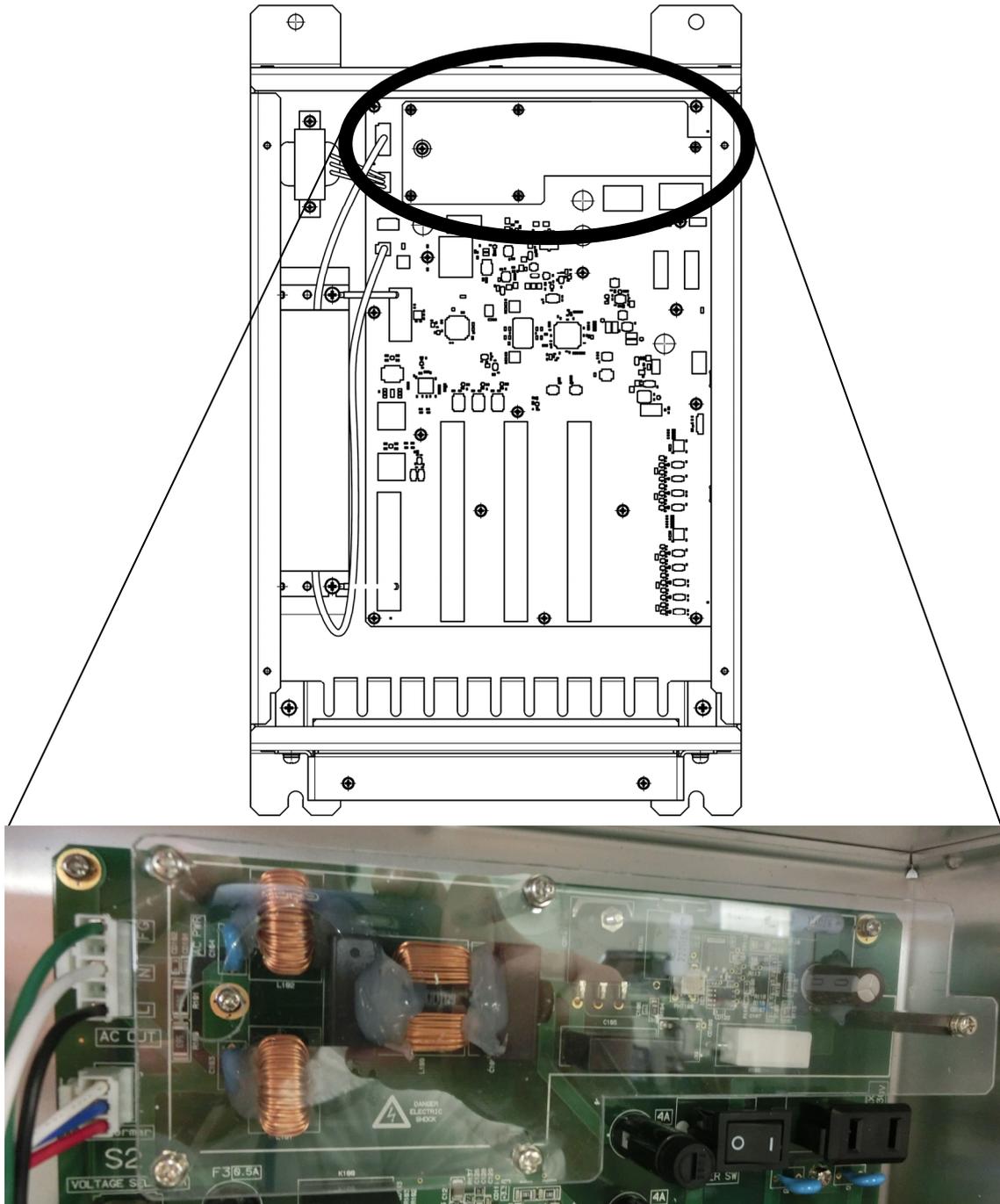


Figure 6.1 Protected Part Sealed with the Plastic Cover

- Check that the MAIN SW is OFF before the connection.  
VOLTAGE SELECTOR S2 is set at the time of shipment in [230V] side.
- If the power supply to the distribution processor is 100 to 115VAC, set to the  
VOLTAGE SELECTOR S2 in [115V] side.



## CAUTION

\* VOLTAGE SELECTOR is a power selector switch for the backlight of analog display. If connect by mistake, there is a risk of failure to analog

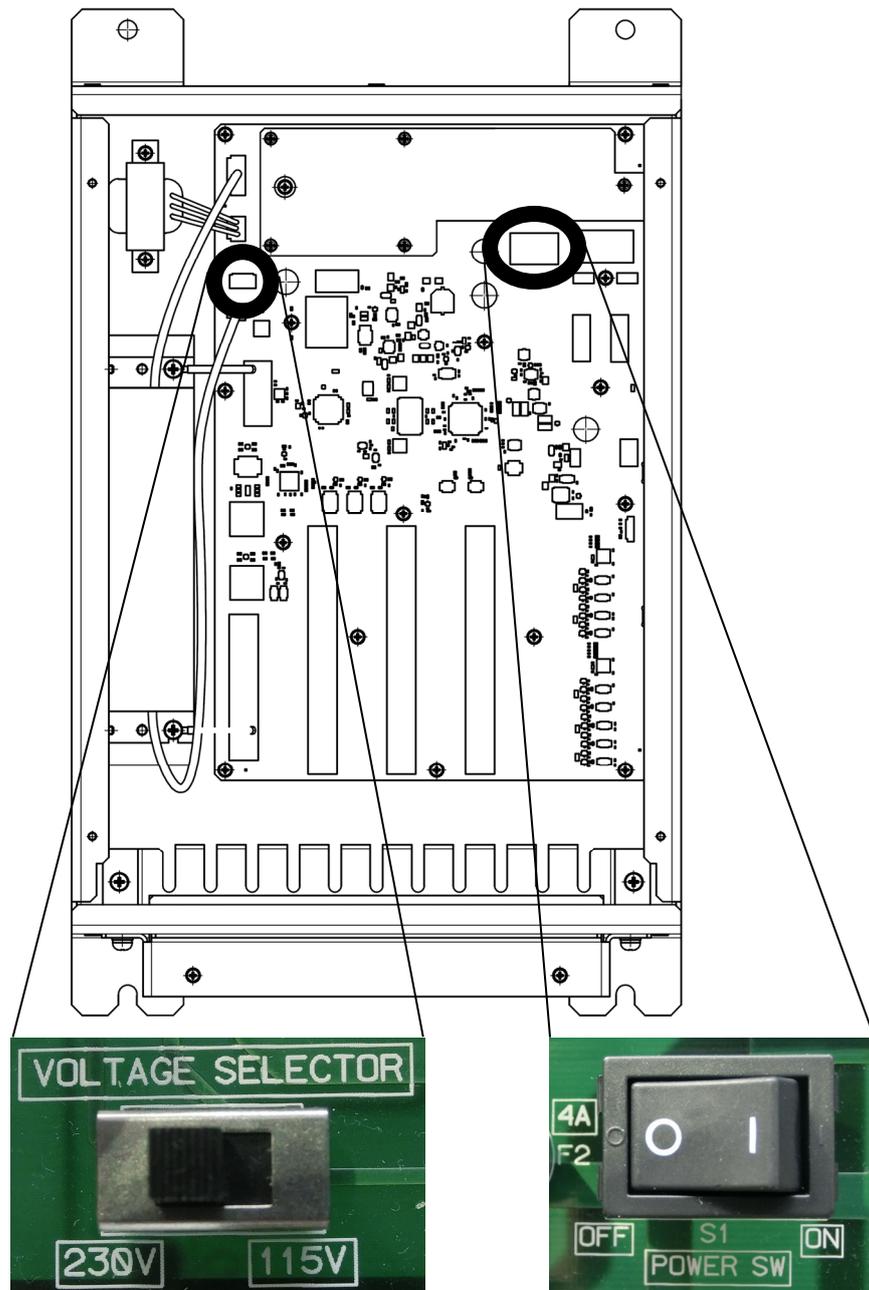
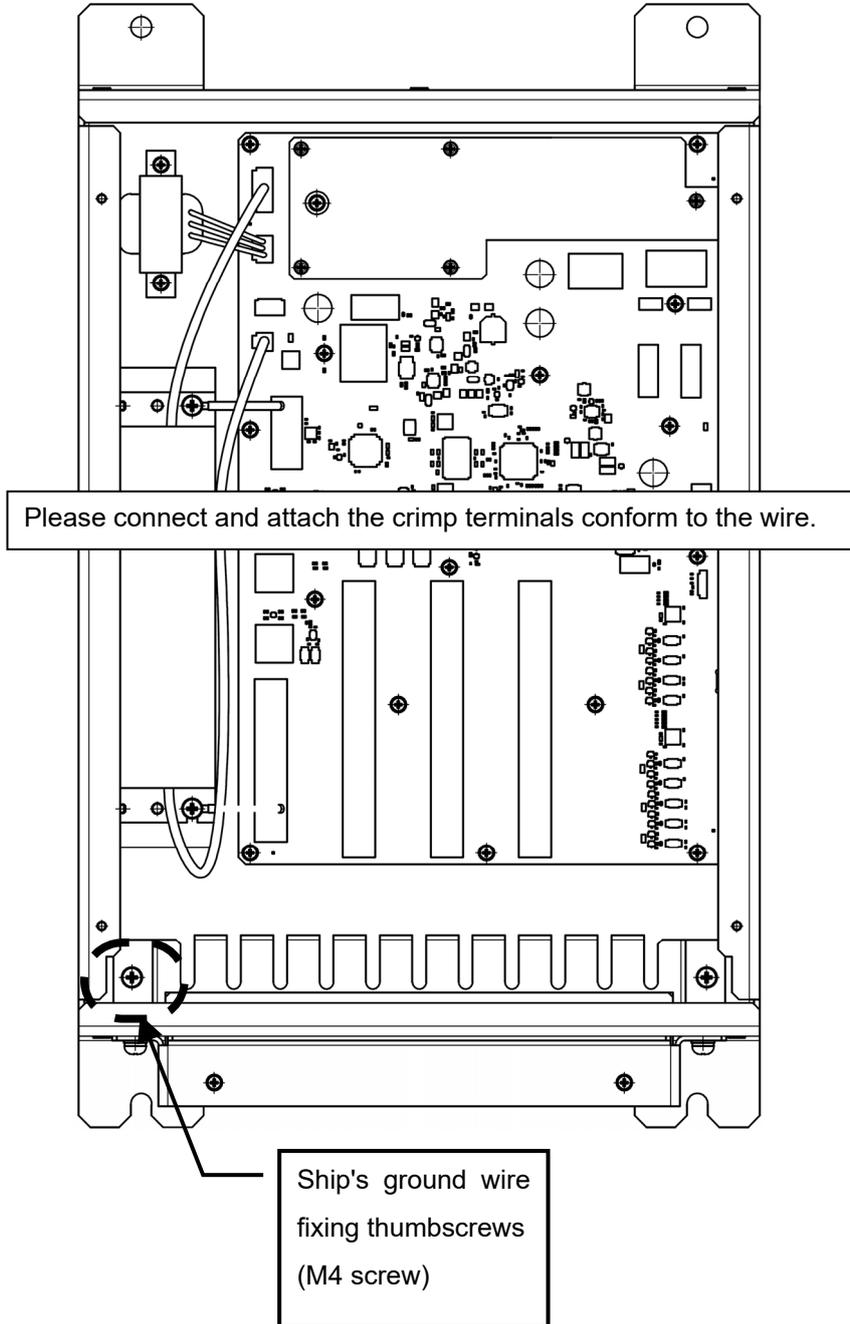


Figure 6.2 VOLTAGE SELECTOR 230V

Figure 6.3 MAIN SW OFF

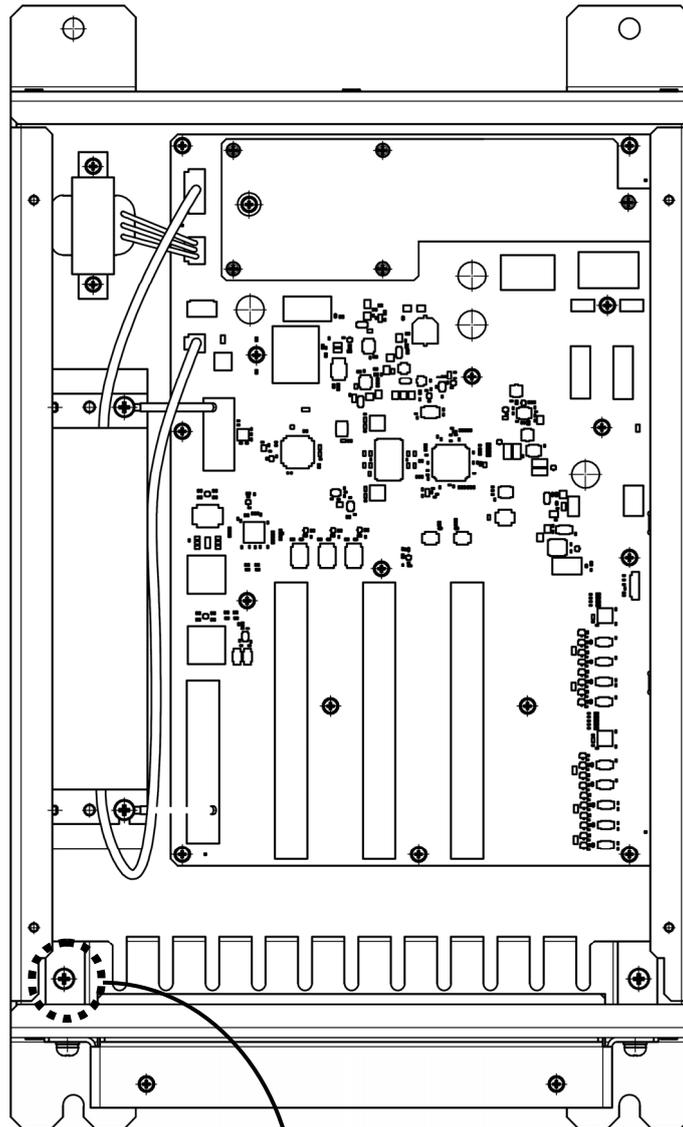
- You must be properly connected to the ship's ground the distribution processor in order to continue the stable operation.  
Please connect from fixing thumbscrews (M4 screw) to the ship's ground.



- Connection of ship's ground

- The wiring, please use cable of the following table.

Item name	Model	Maker name
Ground Wire	UL1015TEW 1X10AWG(104/0.26)LF5 GREEN PBF equivalent	Hitachi Metals (formerly Hitachi Cable) equivalent



In M4 or more,  
please connect to the  
ship's ground.



### 6.3.2.2. Method of Inserting Cable

- While pressing the upper part ① of the connector with a flathead screwdriver having a thin top end, insert the cable to the lower part ② by using the following figure as a reference.

Note: The recommended flathead screwdriver is the one with a blade width of  $3.5 \times$  a blade thickness of 0.5 mm.

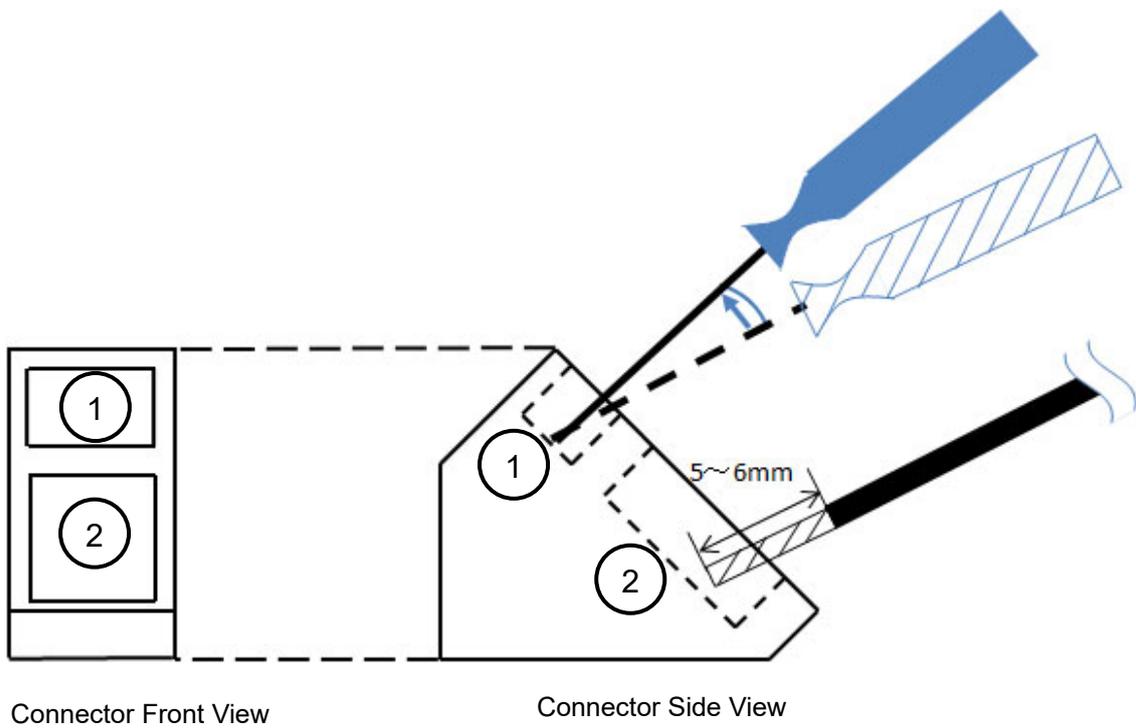
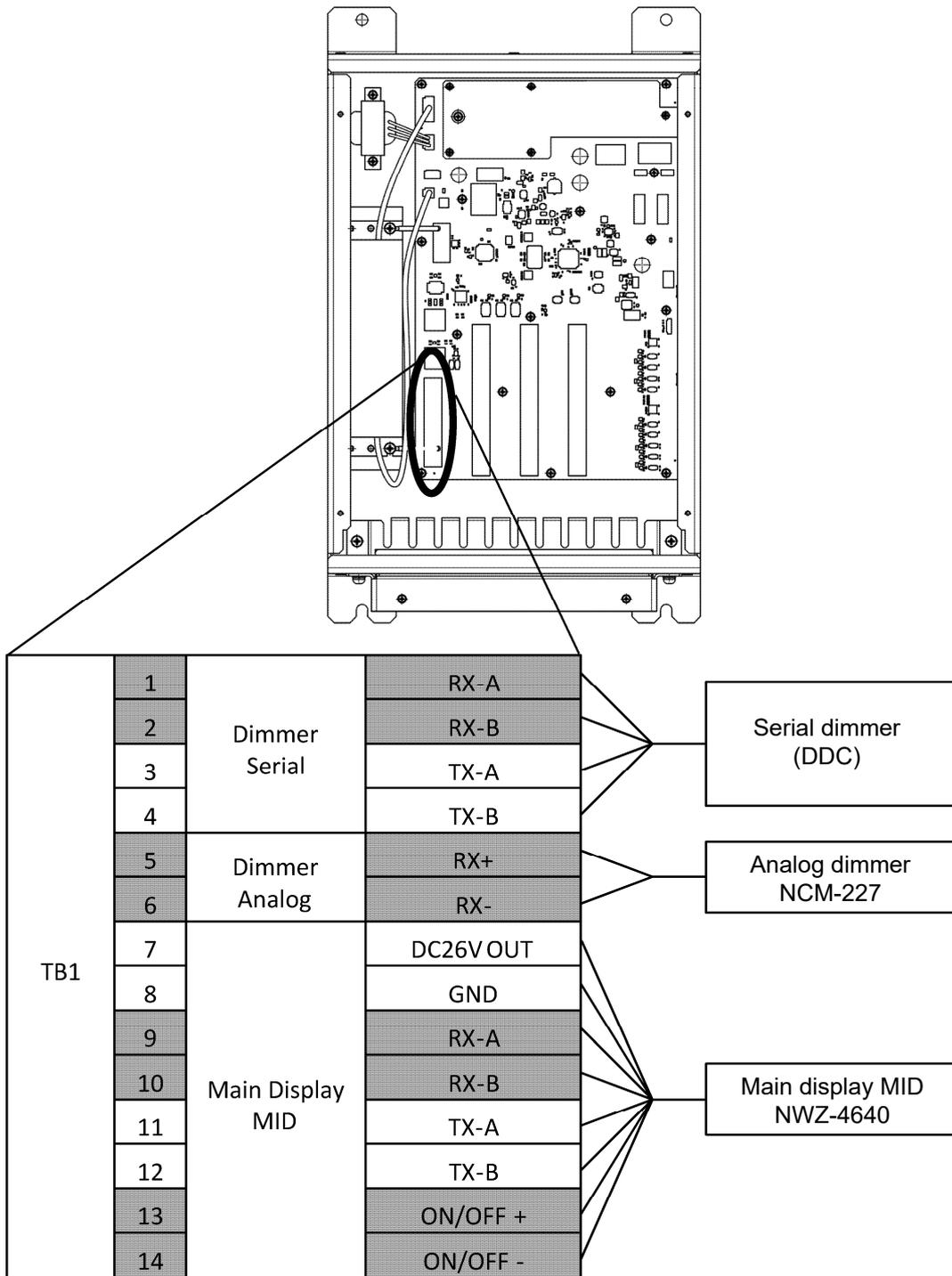


Figure 6.4 Connector Part

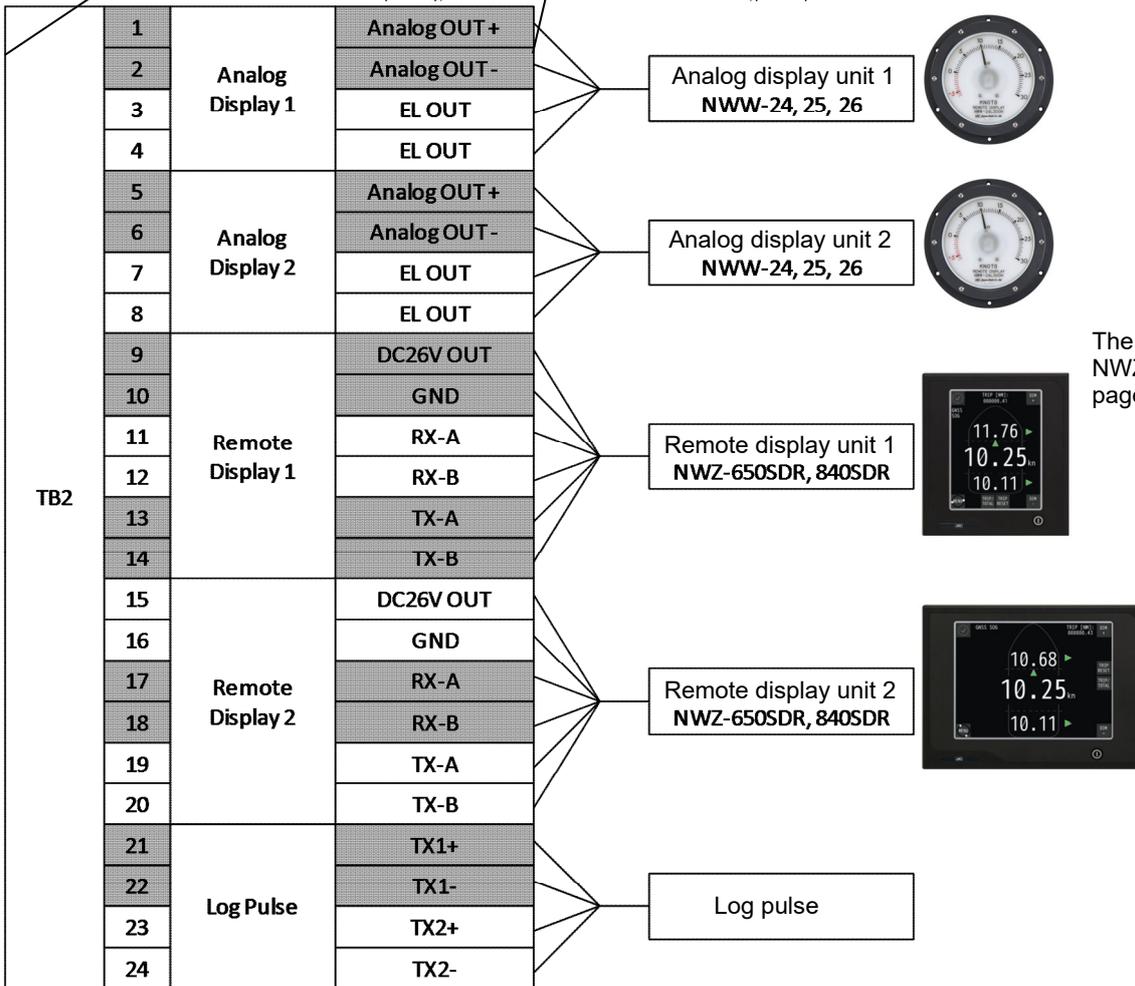
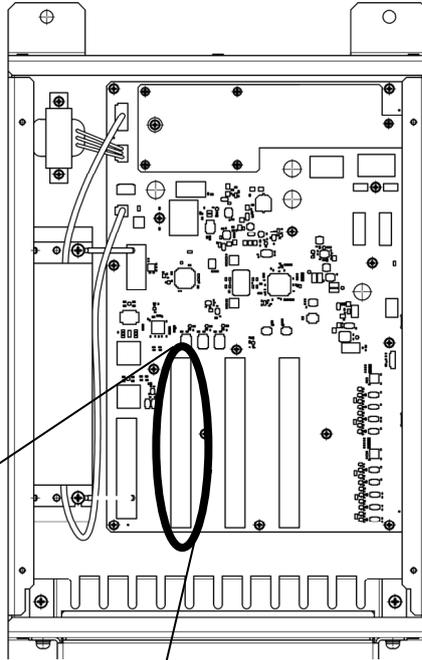
### 6.3.2.3. Wiring Diagram

- The following are typical connection examples.
- \* More information on connection, please refer to the "Section 1.7 System Configuration (JLN-740)".

#### 6.3.2.3.1. TB1 Connection Example



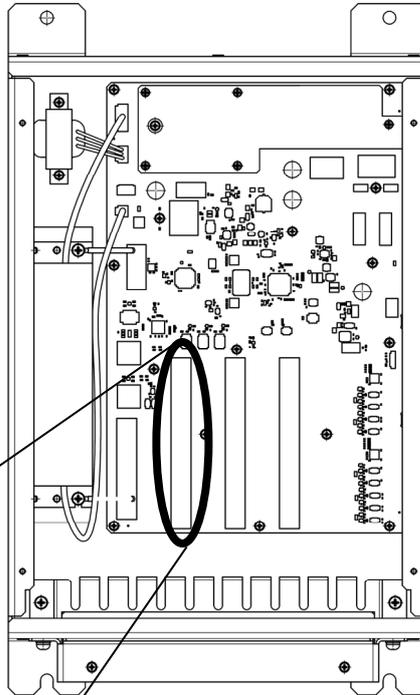
6.3.2.3.2. TB2 Connection Example



The connection of NWZ-4610 is next page

## Connection of Multi Information Display

Connect the distribution processor and Multi Information Display as the following.



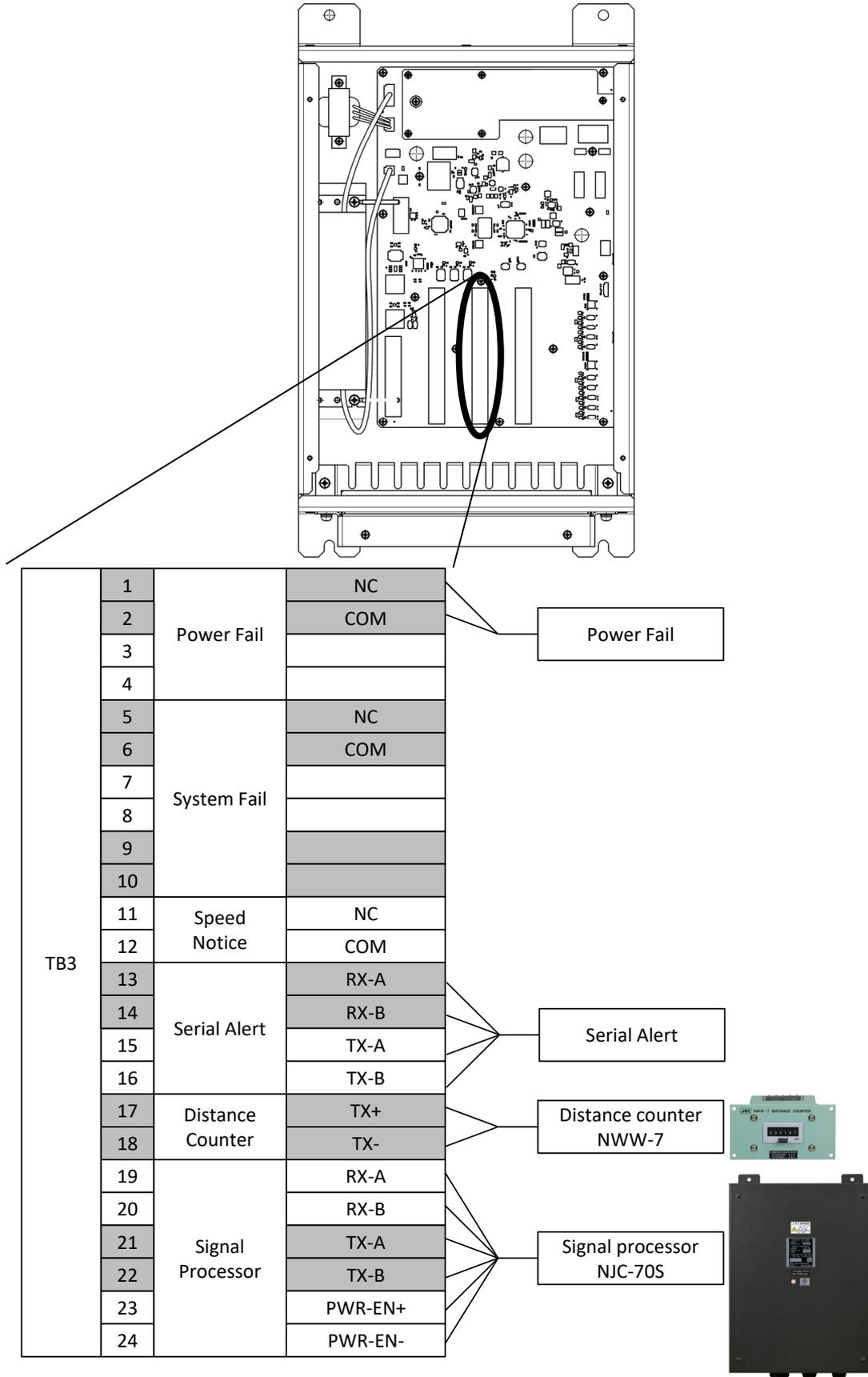
TB2	1	Analog Display 1	Analog OUT +			
	2		Analog OUT -			
	3		EL OUT			
	4		EL OUT			
	5	Analog Display 2	Analog OUT +			
	6		Analog OUT -			
	7		EL OUT			
	8		EL OUT			
	9	Remote Display 1	DC26VOUT	Red		Fuse
	10		GND	Black		
	11		RX-A		CFQ-5766A	
	12		RX-B			
	13	TX-A	Bright green			
	14	TX-B	Brown			
	15	Remote Display 2	DC26VOUT	Red		Fuse
	16		GND	Black		
	17		RX-A		CFQ-5766A	
	18		RX-B			
	19	TX-A	Bright green			
	20	TX-B	Brown			
	21	Log Pulse	TX1+			
	22		TX1-			
	23		TX2+			
	24		TX2-			

The length of the line wearing coating of MID connection cable CFQ-5766A, please cut to reference Section 6.3.2.2.

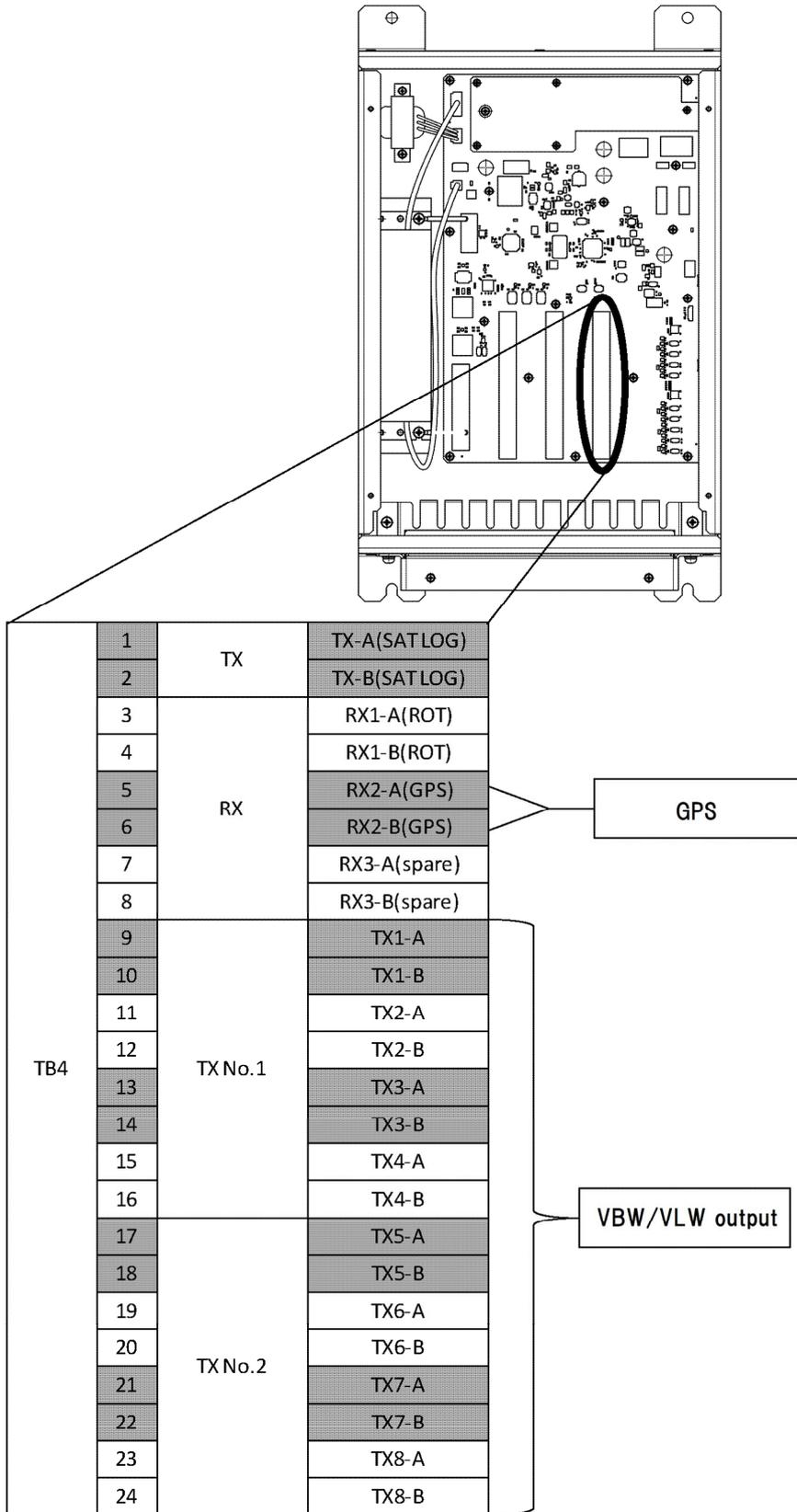
\* Please note that do not cut the fuse by mistake.

\* When connecting the NWZ-4610 to Remote Display 1 and 2, set it using the maintenance software according to Chapter 20.7.4.9.

6.3.2.3.3. TB3 Connection Example



6.3.2.3.4. TB4 Connection Example



#### 6.3.2.4. Connection Method of VDR

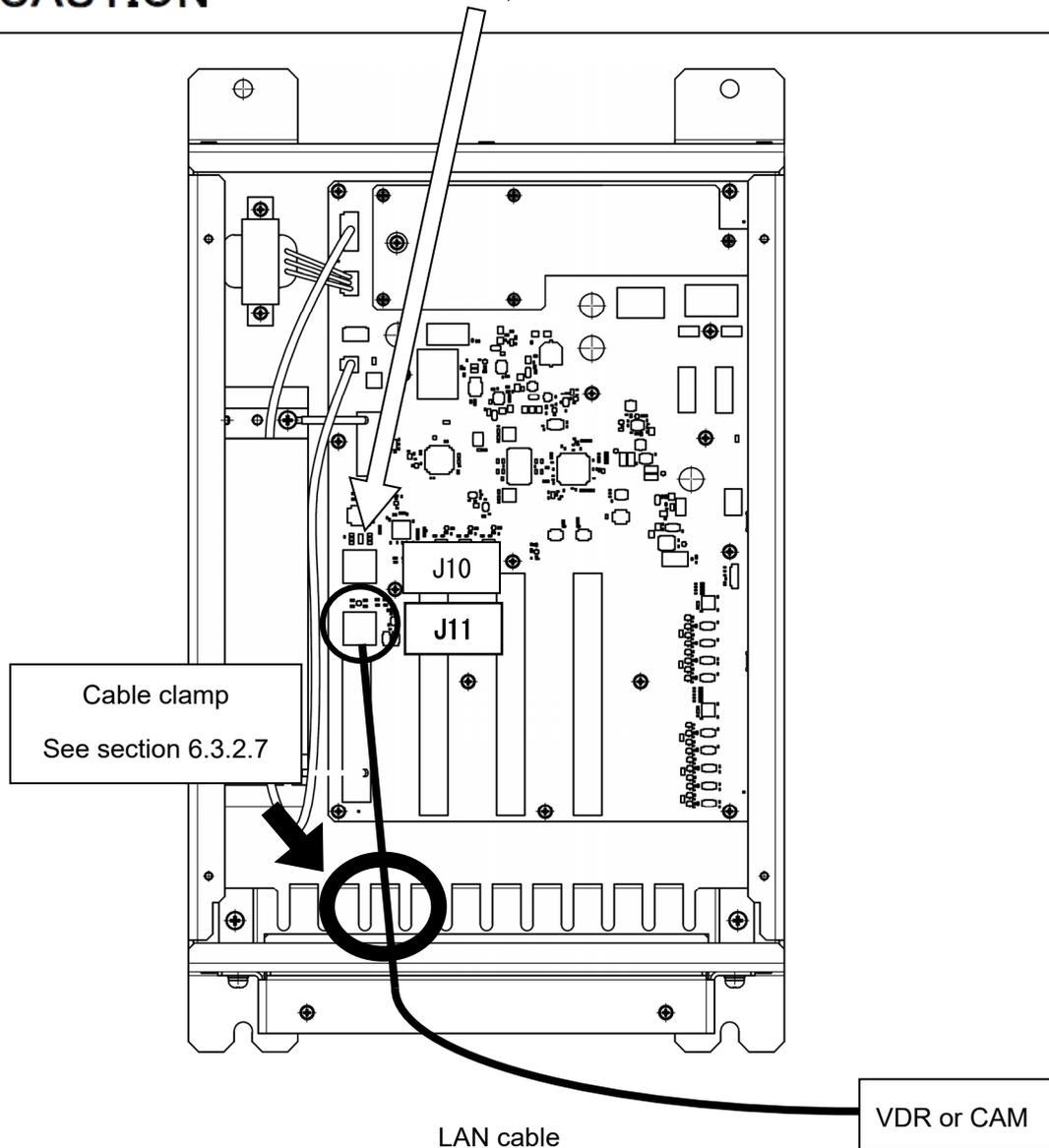
- Connect the LAN cable as the following.

Note : J11 is a LAN connection port exclusively for VDR and the maintenance PC.

Please do not connect to other LAN connection port J10.

- Fix the LAN cable firmly by using the comb shape clamp.

 **CAUTION** If miss connect to J10, the destination hub or VDR would be broken.



Fabrication, 6.5  
Please refer to the "Assembling an Ethernet Connector"

### 6.3.2.5. Connection of Power Supply

#### 6.3.2.5.1. AC Power supply (100V or 230V)

- Method of Inserting Power Supply Cable

While pressing the upper part ① of the connector with a flathead screwdriver having a thin top end, insert the cable to the lower part ② by using the following figure as a reference.

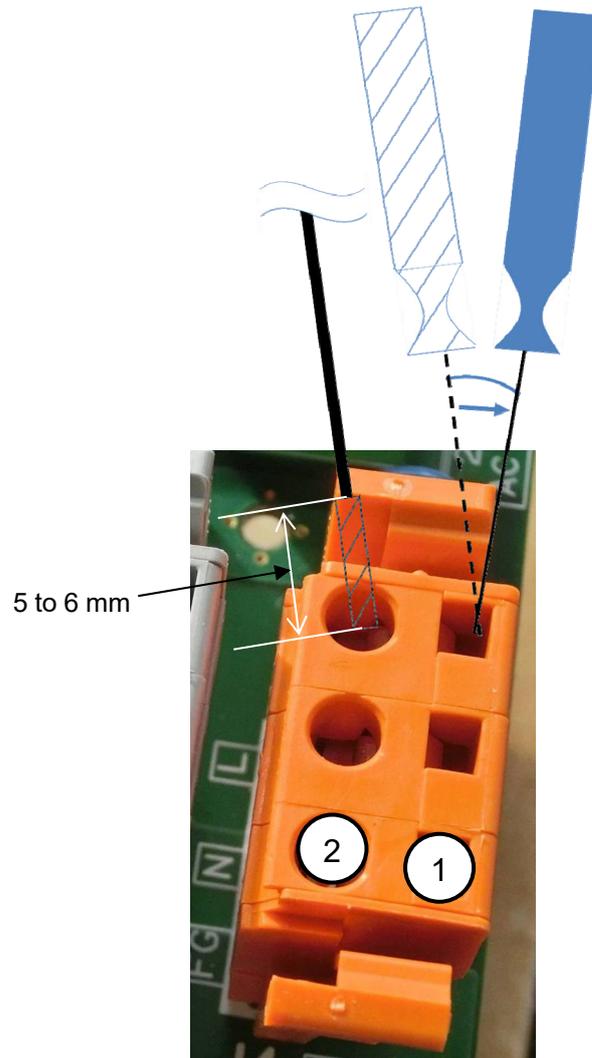


Figure 6.5 Connector Part

- 1) Insert three cables, L, N, and FG, by using the following figure as a reference.

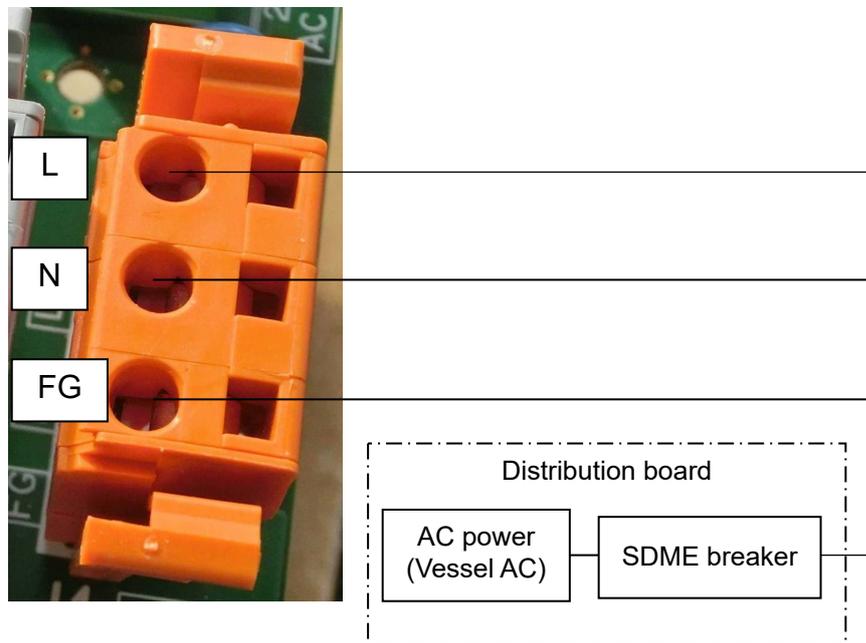


Figure 6.6 Cable Insertion

- 2) Hold the positions marked with the arrows as below and connect by pressing into J1 till a click sound is heard.

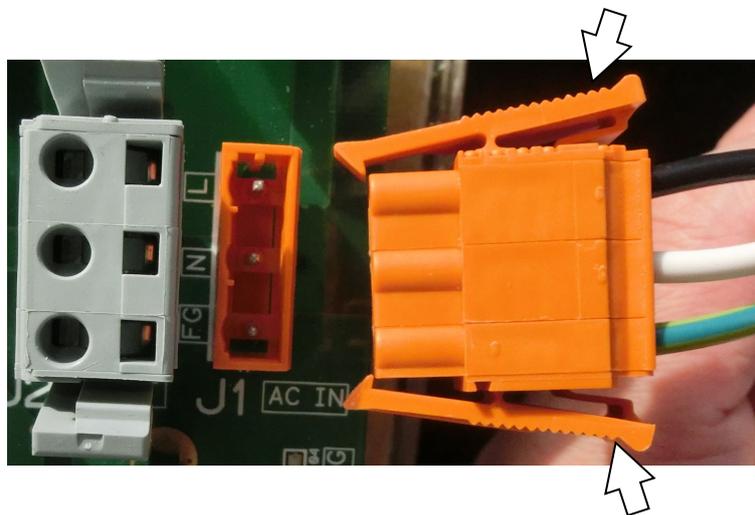
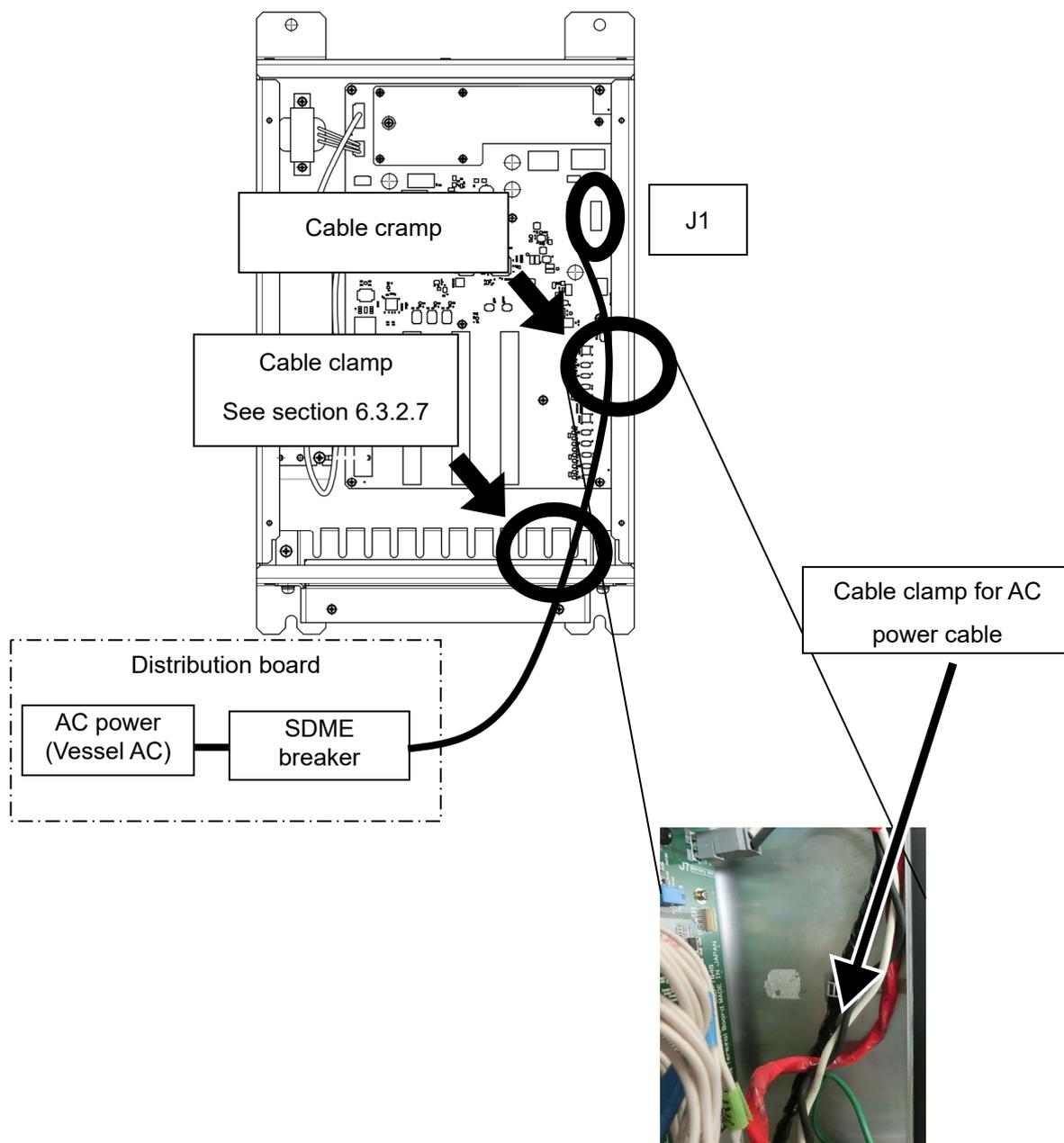


Figure 6.7 Connector Insertion

- 3) Fix the AC power supply cable in place firmly as below.
- 4) Fix firmly the AC cables by using a cable clamp.
- 5) Fix firmly by using the comb shape clamp.



### 6.3.2.5.2. 24VDC Power Supply Exclusive to Power Fail

- The J7 "Battery 24V" is the power supply exclusive to the "Power Fail" which is an optional function.
  - \* The Power Fail is a fail notice that occurs when the AC power supply is lower during operation.
- The J7 is not an auxiliary power.

**⚠ CAUTION** Do not connect GND of J7 with the frame FG.

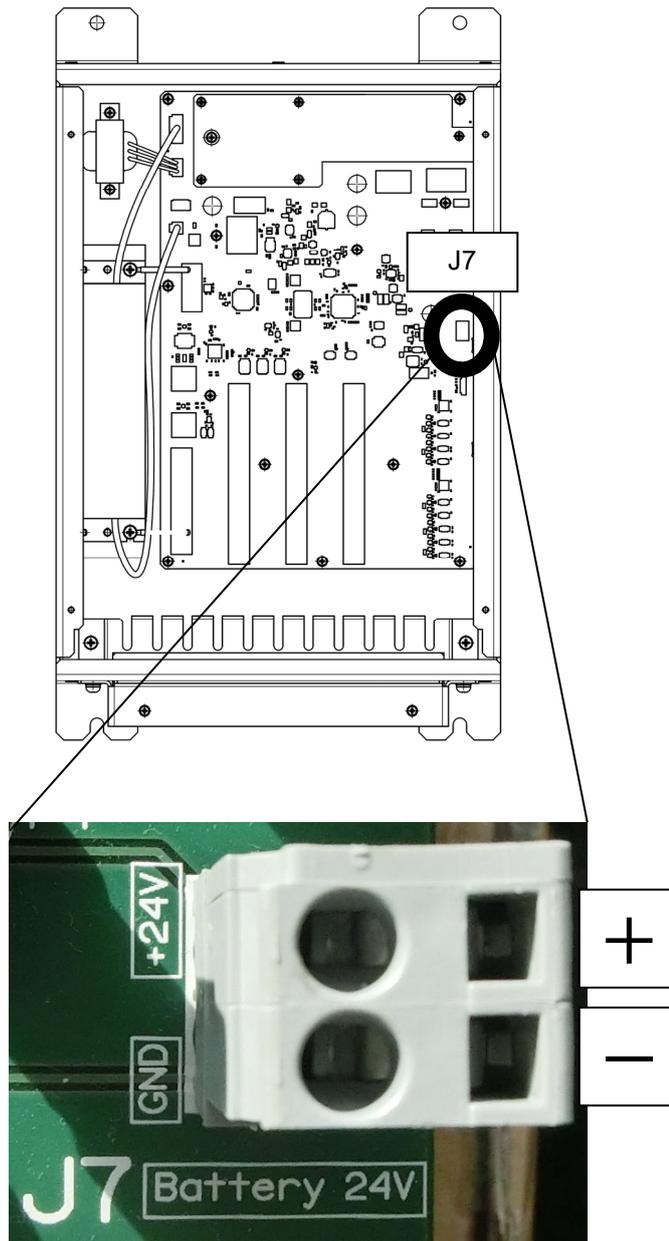
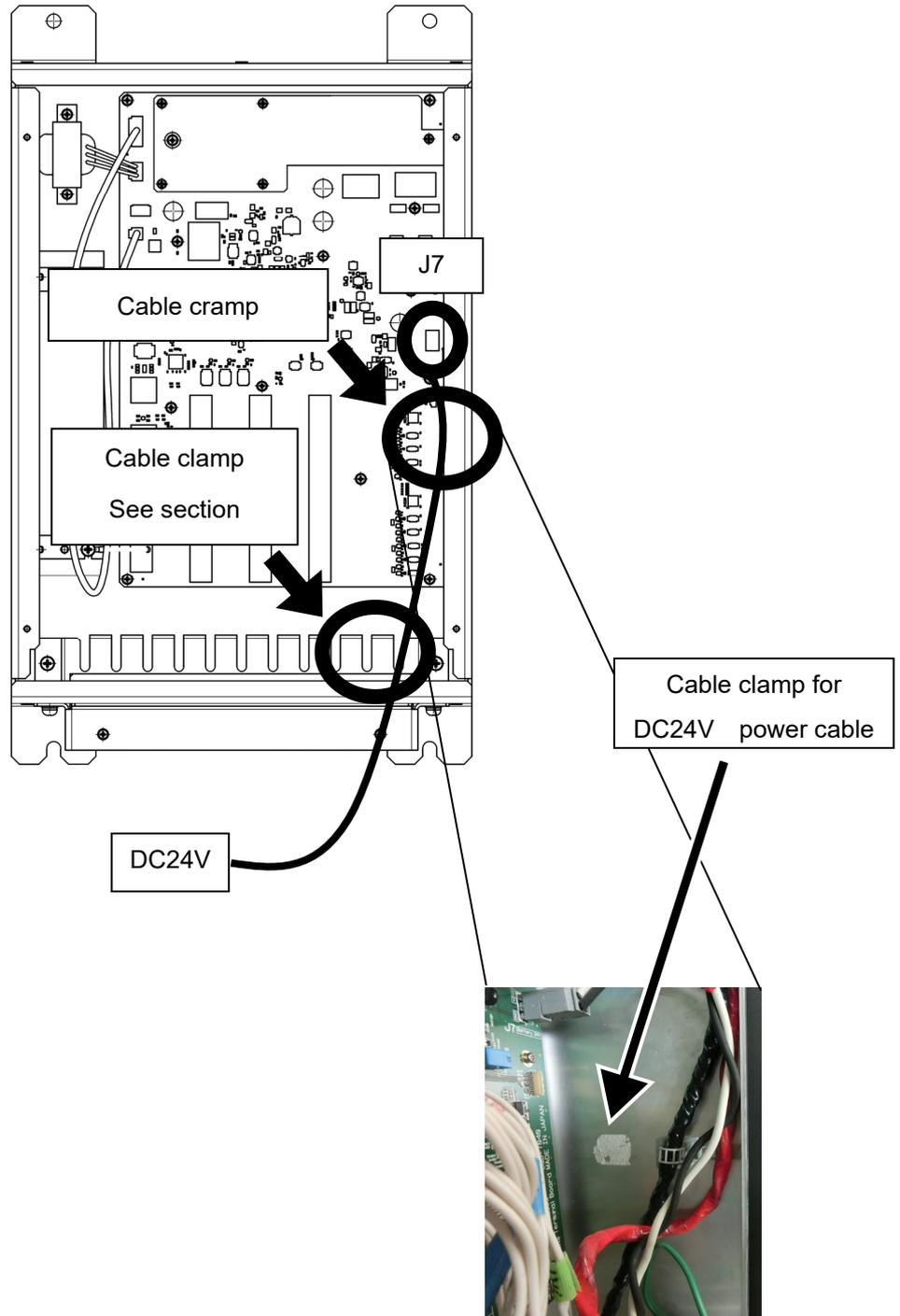


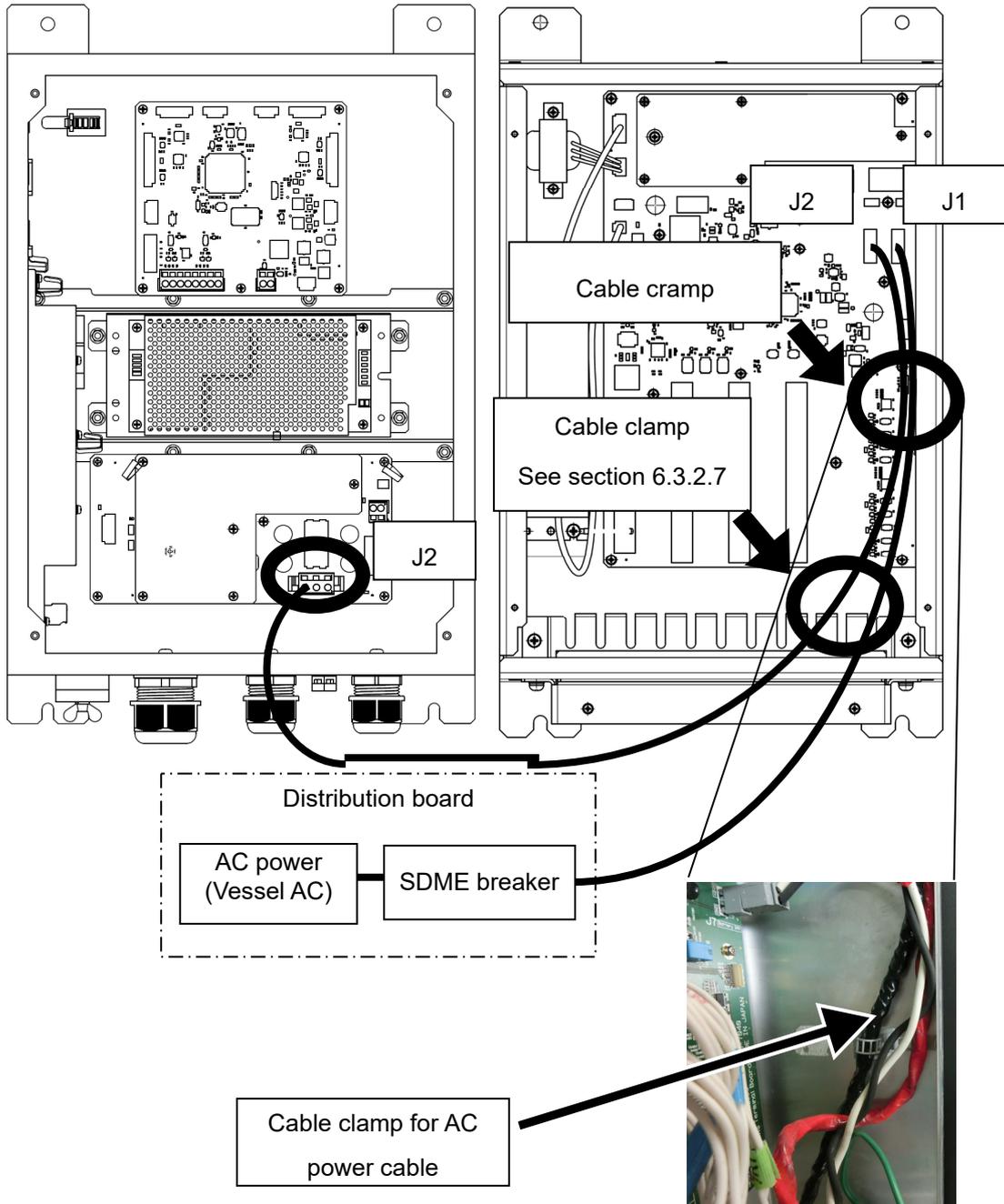
Figure 6.8 J7

- Firmly fix the power supply cable exclusive to the 24VDC Power Fail in place as below.
- Fix firmly the AC cables by using a cable clamp.



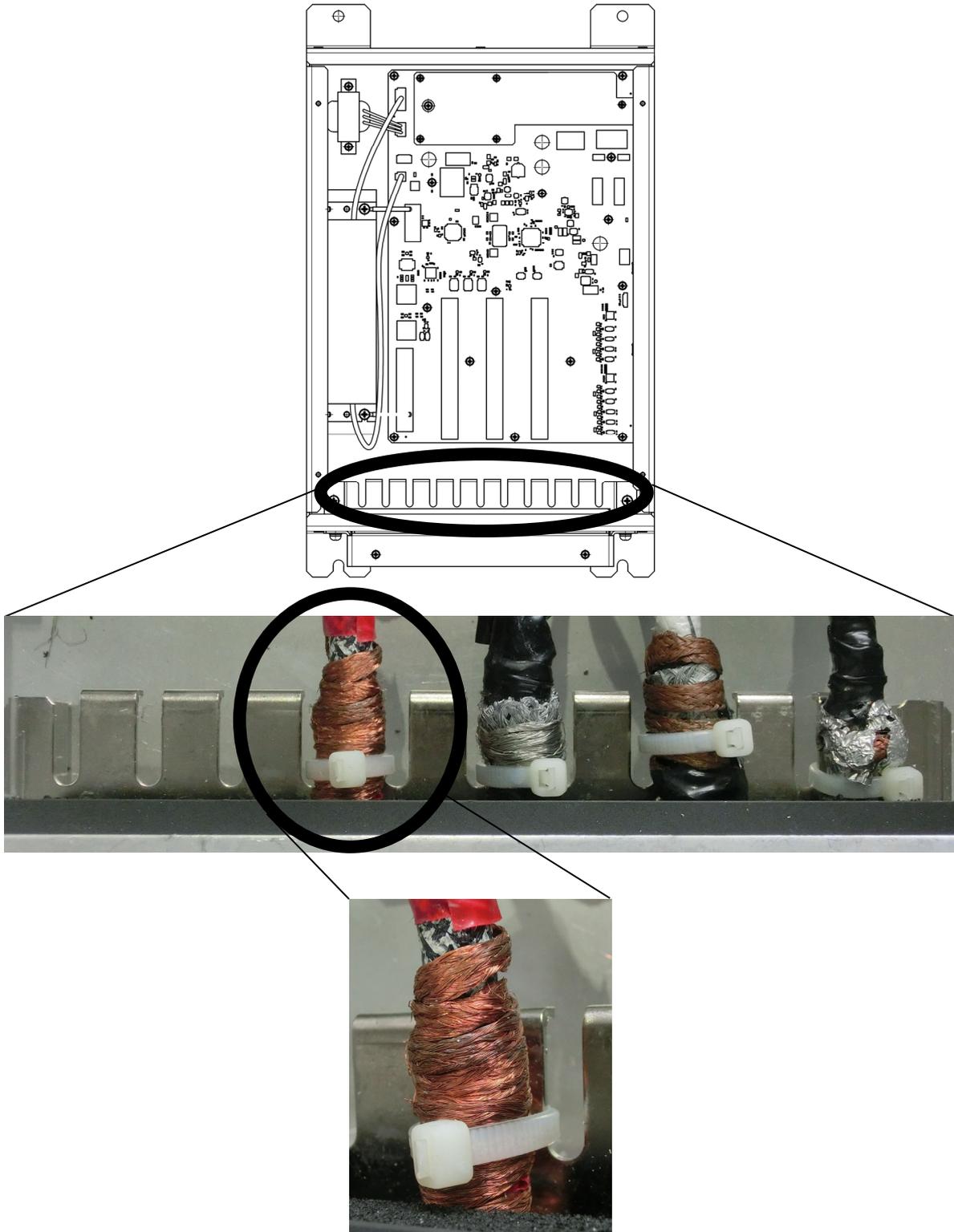
### 6.3.2.6. Connecting NJC-70S

- Connect NJC-70S and J2.
- Fix firmly the two AC cables by using a cable clamp.
- Fix firmly by using the comb shape clamp.



### 6.3.2.7. Comb shape clamp

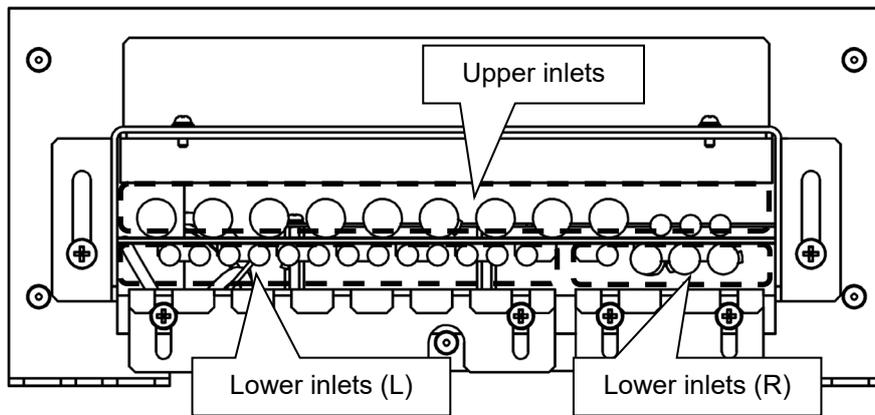
- The cables input from cable inlet should clamp the comb shape clamp.
- The shield wire should touch the metal comb shape clamp to grounding.
- Fix firmly by using INSULOK (TY-RAP) to the comb shape clamp.



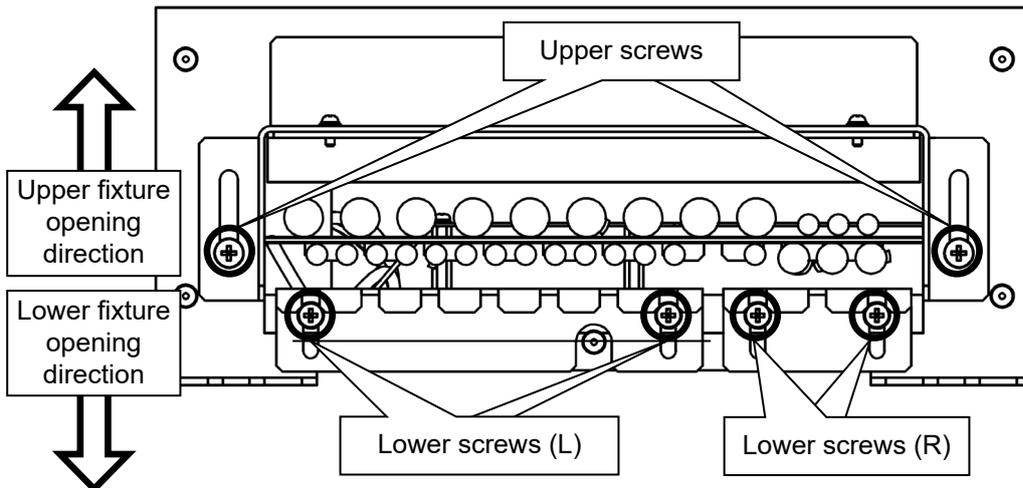
### 6.3.2.8. Cable Inlet

Assumed cable diameter and number of cables

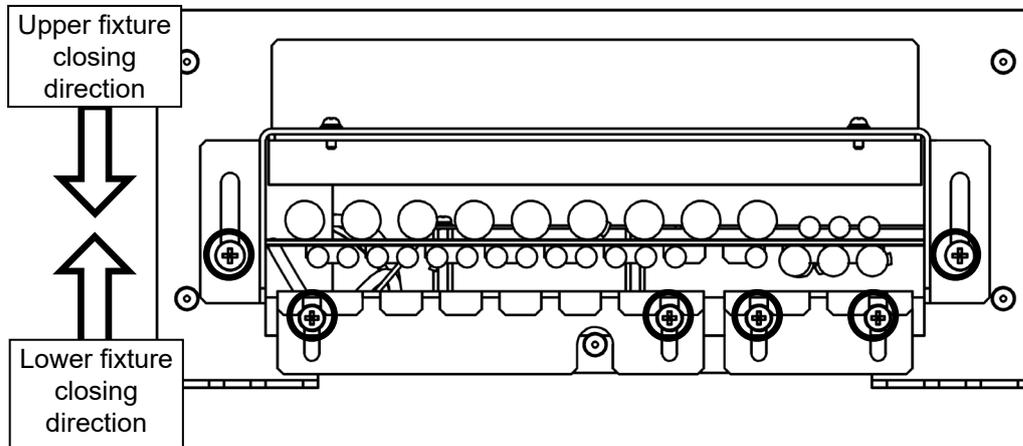
Cable Inlet	Maximum Cable Dia.	Number of Cables
Upper Inlets	13.1 mm	9 pcs
Lower Inlets (L)	10.5 mm	3 pcs
Lower Inlets (R)	7.1 mm	17 pcs



- 1) Loosen the six screws at the inlet part and open the inlet by moving the fixture.
- 2) After finishing the wiring, check that the cables are fixed in place firmly.



3) Close the inlets and tighten the screws.



### 6.3.3. Supplying power

Turn the MAIN SW ON.

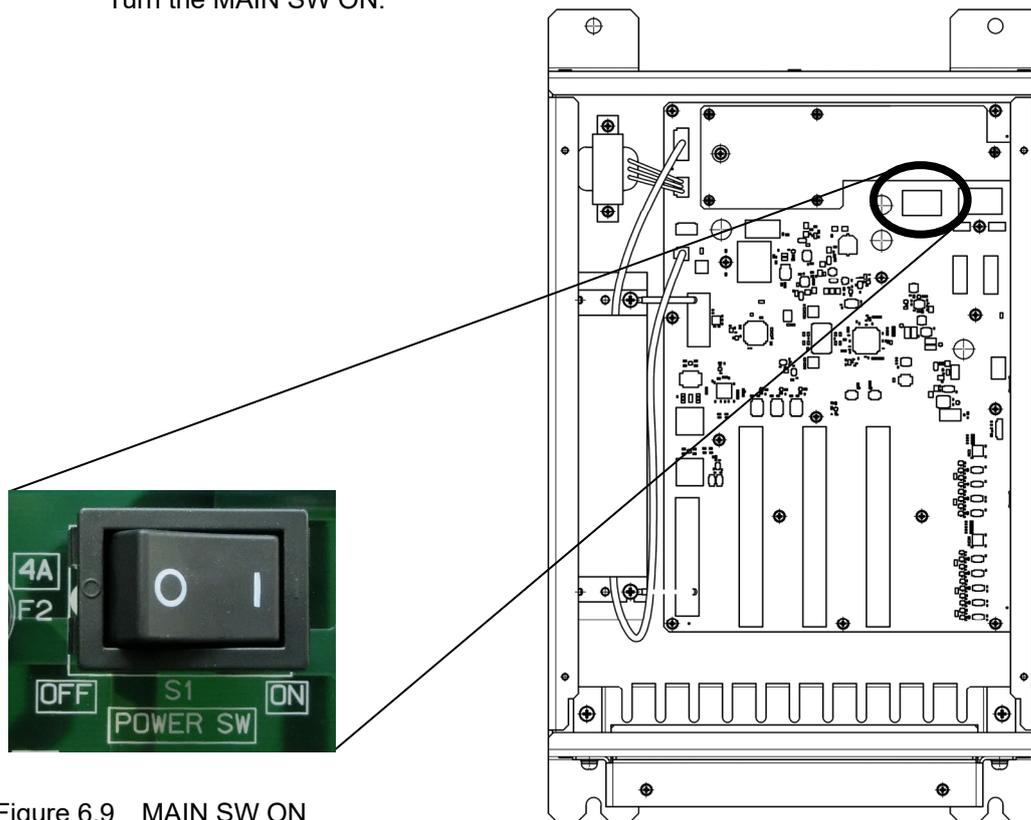
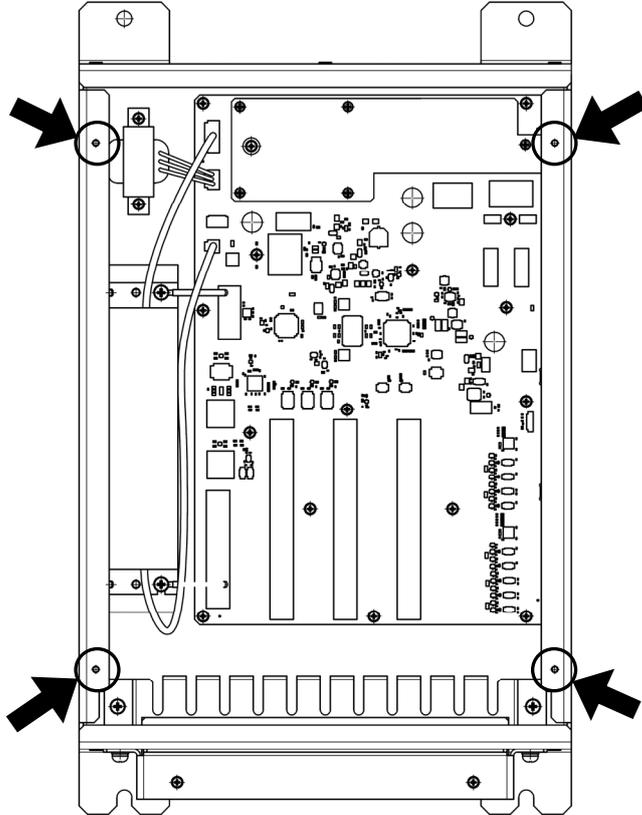


Figure 6.9 MAIN SW ON

6.3.4. Attaching a cover

Attach the cover to the front side of the NQA-7040 and tighten the screws (4 pcs).



Note: Explanation of distribution processor LED

CQD-7040 Processing circuit section

AC power input  
MAIN SW ON:  
Light On (green)



**PWR\_ON**  
CD108

+26Vdc constantly output  
MAIN SW ON:  
Light On (green)

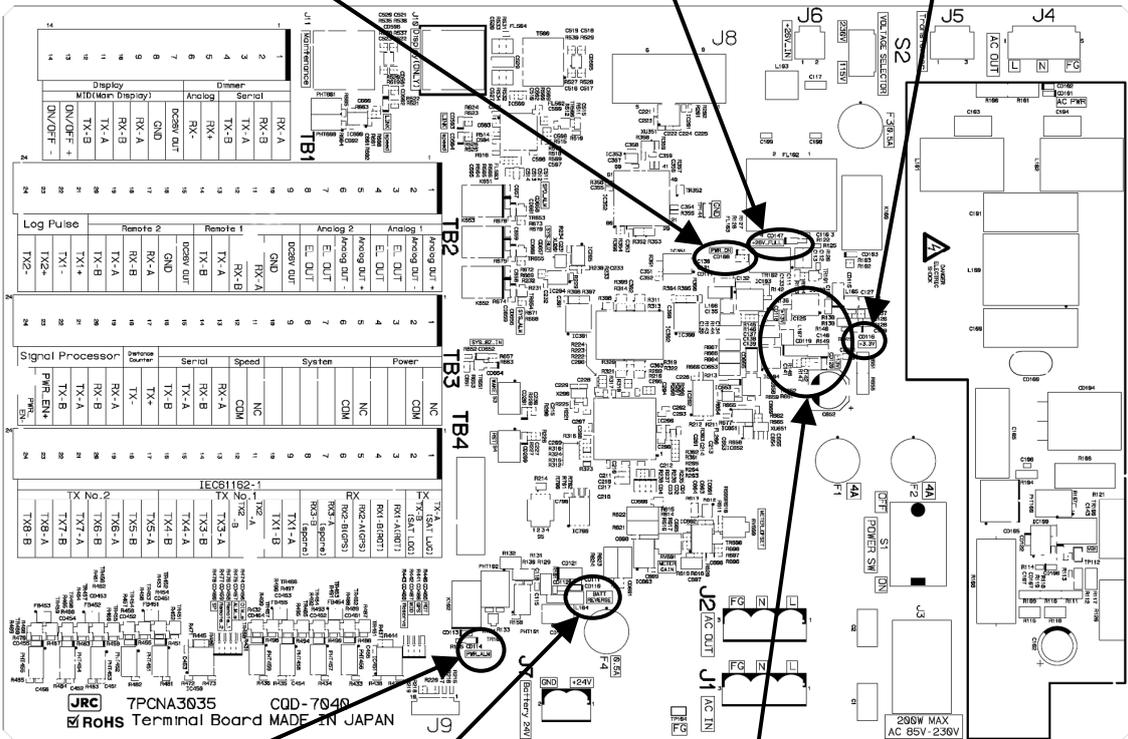


CD147  
**+26V\_FULL**

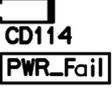
+3.3Vdc output  
During operation:  
Light On (green)



CD116  
**+3.3V**



Internal power  
Abnormal:  
Light On (orange)



CD114  
**PWR\_Fail**

Battery reverse  
connection  
Abnormal:  
Light On (Red)



CD110  
**BATT REVERSE**

+13Vd output  
During operation:  
Light On (green)



CD118  
**+13V**

-13Vdc output  
During operation: Light On  
(green)



**-13V**  
CD120

# CQD-7040 Terminal Board Unit

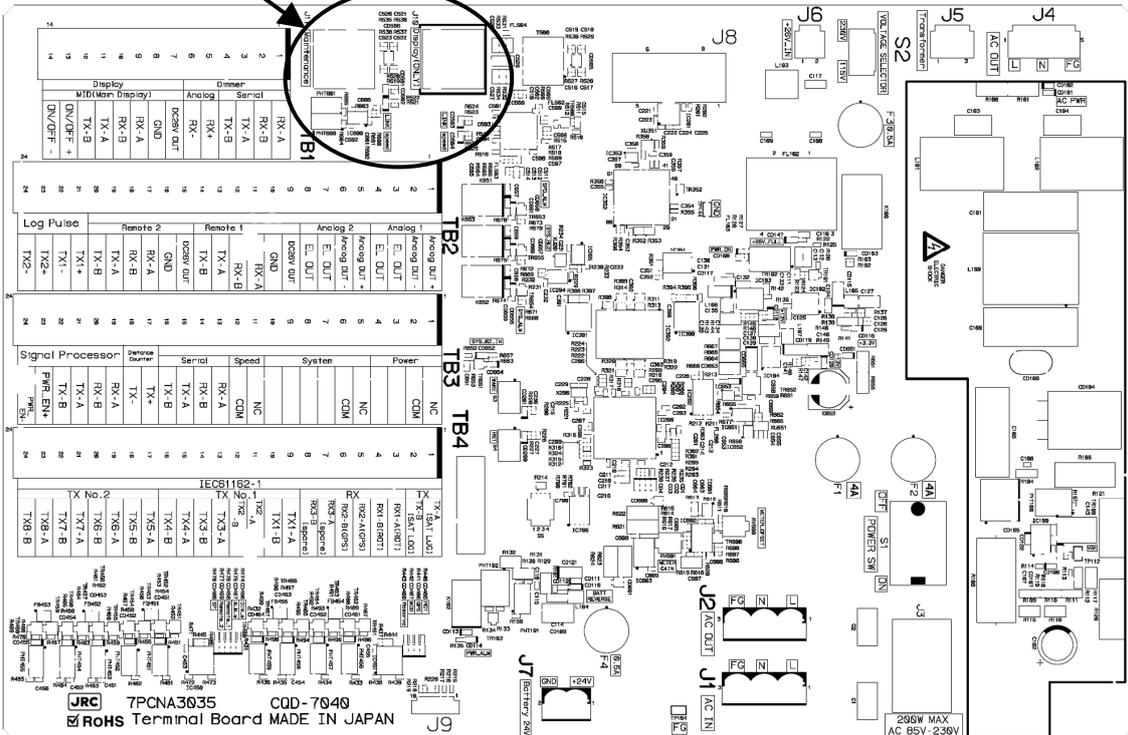
RMS connection  
 During operation: LINK blink (green)  
 Communication speed: 100Mbps: Speed light On (yellow)  
 Communication speed: 10Mbps: Speed light Off

J10 Display (ONLY)

J11 Maintenance

CD503 LINK  
 CD504 speed

MFS connection  
 During operation: LINK blink (green)  
 Communication speed 100Mbps:  
 Speed light On (yellow)  
 Communication speed: 10Mbps:  
 Speed light Off



Serial communication receive LED  
 ROT  
 No input (always OFF)  
 GPS  
 Receiving: Blink  
 Unused: Light Off  
 MID  
 Receiving: Blink  
 Unused: Light Off  
 Reserve  
 No input (always OFF)  
 DIM\_s  
 Receiving: Blink  
 Unused: Light Off  
 ALM\_s  
 Receiving: Blink  
 Unused: Light Off  
 Remote\_1  
 Receiving: Blink  
 Unused: Light Off  
 Remote\_2  
 Receiving: Blink  
 Unused: Light Off  
 SP  
 Receiving: Blink  
 Unused: Light Off

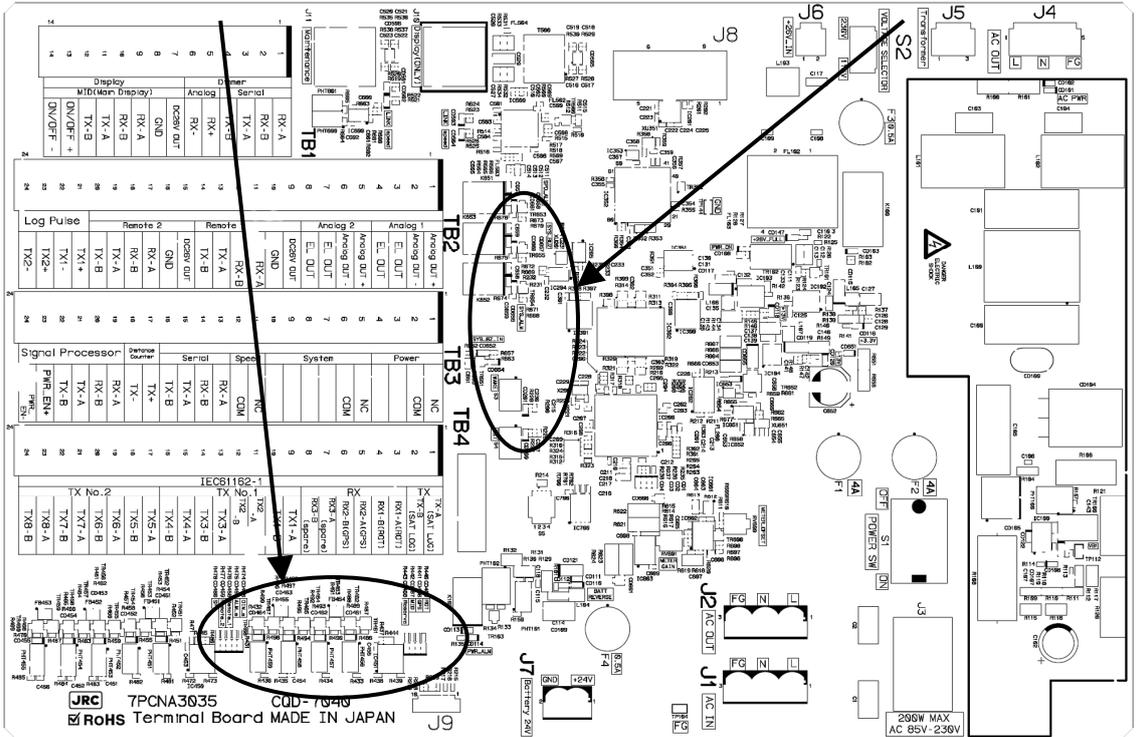
CD485 ROT  
 CD486 GPS  
 CD487 MID  
 CD488 Reserve

CD456 DIM\_s  
 CD457 ALM\_s  
 CD458 Remote\_1  
 CD459 Remote\_2  
 CD460 SP

Alert occurrence LED  
 SPD\_ALM  
 Notice: Light On  
 Normal: Light Off  
 SYS\_ALM  
 Alert: Light On  
 Normal: Light Off

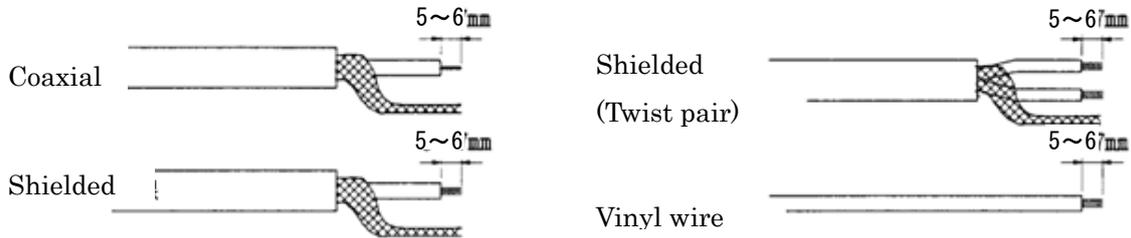
SPD\_ALM  
 CD961

SYS\_ALM  
 CD966



#### 6.4. Cable end processing

- The cable end processing is as follows.



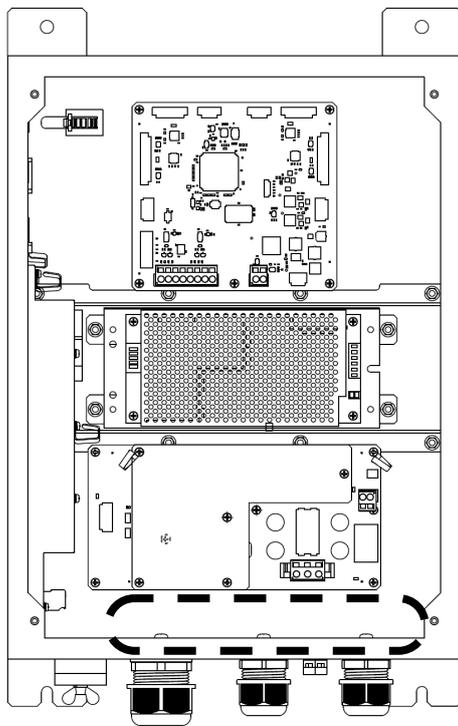
- Shield wire processing is different with objects.

#### NJC-70S

Shield wire should isolate with vinyl tape.

The length between shield wire and earth terminal should be as short as possible.

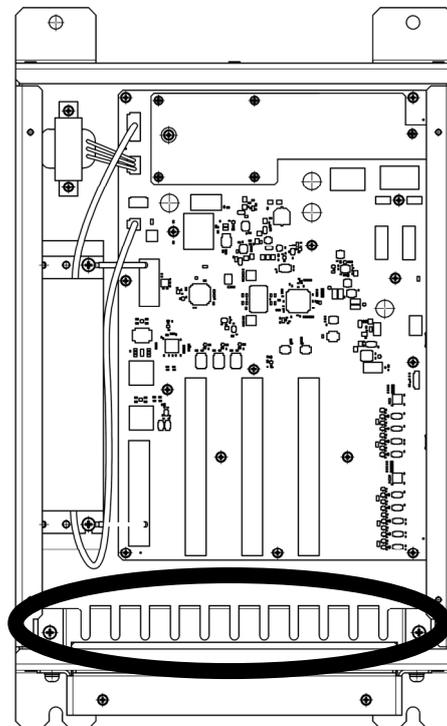
The shield wire should crimp with solderless terminal to fix the earth terminal.



#### NQA-7040

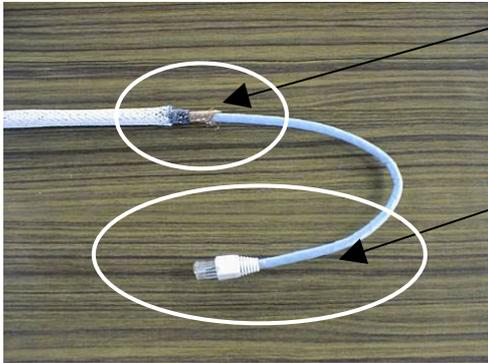
Shield wire should touch the metal combplate.

Fix firmly by using INSULOK (TY-RAP) to the comb shape clamp.



## 6.5. Assembling an Ethernet Connector (RJ-45 Type)

- Assemble outside Sheath of an Ethernet cable



Cut off outside sheath except for inner LAN Cable at the cable let-in hole.  
Only shielding wire needs to leave length to a chassis.

Wire an inner LAN cable with sheath into Radar.

- How to Assemble an Ethernet Connector



1 Let the Ethernet cable pass through the cable boot.



2 Measure the length of the cable sheath that is to be peeled.

\* The rough standard is the length of your thumb (about 5 to 6 cm).



3 Make a cut in the sheath by a wire stripper.  
If Cut the sheath by a cutter, be careful not to damage the foil inside.

\* Do not rotate the stripper over 360 degrees.



Check by bending the cable that the foil inside is not damaged. If the foil inside is damaged, cut the cable there and go back to the step 2 again.



**[Failure example]**

The foil is torn and the core wires inside can be seen.



Cut the sheath by a cutter vertically from the cut line made by the stripper in the procedure 3.

**\* Do not damage the foil inside.**

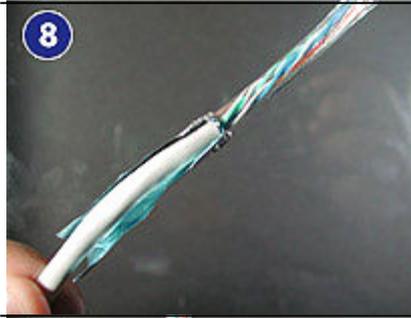


Twist the cable to split off the sheath. Peel the sheath along the cut lines made by the stripper and the cutter.



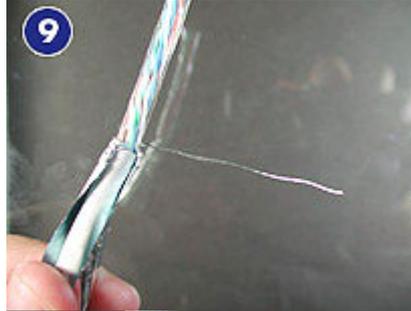
Check that the foil is not damaged after the sheath is peeled.

**\* The foil is OK if it is not torn by the pull of the arrow direction shown in the left figure.**

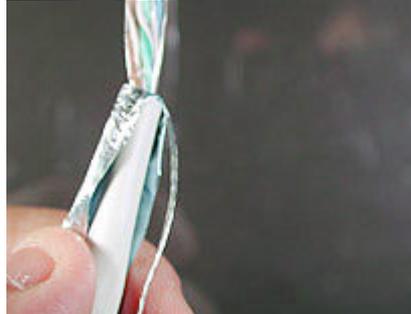


Fold back the foil and roll it up around the cable.

**\* The blue surface of the foil must be touched to the sheath.**

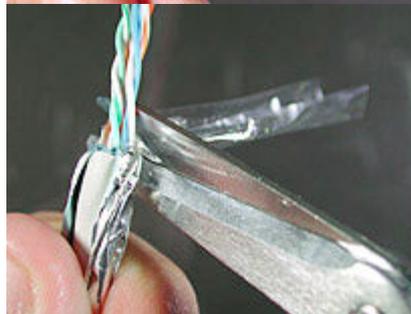


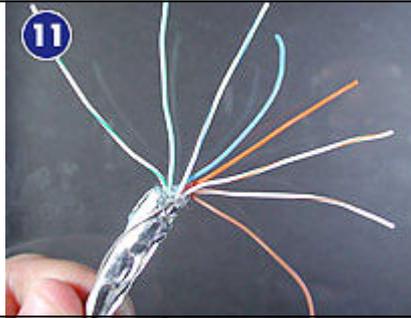
As the same way, fold back the drain wire to attach to the sheath.



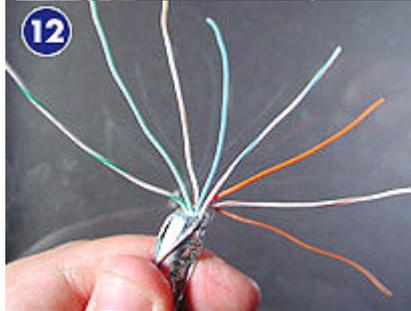
Cut off the vinyl covering the core wires by scissors.

**\* Cut the vinyl off at the bottom-most of the bare core wires for not blocking the connector to put in.**





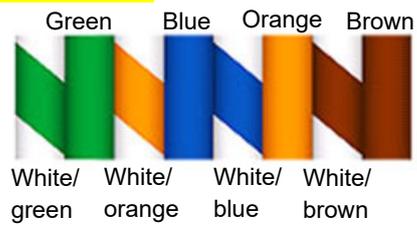
Untwist the core wires and straighten each wire.



After straightening, arrange the core wires so that the wires are aligned in the wiring order.

\* Above picture shows the order of "Wiring A."

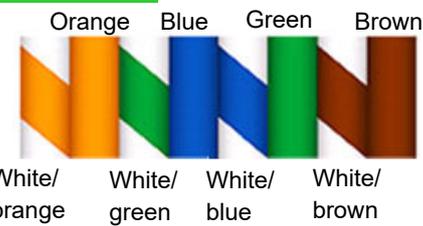
**Wiring A**



A pin number is 1 to 8 in an order from the left.

1	2	3	4	5	6	7	8
W/G	G	W/O	Bl	W/Bl	O	W/Br	Br
Tx+	Tx-	Rx+			Rx-		

**Wiring B**

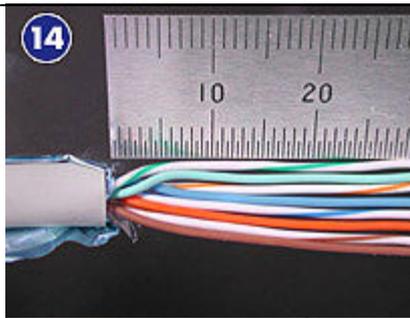


B pin number is 1 to 8 in an order from the left.

1	2	3	4	5	6	7	8
W/O	O	W/G	Bl	W/Bl	G	W/Br	Br
Tx+	Tx-	Rx+			Rx-		

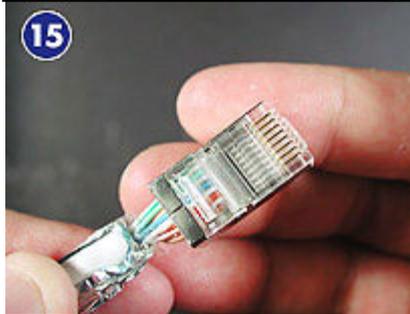
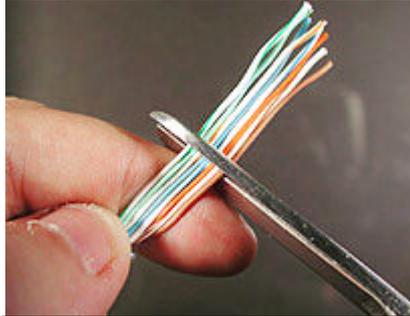


Gather all the core wires with maintaining the order.



Cut off the core wires at about 16 mm from the sheath.

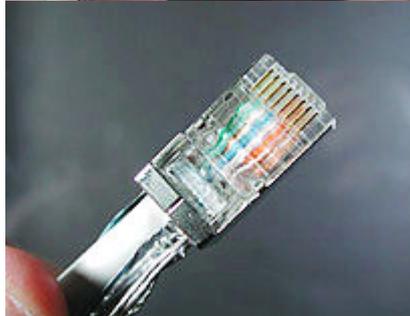
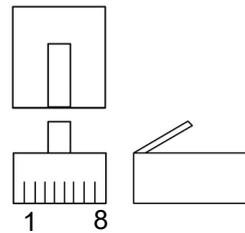
**\* First, cut them 1 to 3 mm longer. Then, adjust by inserting the connector.**



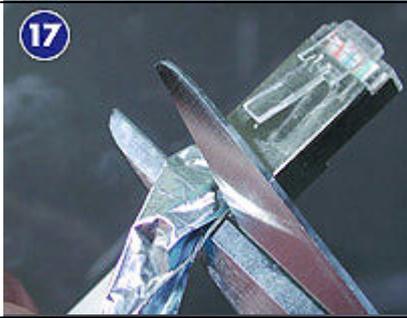
Insert the core wires into the STP connector. Check that the leading edges of the wires reach to the connector edge.

**\* Also check that the foil and the drain wire are touched to the metal part inside the connector.**

A pin number is 1 to 8 in an order from the left.



Calk by a calking tool.



Cut off the unnecessary foil and drain wire by scissors.



Attach the cable boot.

The cable assembling procedure is completed.

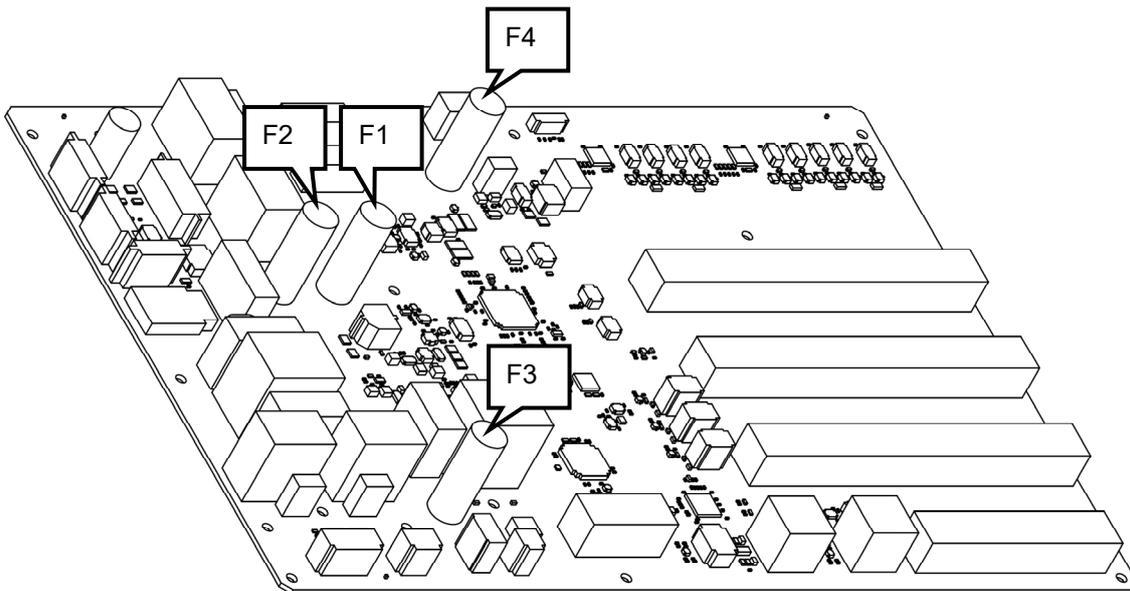
## 6.6. Fuse Replacement Procedure



### CAUTION

Be sure to switch off the power breaker of the power supply before starting the work.

Fuse holder Part No.	Fuse		Fuse Specification	Used for:
	Type	JRC Material Code		
F1	MF51NR 250V 4	5ZFGD00117	250V/4A	AC input
F2	MF51NR 250V 4	5ZFGD00117	250V/4A	
F3	MF51NR 250V 0.5	5ZFGD00019	250V/0.5A	For analog meter EL back light
F4	MF51NR 250V 0.5	5ZFGD00019	250V/0.5A	For power fail



CQD-7040

Terminal board

## 6.6.1. NQA-7040 fuse replacement procedure

### 6.6.1.1. Replacement of 0.5A Fuse

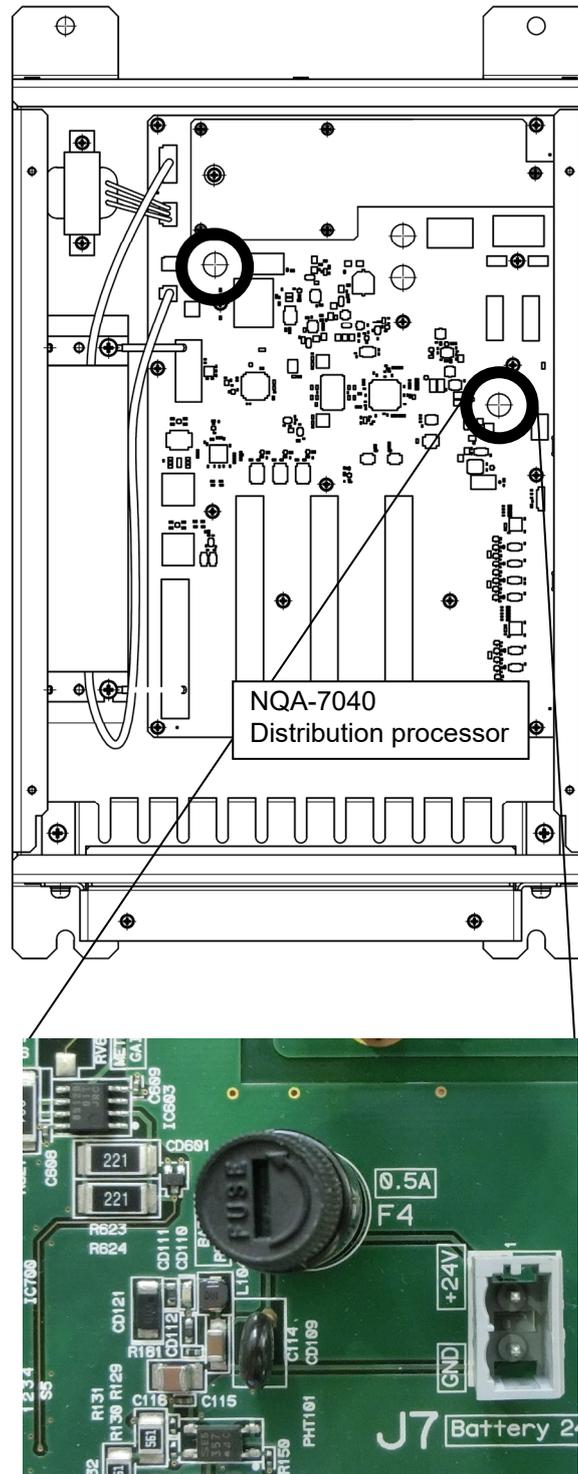


Figure 6.10 0.5A Fuse

- 1) Loosen the upper part of the fuse cover as below, and remove the fuse.

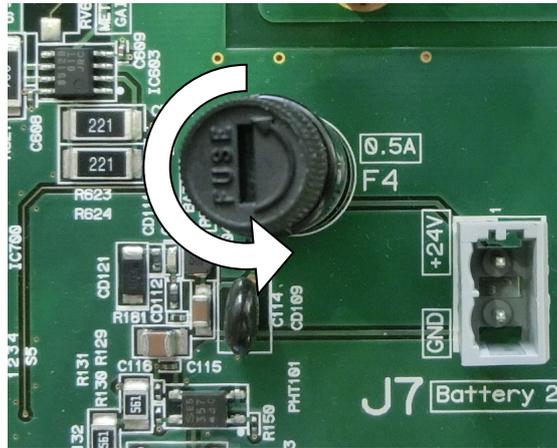


Figure 6.11 Removal of Fuse

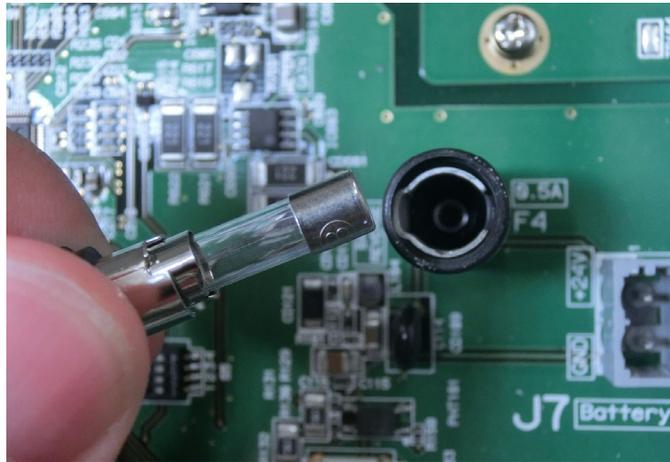


Figure 6.12 Removed Fuse

- 2) Attach a new fuse and tighten the upper part of the fuse cover as below.

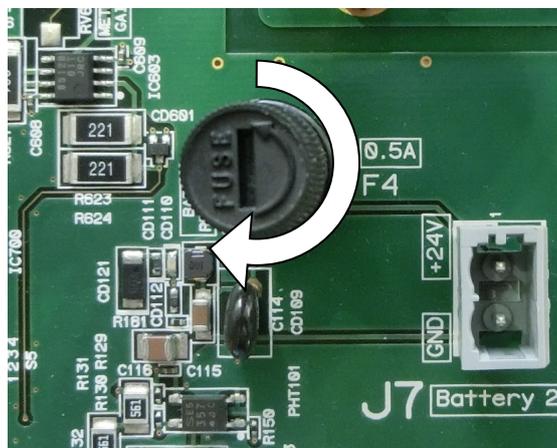


Figure 6.13 Attachment of Fuse

### 6.6.1.2. Replacement of 4A Fuse

#### CAUTION

Glass tube fuses of three different current capacities of the same shape are used.

When attaching a fuse, always check the capacity.

If a fuse of 0.5A is attached by mistake, the fuse will be blown out.

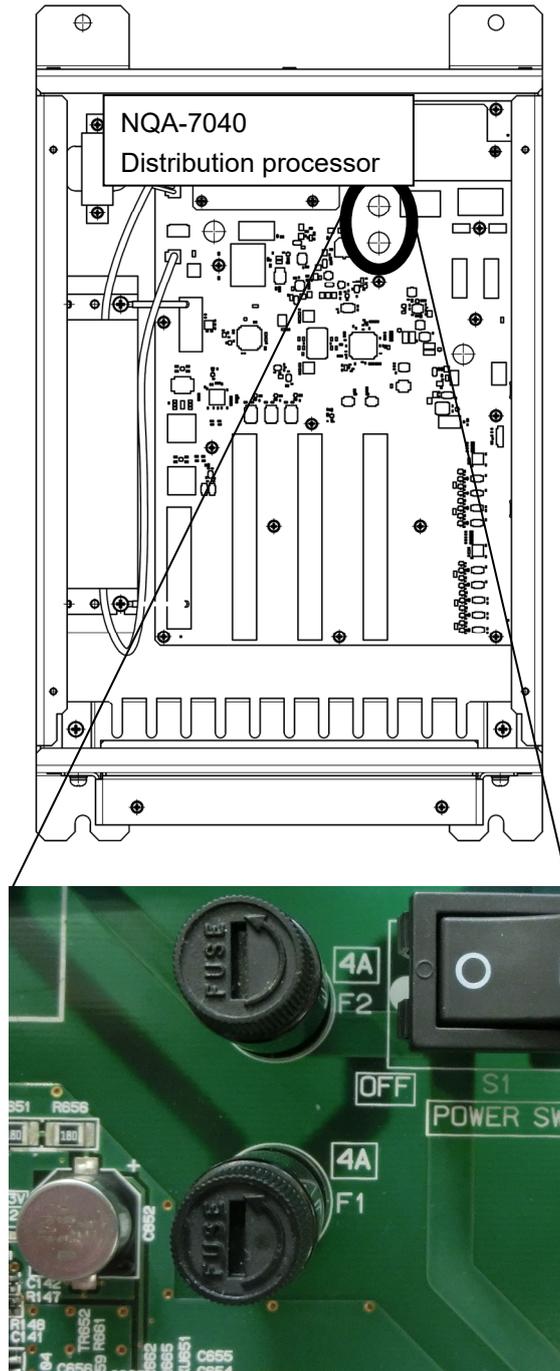


Figure 6.14 4A Fuse

- 1) Loosen the upper part of the fuse cover as below, and remove the fuse.

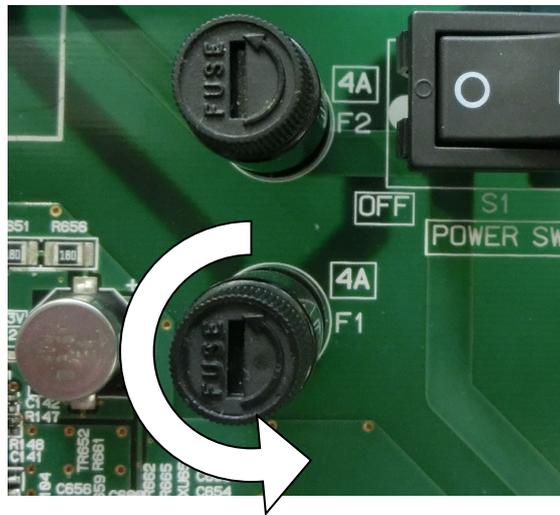


Figure 6.15 Removal of Fuse



Figure 6.16 Removed Fuse

- 2) Attach a new fuse and tighten the upper part of the fuse cover as below.

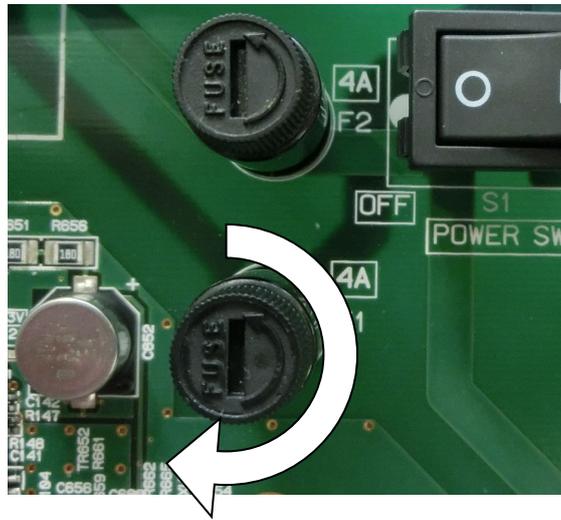
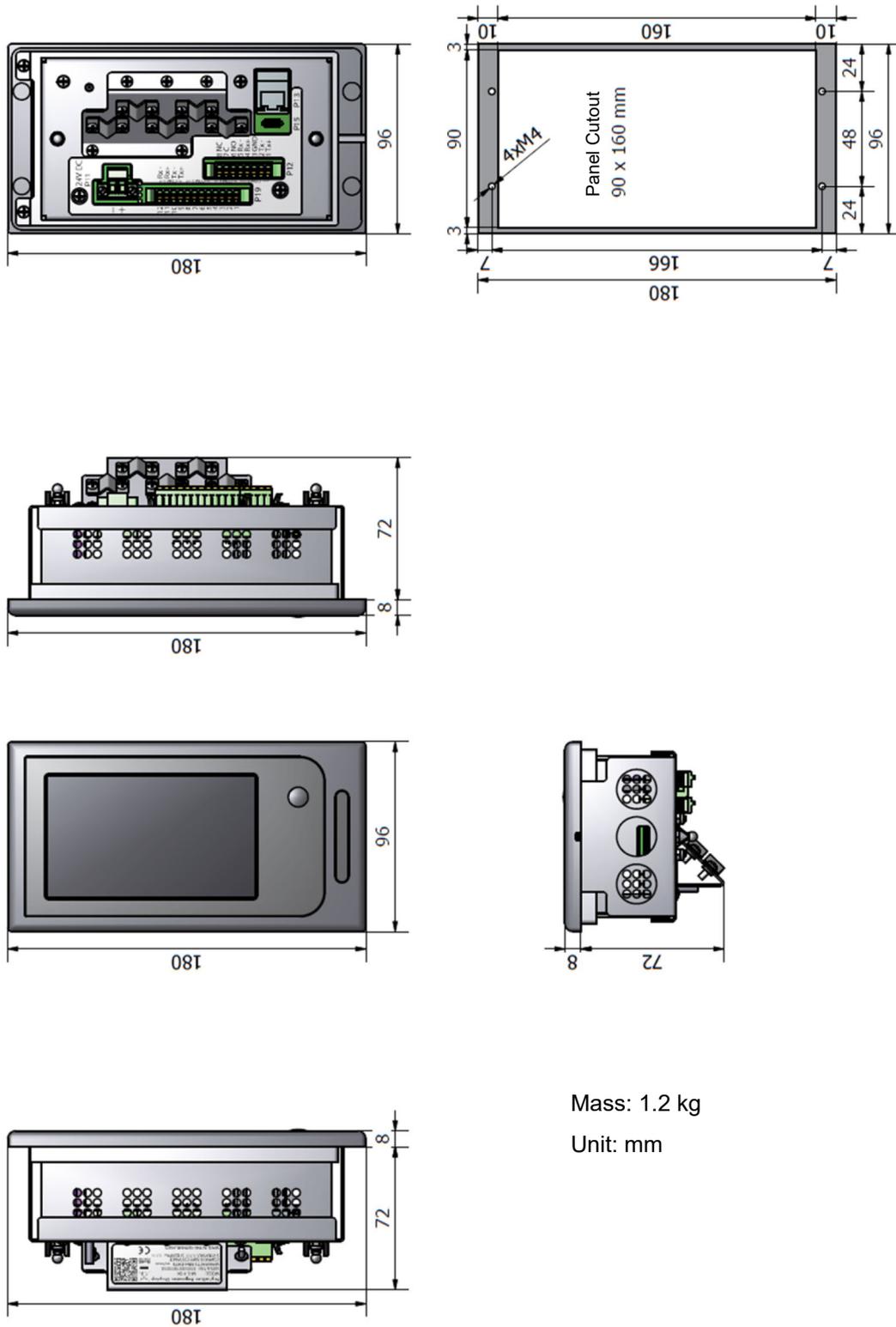


Figure 6.17 Attachment of Fuse

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# 7. Installing of NWZ-510SDW

## 7.1. Installation Drawing

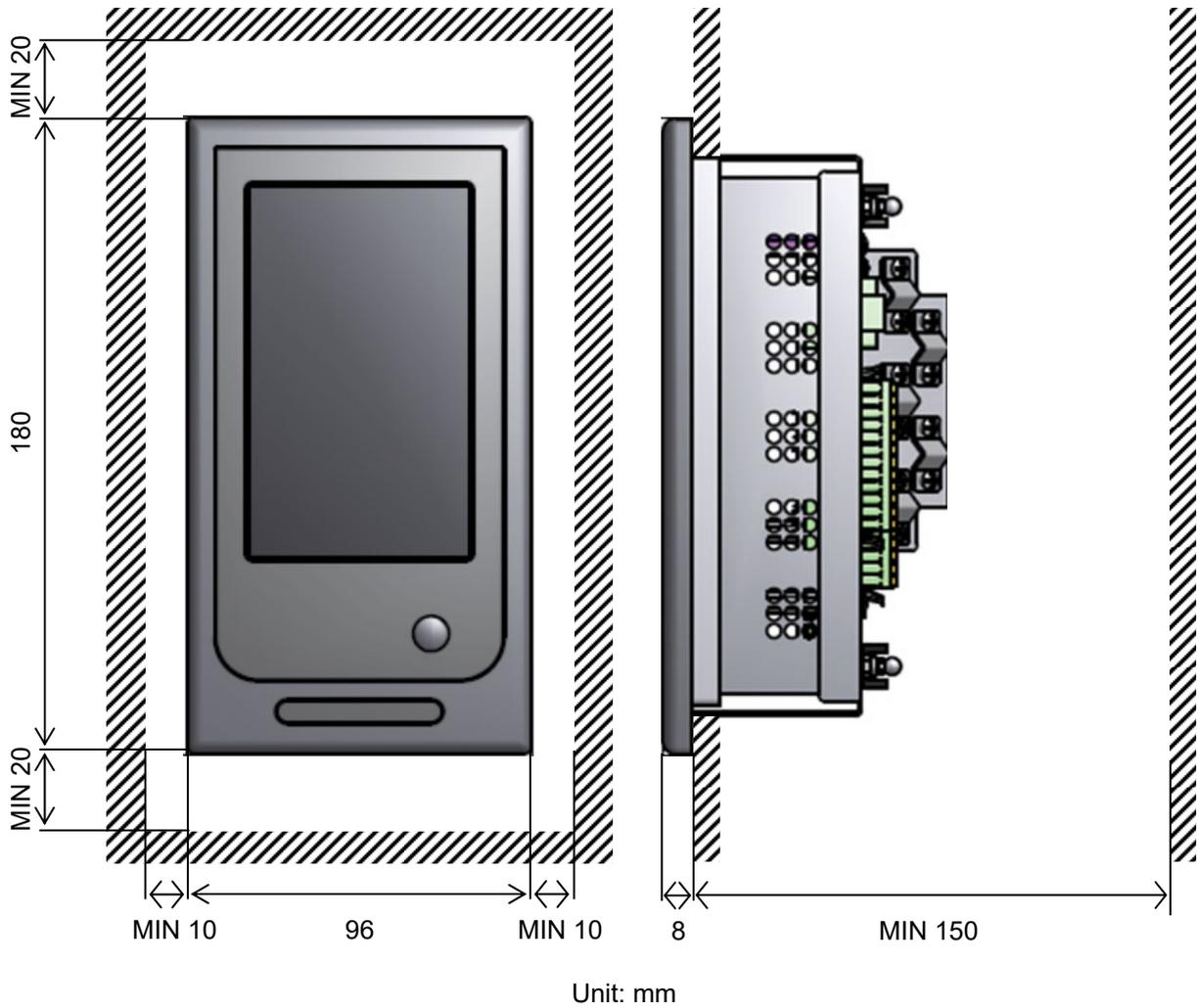


Mass: 1.2 kg

Unit: mm

● Installation Drawing

Note: Install with the space indicated by the following drawing.

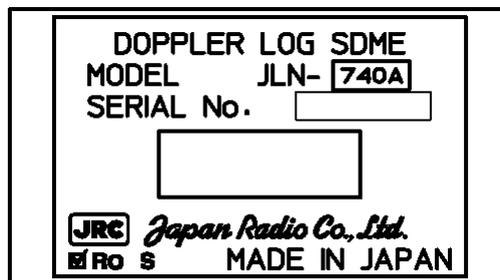


## 7.2. Pasting of seal

- Paste the accessory model name plate on the dotted line in the figure below.
- Choose the correct model number plate and stick it.



- If needed, stick the sub name plate near the NWZ-510SDW.



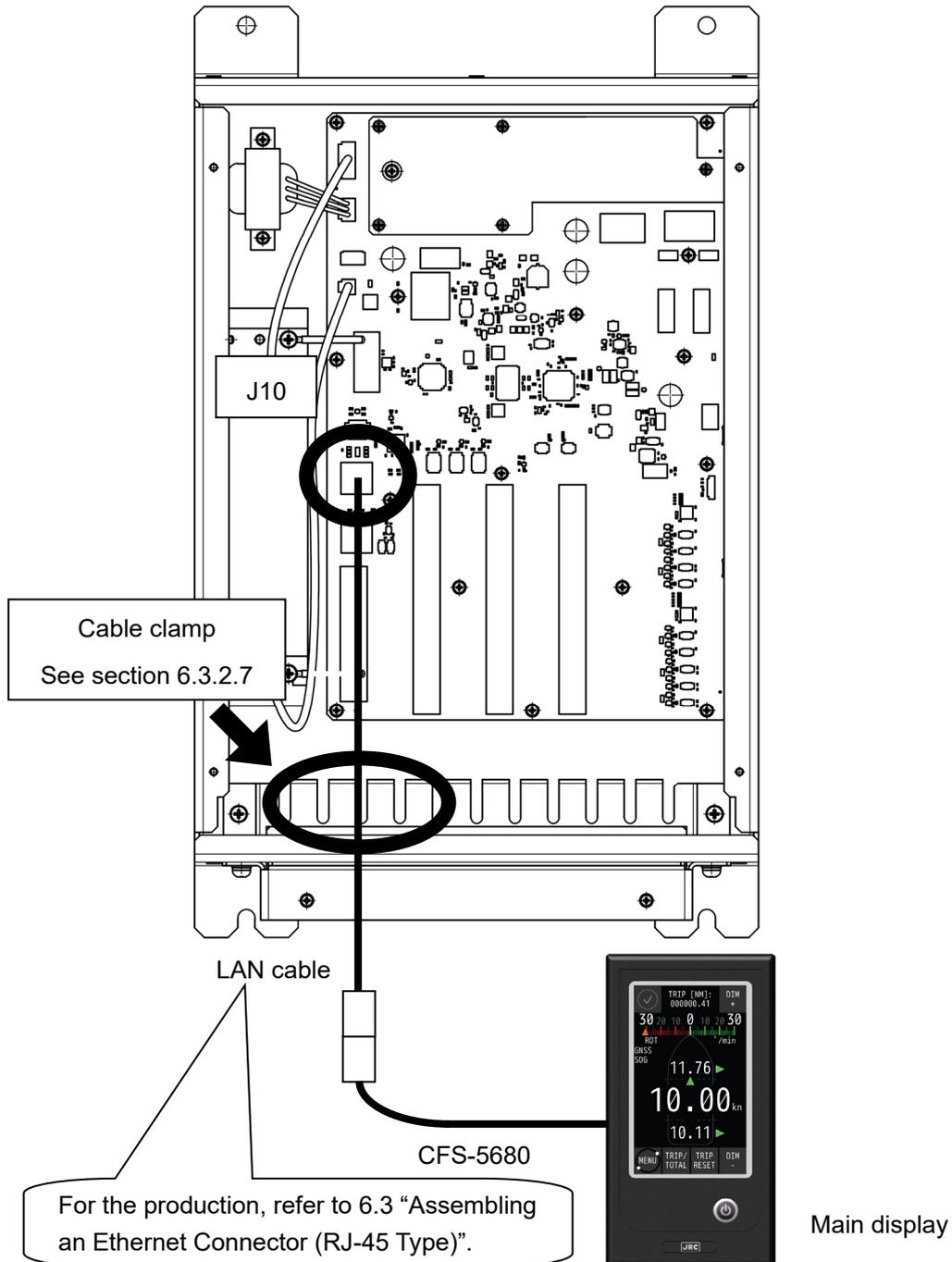
### 7.3. Installation Procedure

#### 7.3.1. JLN-740A

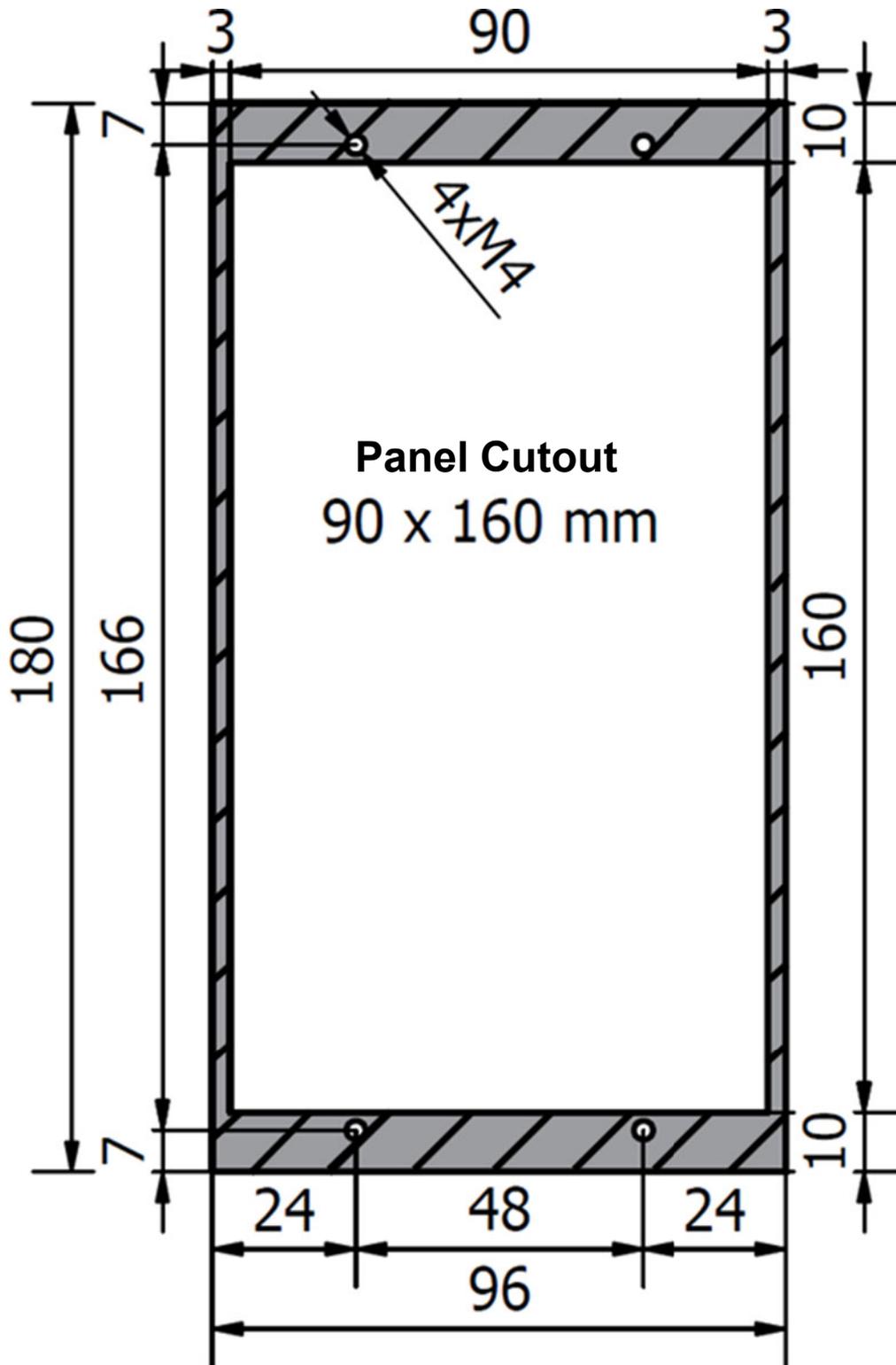
- Connect to NQA-7040 as shown below.
- Fix firmly by using a cable clamp.

	<b>CAUTION</b>	Do not connect the LAN cable to the main display directly. Otherwise, the main display will be damaged.
---	----------------	---

Note: CFS-5680 is not included with the NWZ-510SDW packing box, it is separately included.



- 1) Cut out holes on the mounting location according to the panel cutout sizes given in the installation drawing.



- 2) Hold the attachment metal firmly with both hands and remove the attachment metal by pulling it.

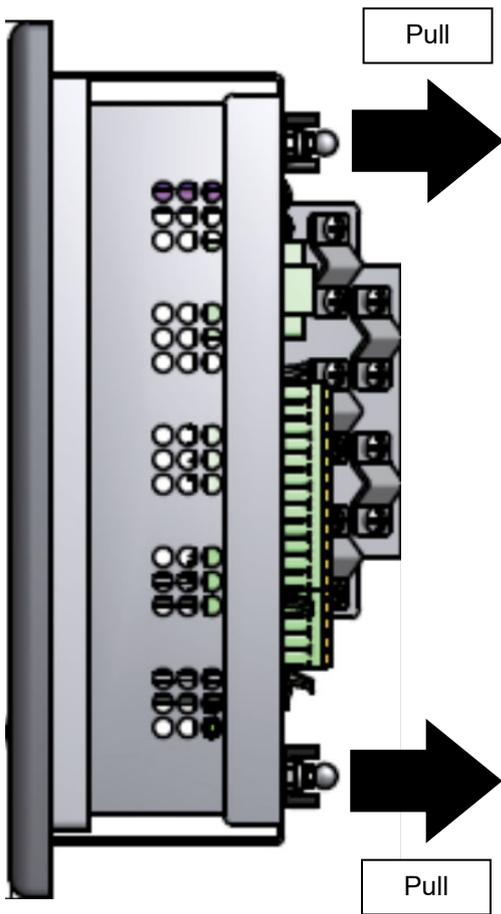
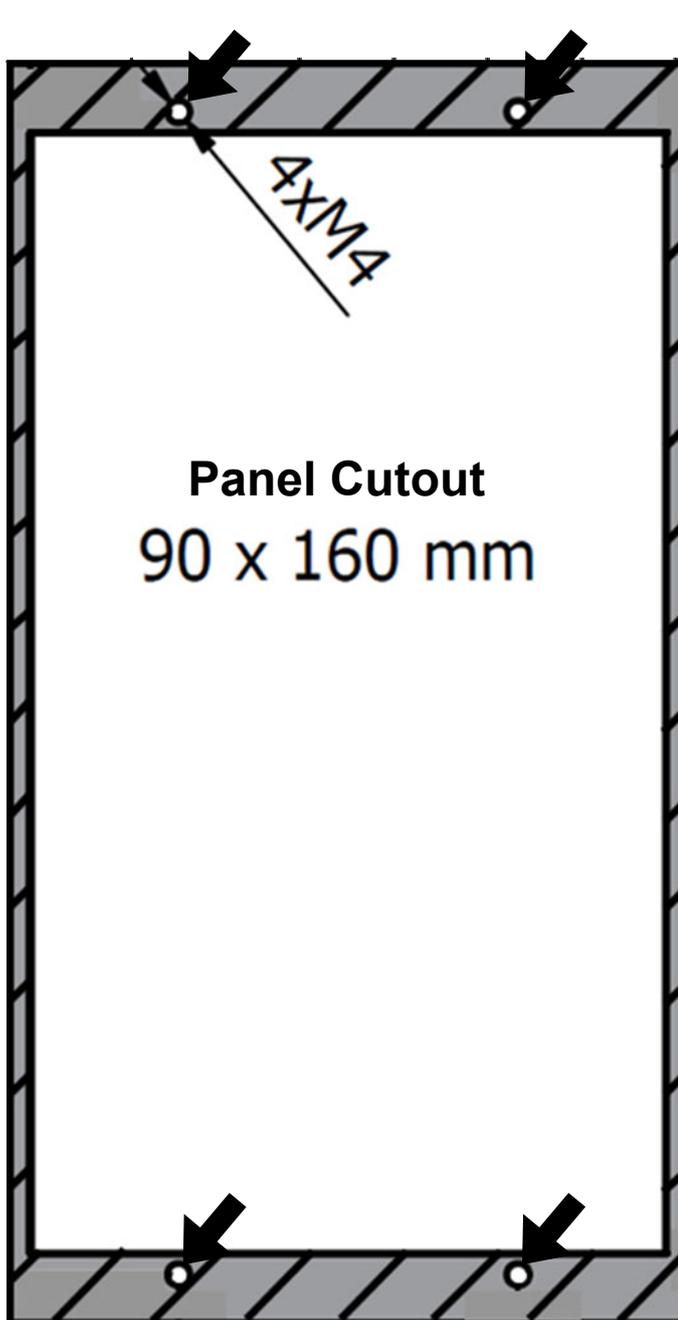


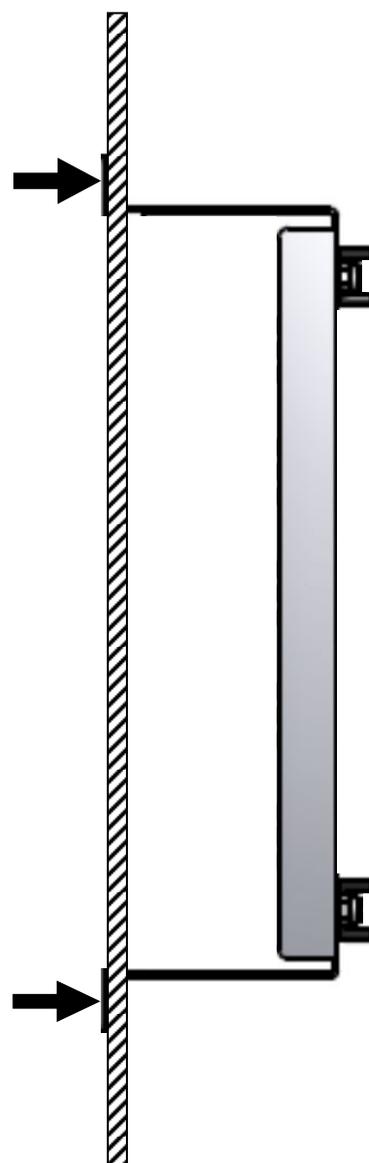
Figure 7.1 Attachment Metal

- 3) Fit the attachment metal into the mounting location and fix it to the mounting location by tightening the screws at the positions as marked with arrows in the following drawing.

Note: Be sure to draw the cables from the back side of the attachment metal.



Front view



Side view

- 4) Insert the power supply cable part of the CFS-5680 into the holes ① of the connector and secure them firmly by tightening the screws ② with a flathead screwdriver having a thin top end.

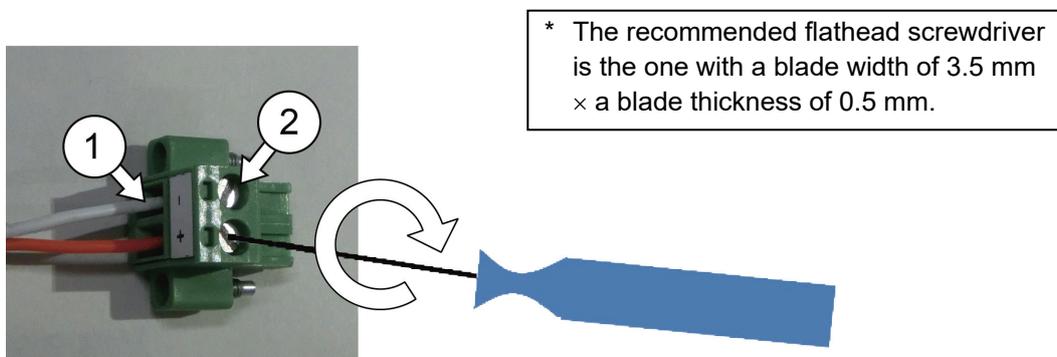


Figure 7.2 Attachment to the Connector

- 5) Insert the connector into P11, and secure it firmly by tightening the screws marked with arrows in the picture below with a flathead screwdriver having a thin top end.

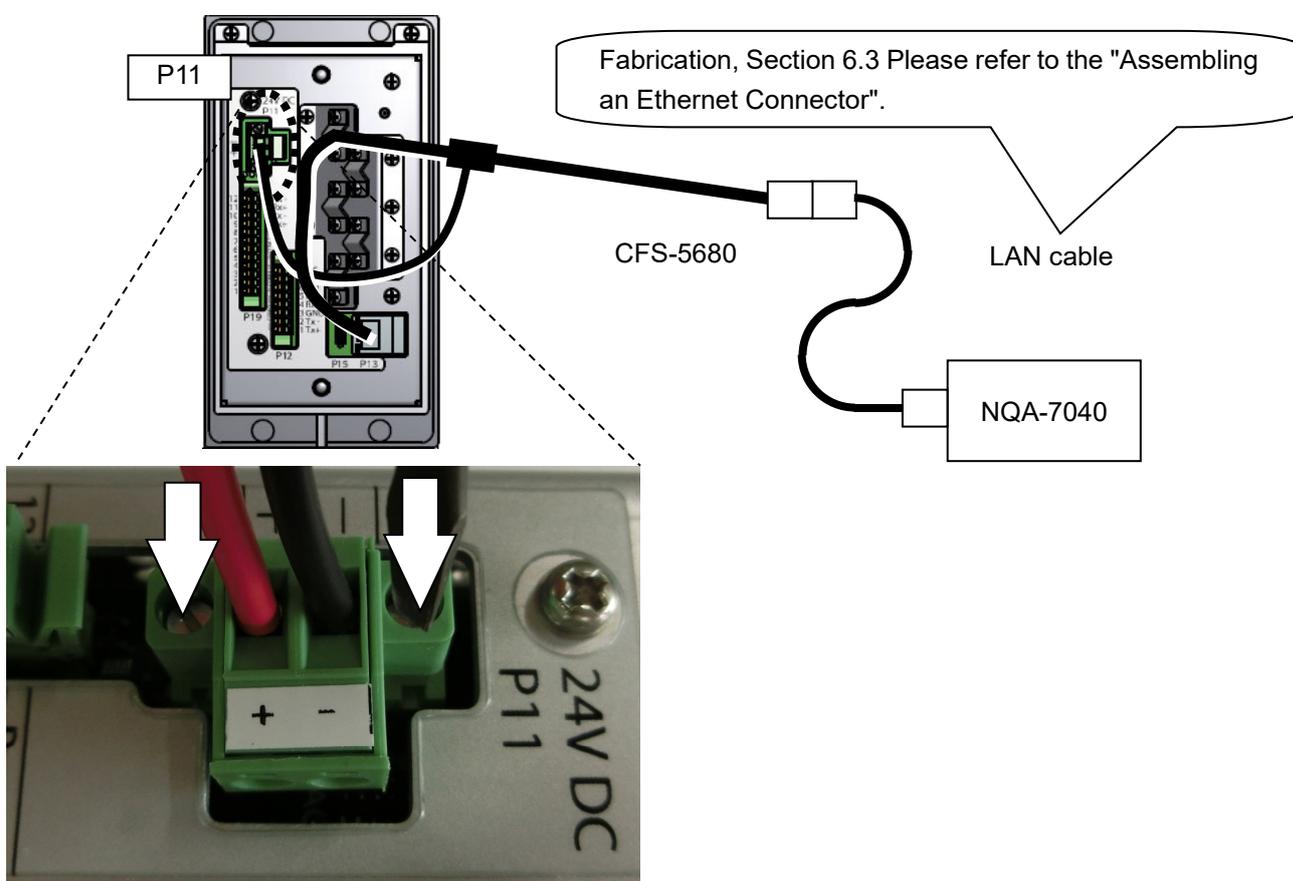
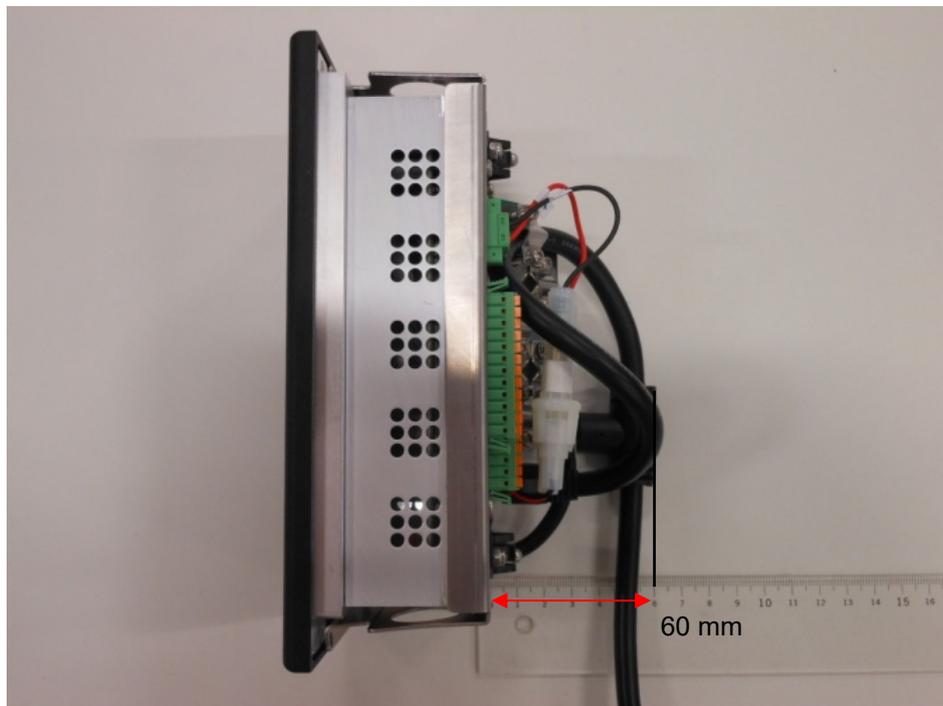


Figure 7.3 Attachment of the Power Cable

- Wiring, please refer to the figure below.

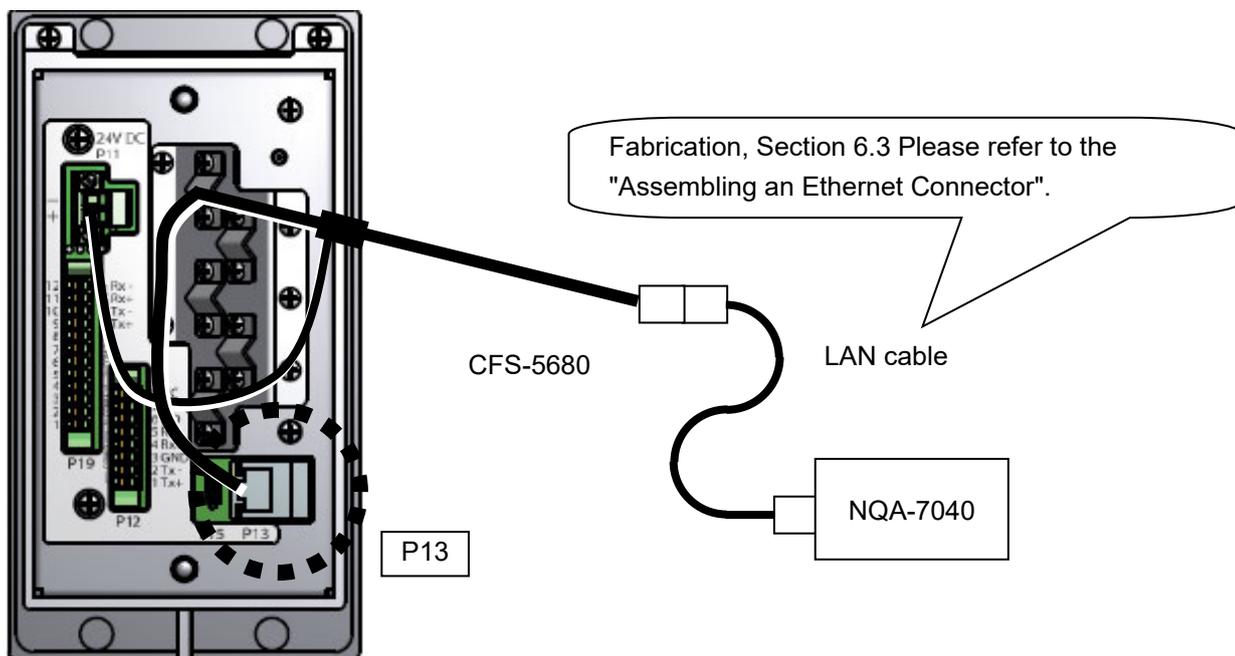


Cable Depth

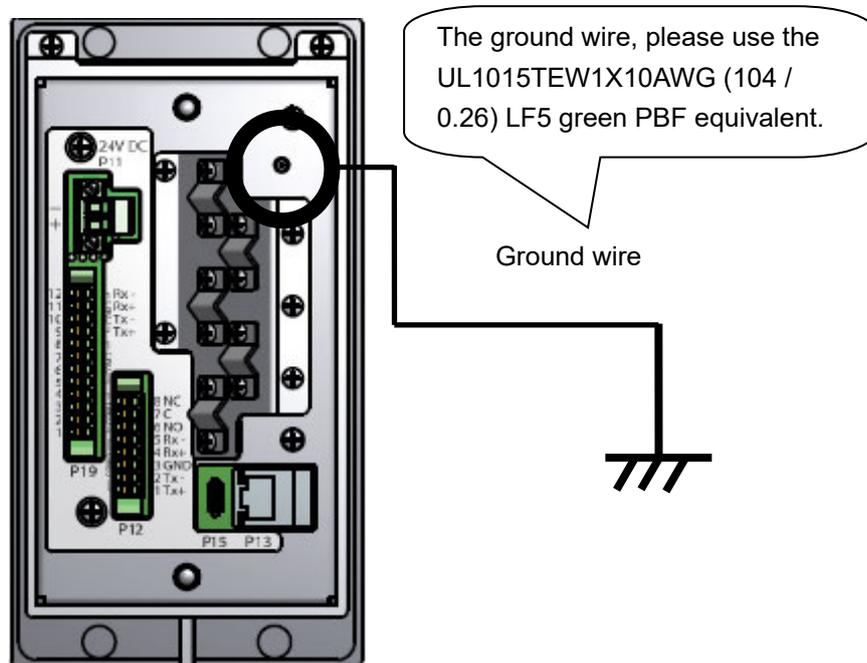


Rear

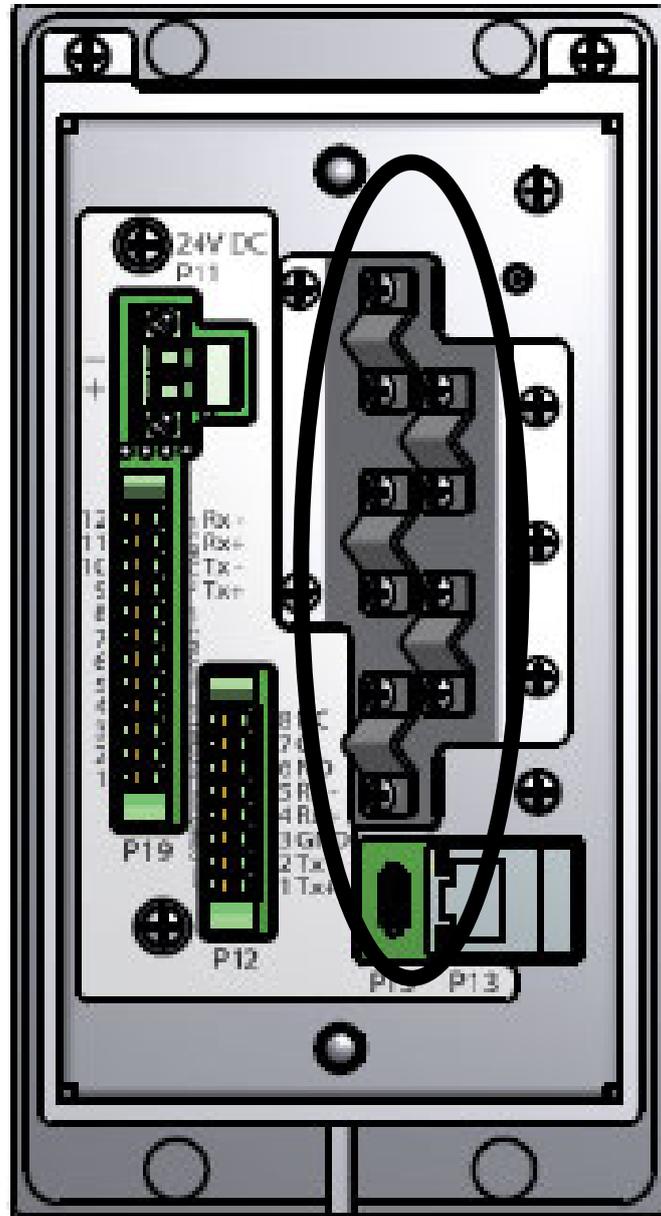
6) Insert the signal cable part of the CFS-5680 into the LAN port P13.



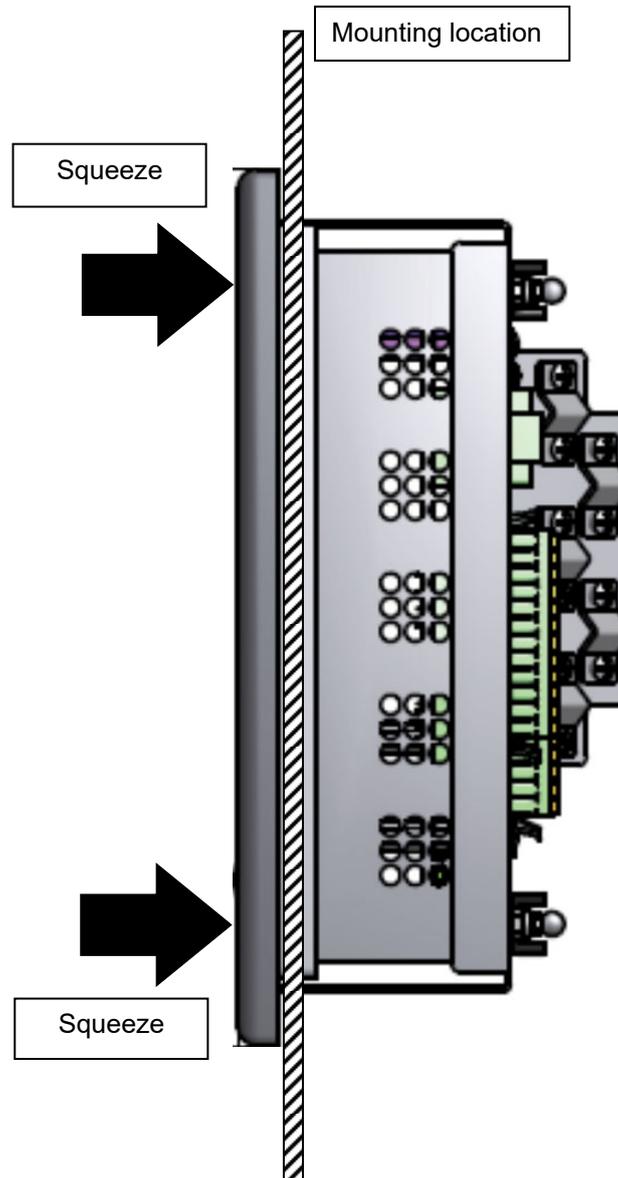
7) Connect the ground wire.



- 8) After wiring, adjust the cables so that excessive tension is not applied to them. Then secure the cables with the cable attachment metal.



- 9) Install the main display into the attachment metal.  
Confirm that the mounting location and the display have no gap and are fit together with a clicking noise.



- NWZ-510SDW replacement procedure

- 1) Insert a hexagonal wrench into the hole (1 hole) at the bottom of the NWZ-510SDW.
- 2) Press down on the hexagonal wrench and remove the NWZ-510SDW.



Bottom hole (1 hole)



Hexagonal wrench  
Recommended size:  
3 mm

Prepare a sheet to protect the wall  
from being scratched.

- 3) Hold the lower part of the front panel firmly with both hands and pull the NWZ-510SDW toward you to remove it from the attachment metal.



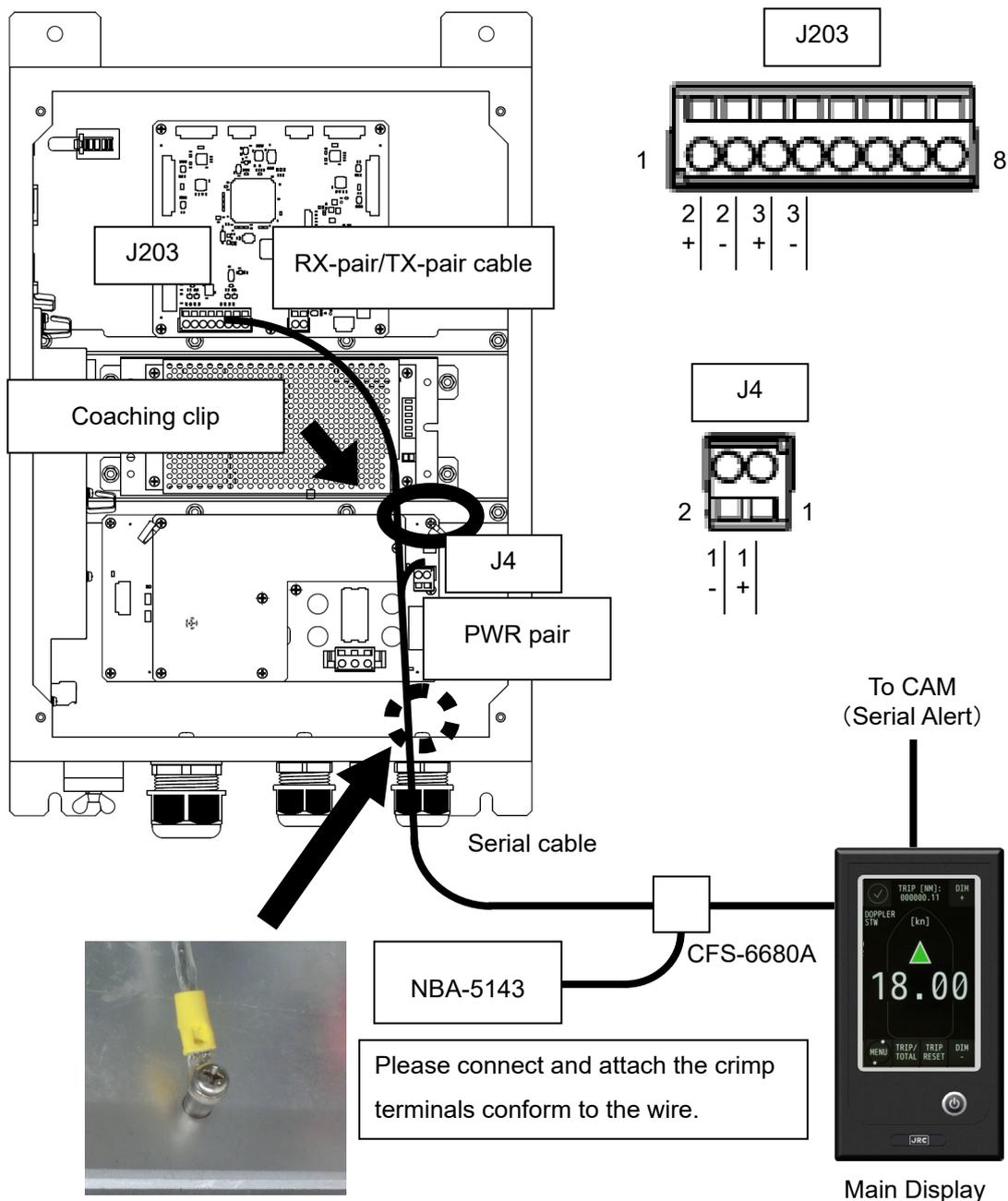
- 4) Remove the cable.

### 7.3.2. JLN-741A

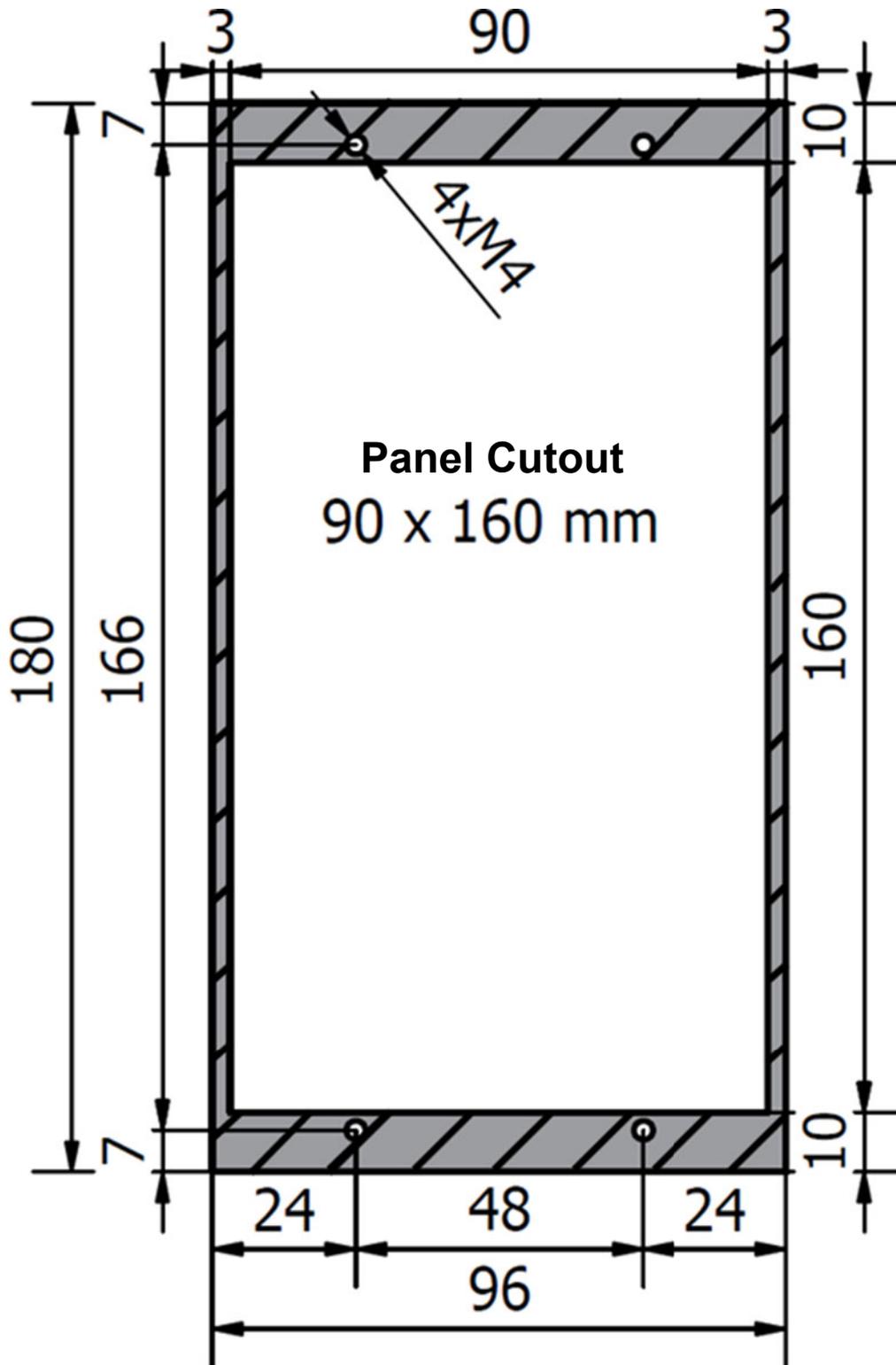
- Connect to NJC-70S as shown below.
- Fix firmly the serial cable by using the coaching clip.

Fix the coaching clip to control the stress to the cable and the connector.

Note: CFS-6680A is not included with the NWZ-510SDW packing box, it is separately included.



- 1) Cut out holes on the mounting location according to the panel cutout sizes given in the installation drawing.



- 2) Hold the attachment metal firmly with both hands and remove the attachment metal by pulling it.

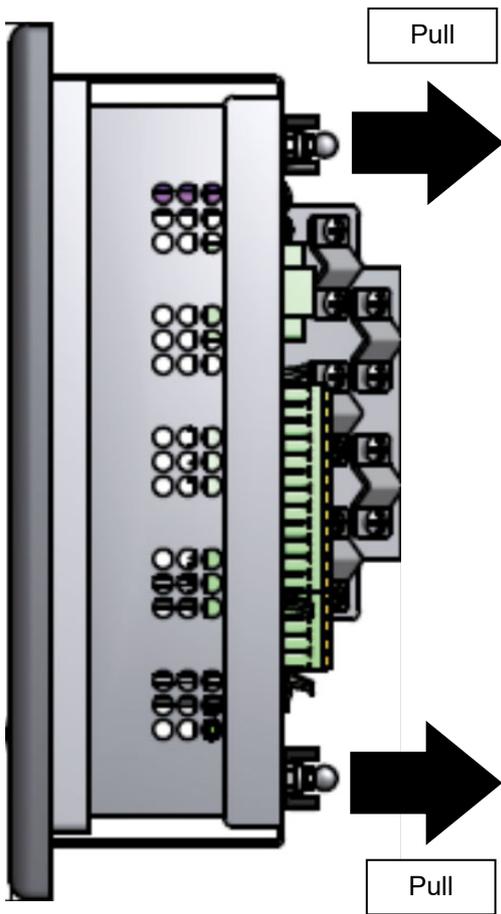
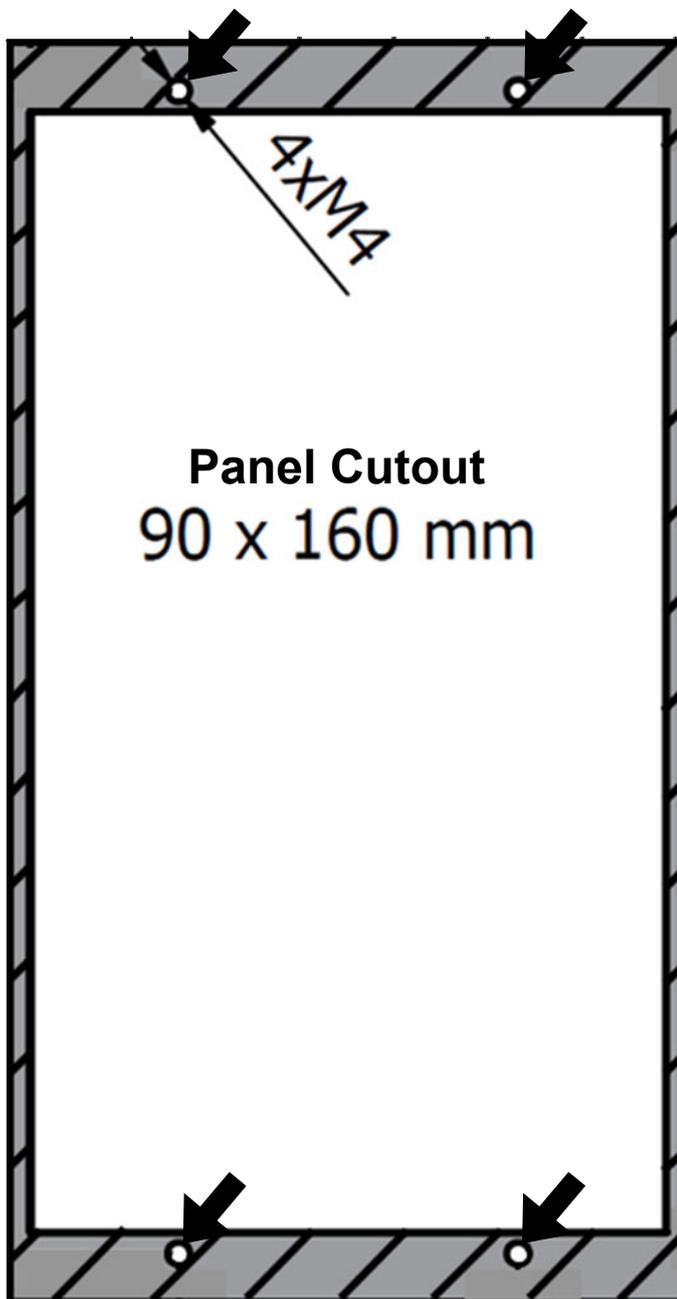


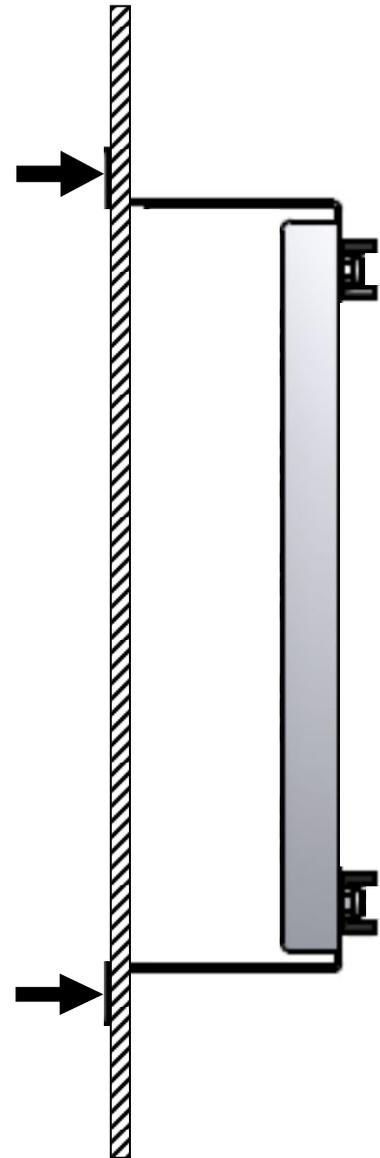
Figure 7.4 Attachment Metal

- 3) Fit the attachment metal into the mounting location and fix it to the mounting location by tightening the screws at the positions as marked with arrows in the following drawing.

Note: Be sure to draw the cables from the back side of the attachment metal.



Front view



Side view

- 4) Insert the power supply cable part of the CFS-6680A into the holes ① of the connector and secure them firmly by tightening the screws ② with a flathead screwdriver having a thin top end.

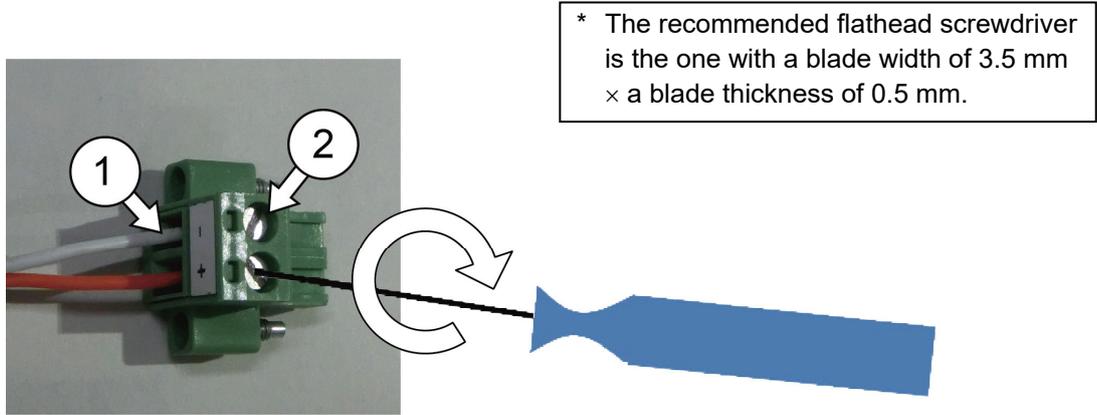


Figure 7.5 Attachment to the Connector

- 5) Insert the connector into P11, and secure it firmly by tightening the screws marked with arrows in the picture below with a flathead screwdriver having a thin top end.

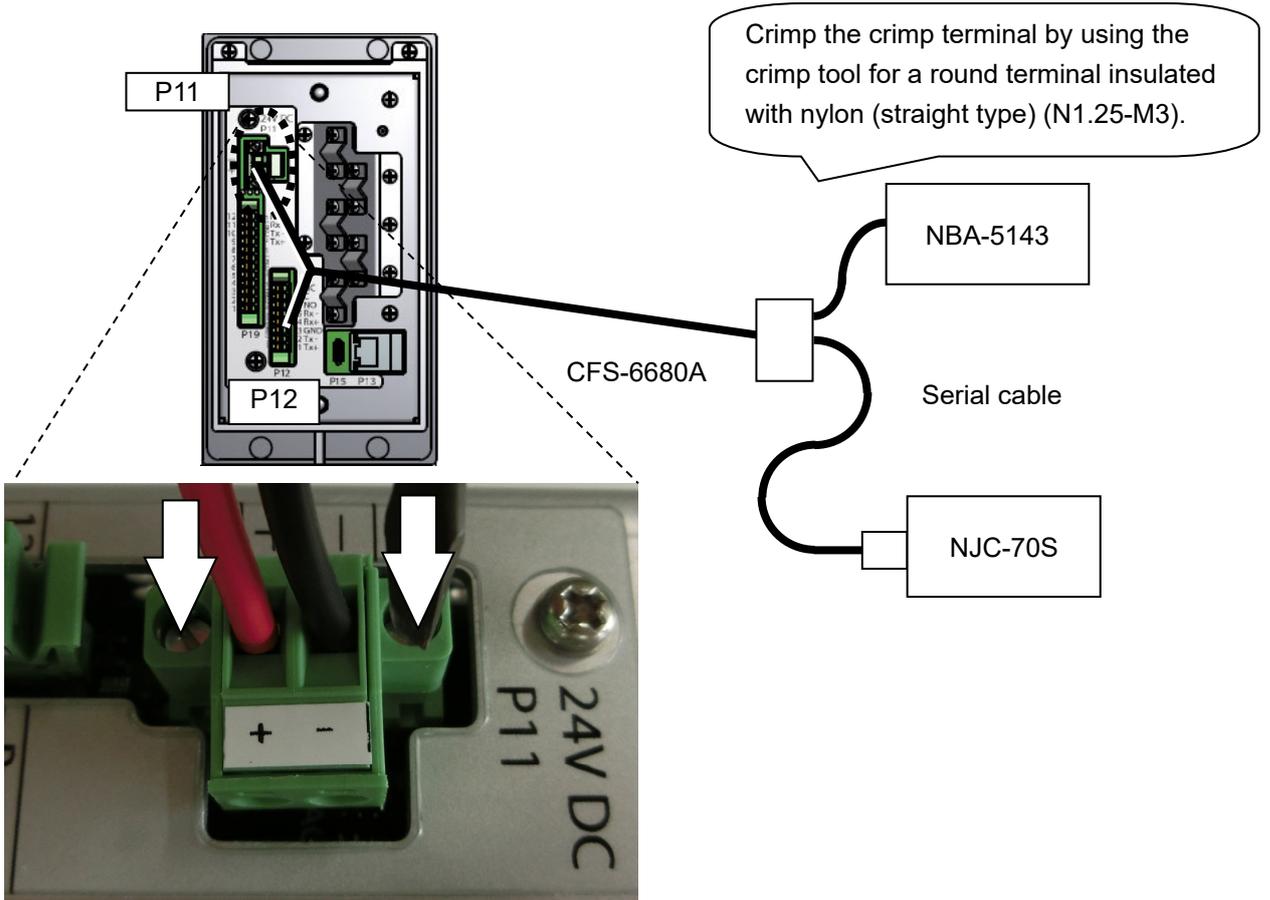
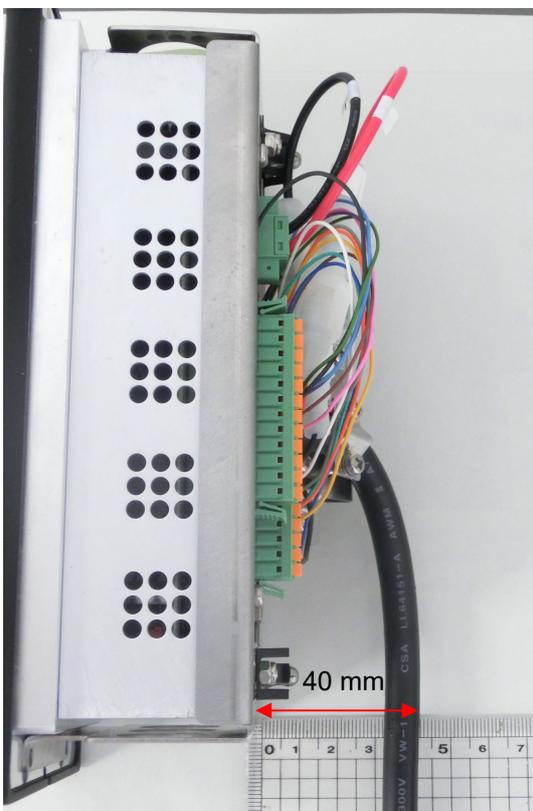
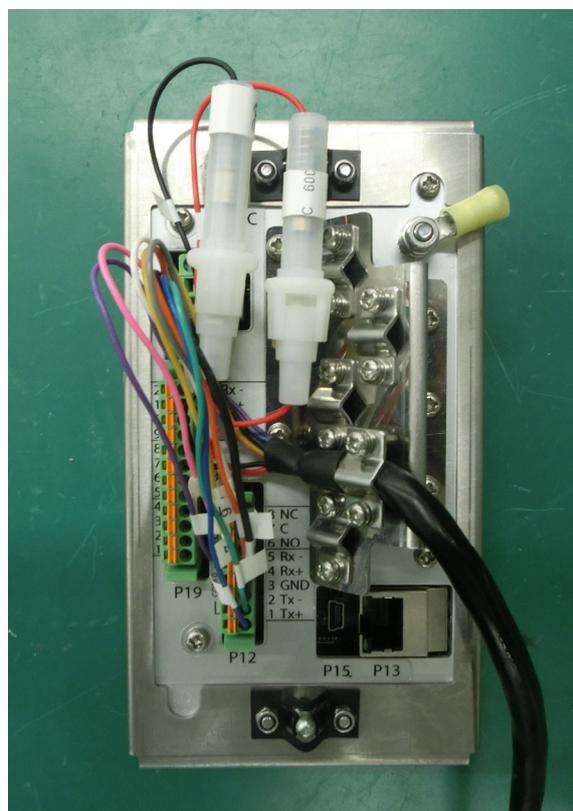


Figure 7.6 Attachment of the Power Cable

- Wiring, please refer to the figure below.

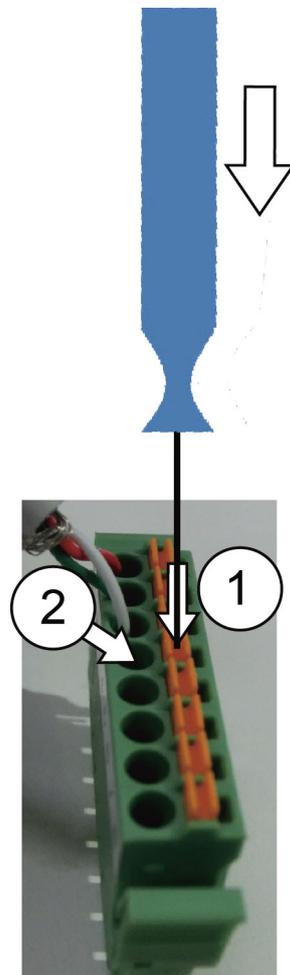


Cable Depth

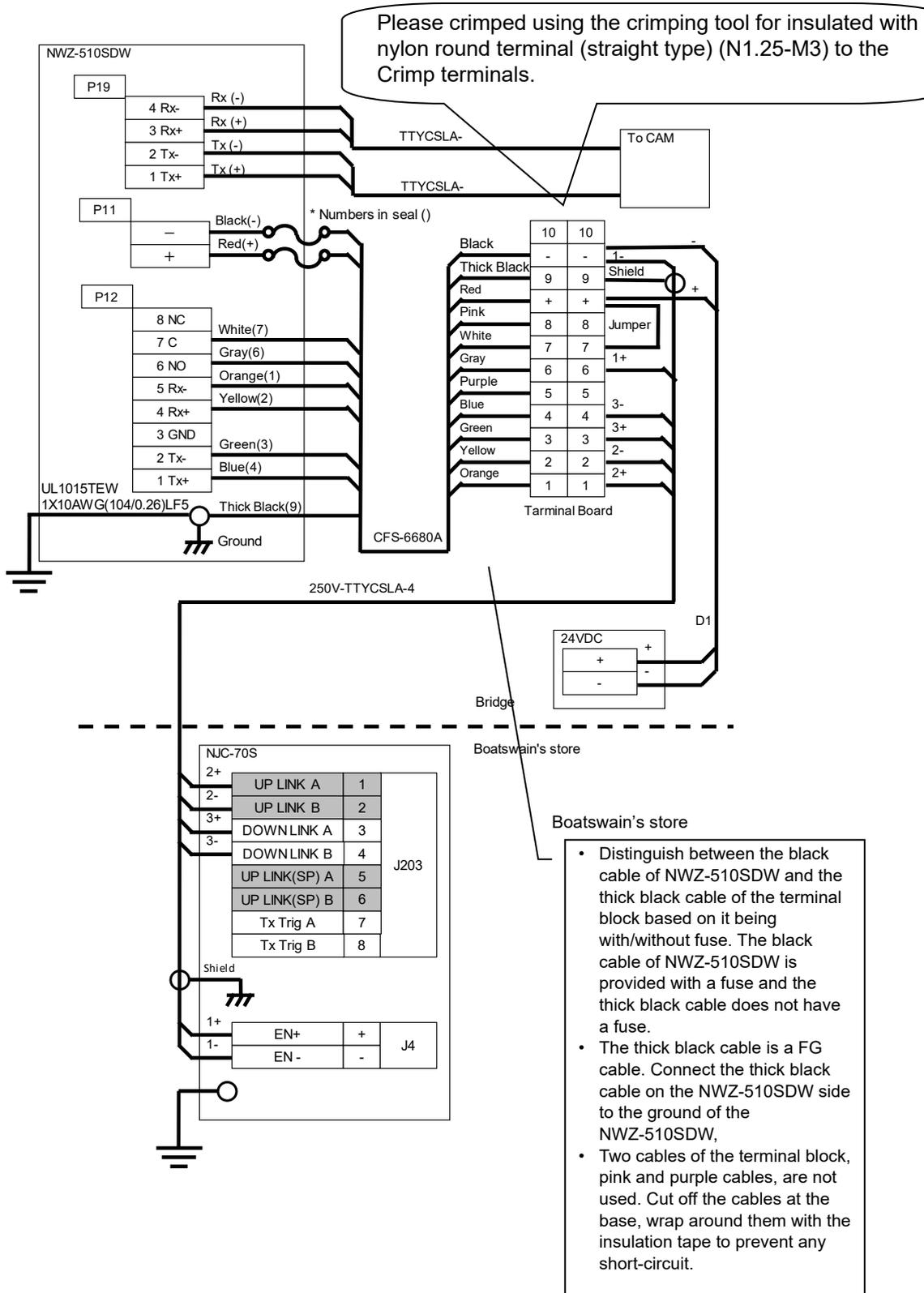


Rear

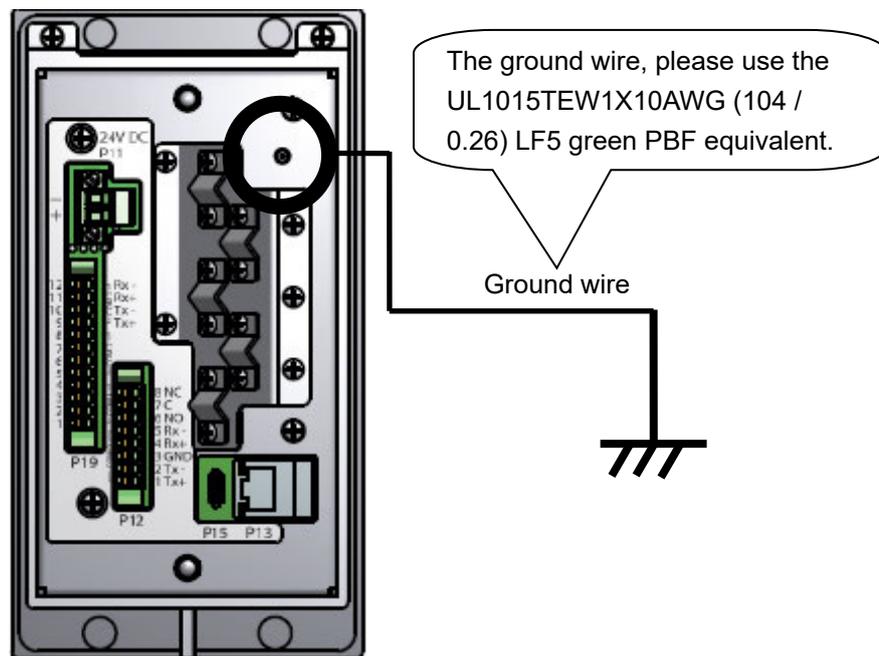
- 6) Push the orange ledge of ① by tightening the screws, plug the cable into the hole of ②.



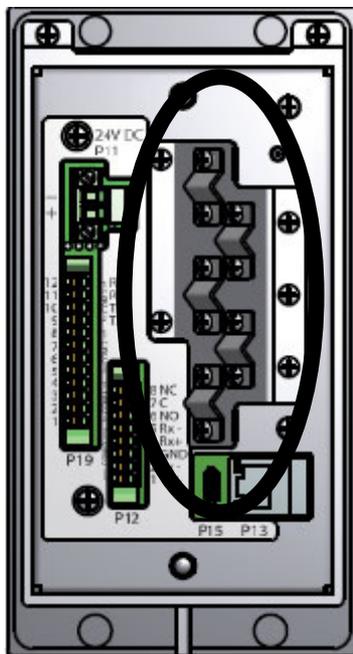
- 7) Plug the signal cable portion of the CFS-6680A to the serial port P12.  
The figure below is connection example.



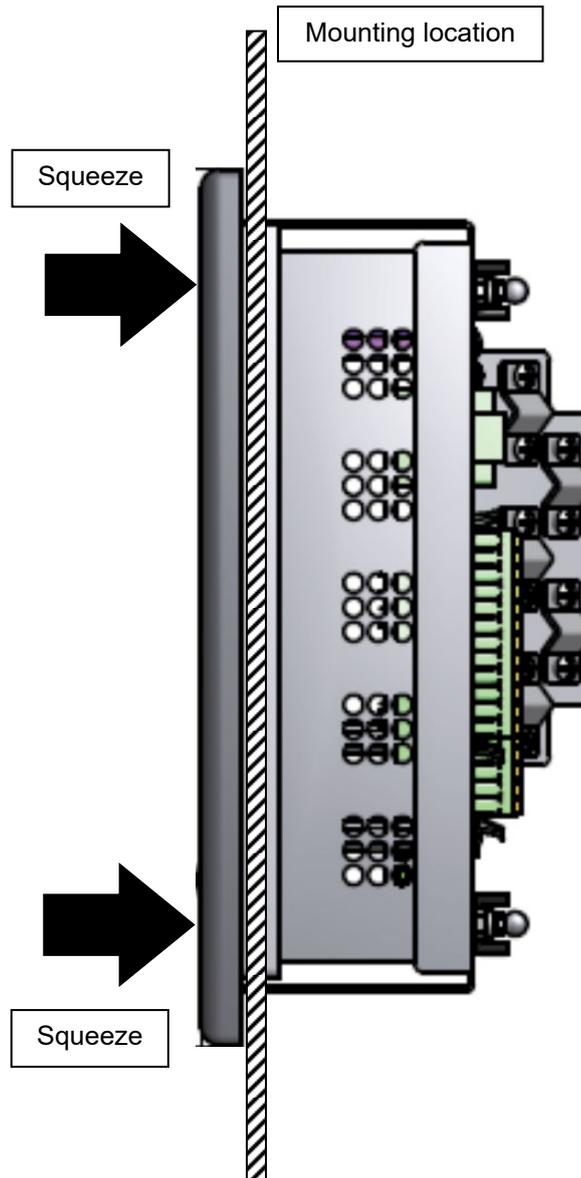
- 8) Connect the ground wire.



- 9) After wiring, adjust the cables so that excessive tension is not applied to them. Then secure the cables with the cable attachment metal.



- 10) Install the main display into the attachment metal.  
Confirm that the mounting location and the display have no gap and are fit together with a clicking noise.



- NWZ-510SDW replacement procedure

- 1) Insert a hexagonal wrench into the hole (1 hole) at the bottom of the NWZ-510SDW.
- 2) Press down on the hexagonal wrench and remove the NWZ-510SDW.



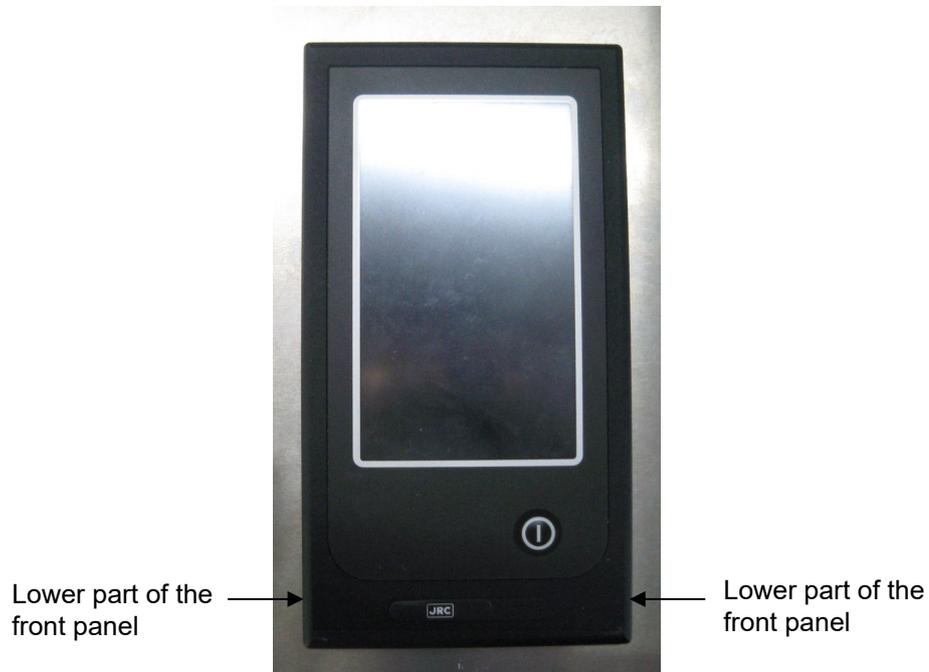
Bottom hole (1 hole)



Hexagonal wrench  
Recommended size:  
3 mm

Prepare a sheet to protect the wall  
from being scratched.

- 3) Hold the lower part of the front panel firmly with both hands and pull the NWZ-510SDW toward you to remove it from the attachment metal.

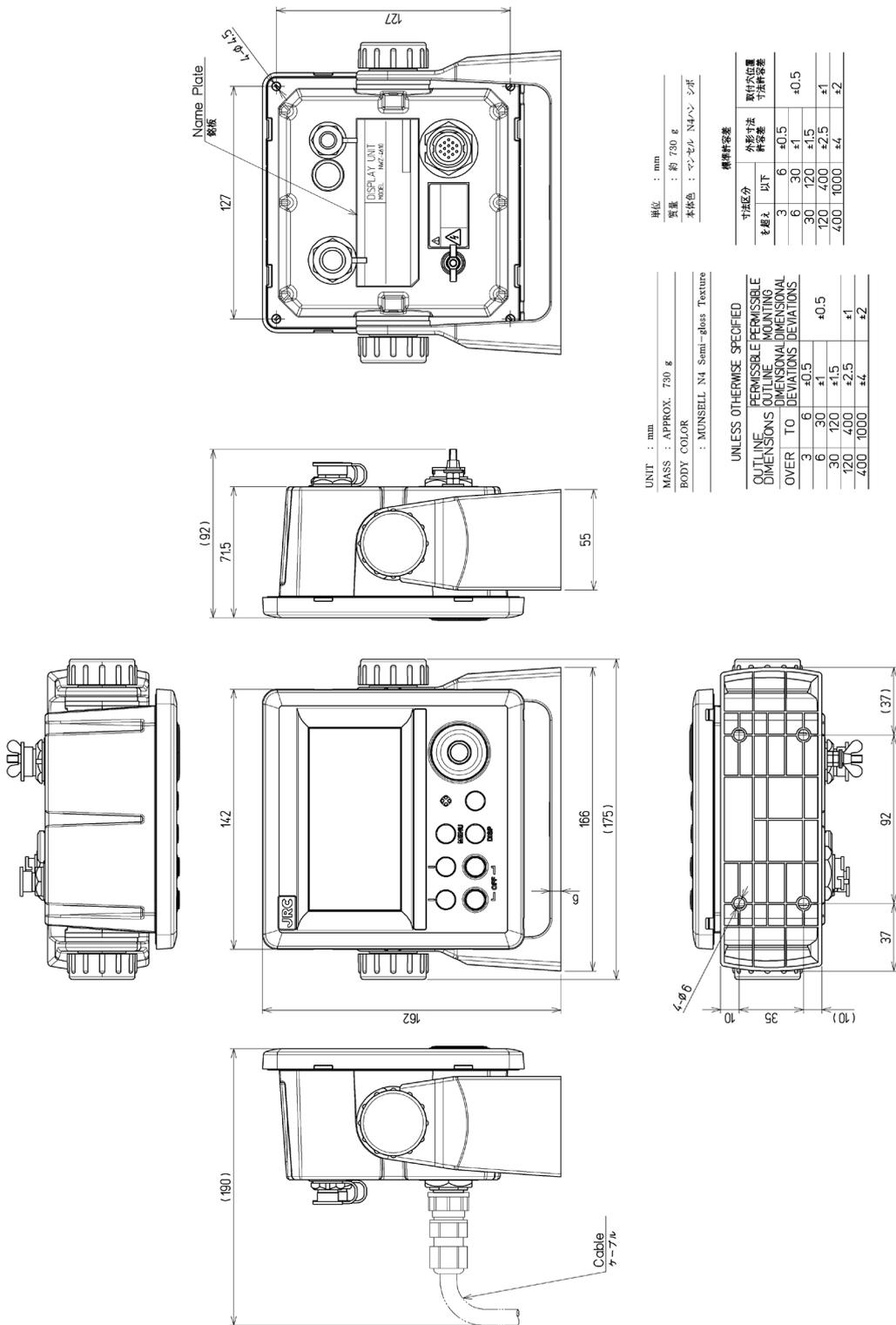


- 4) Remove the cable.

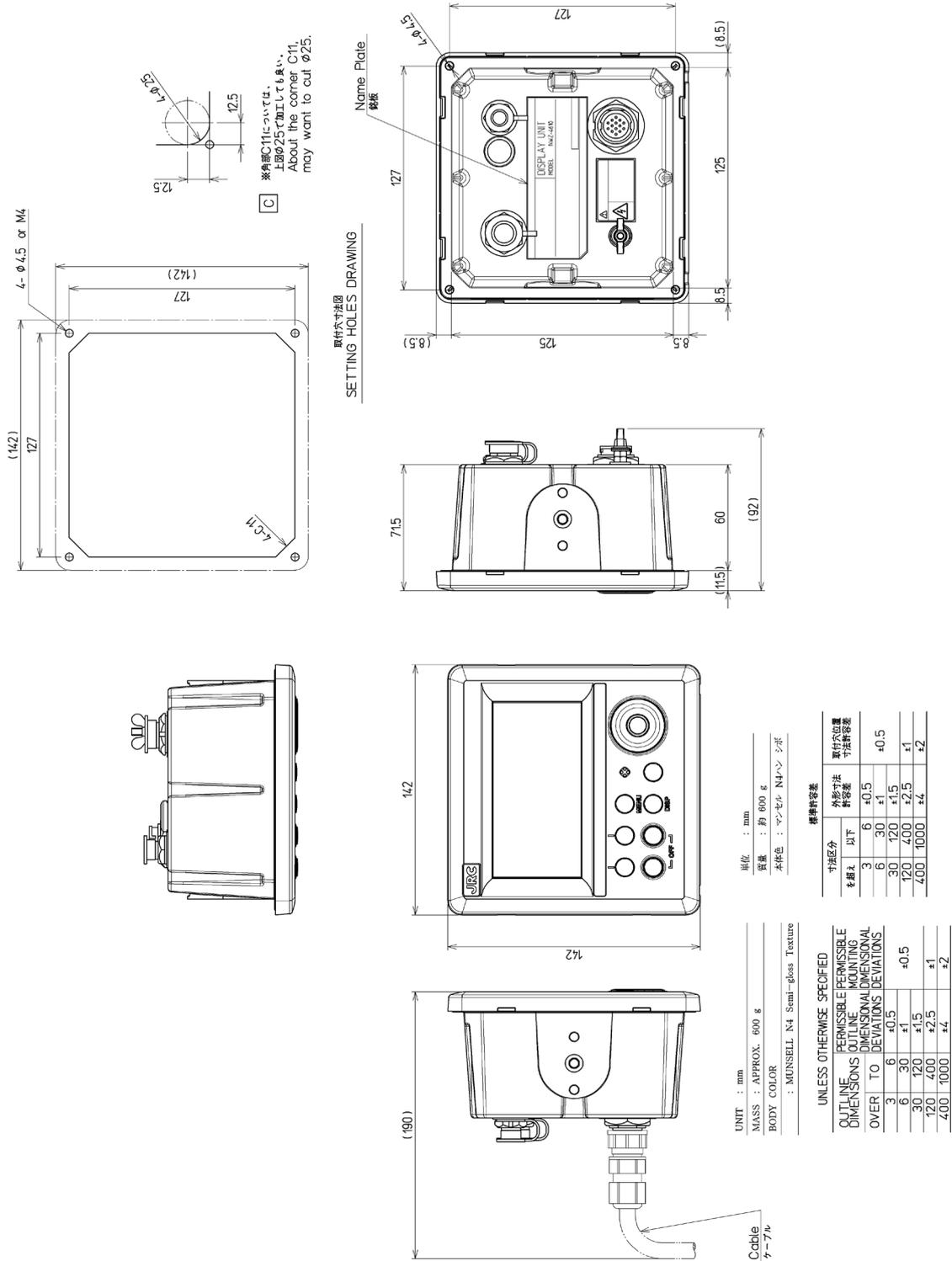
# 8. Installing of NWZ-4640

## 8.1. Installation Drawing

### 1) NWZ-4640 Multi Information Display (Desktop type)



## 2) NWZ-4640 Multi Information Display (Flush mount type)



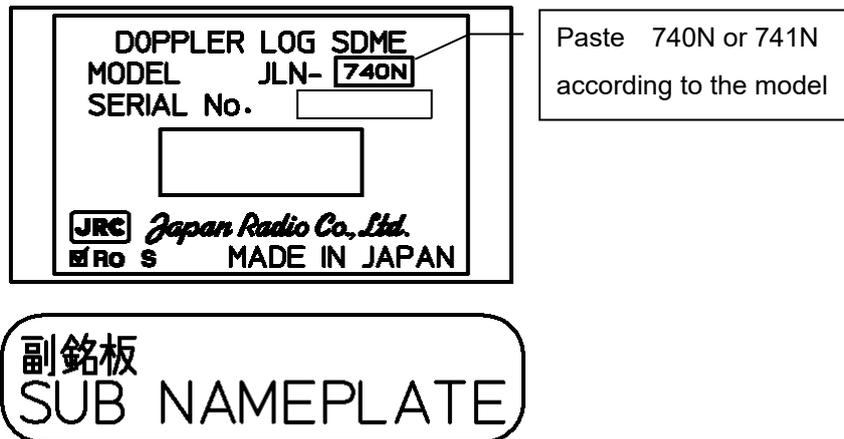
## 8.2. Pasting of seal

### 8.2.1. Seal pasting method of NWZ-4640

- Paste the accessory model name plate on the dotted line in the figure below.
- Choose the correct model number plate and stick it.



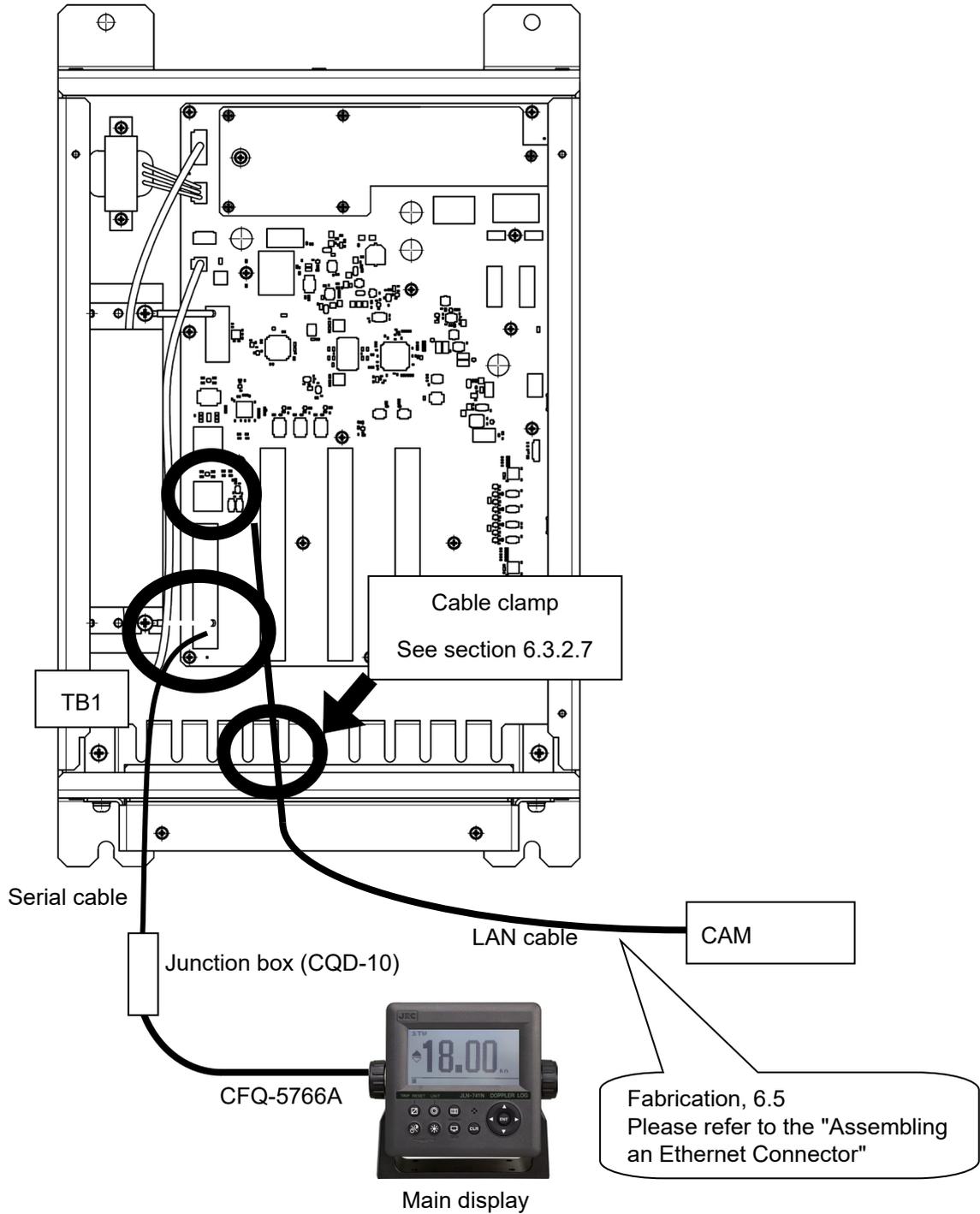
- If needed, stick the sub name plate near the NWZ-4640.



### 8.3. Installation Procedure

#### 8.3.1. JLN-740N

- Connect to NQA-7040 as shown below.

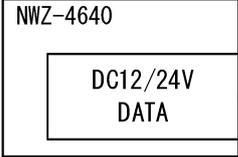


Note : Please Unused core wire not to be short-circuited.

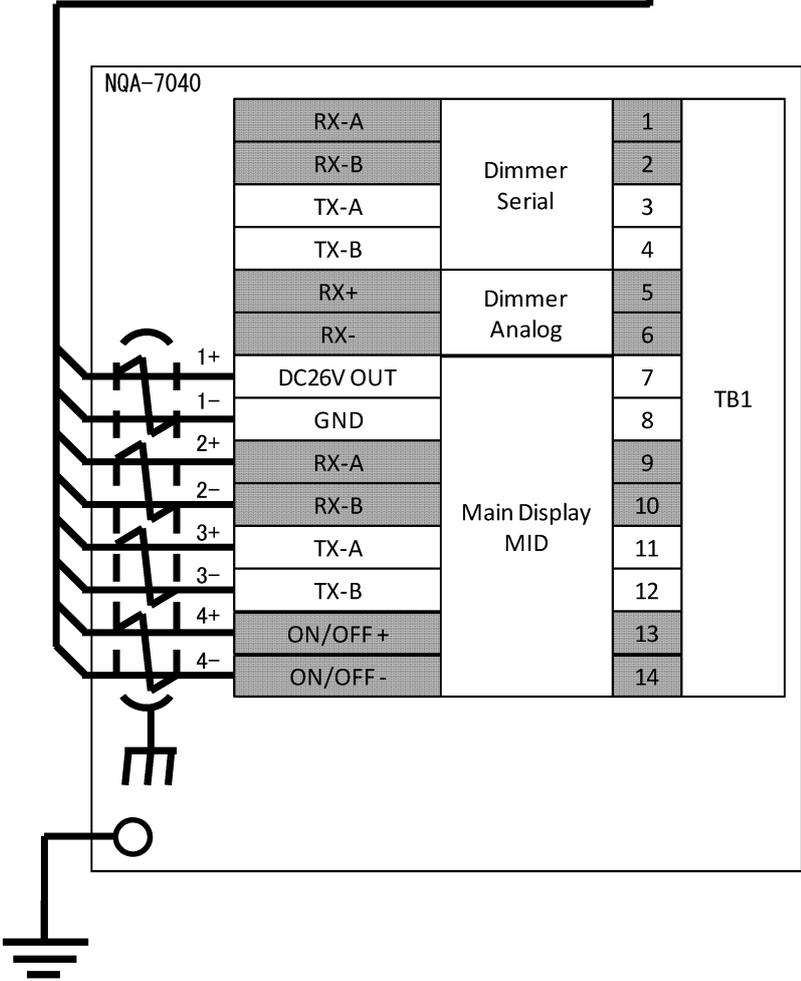
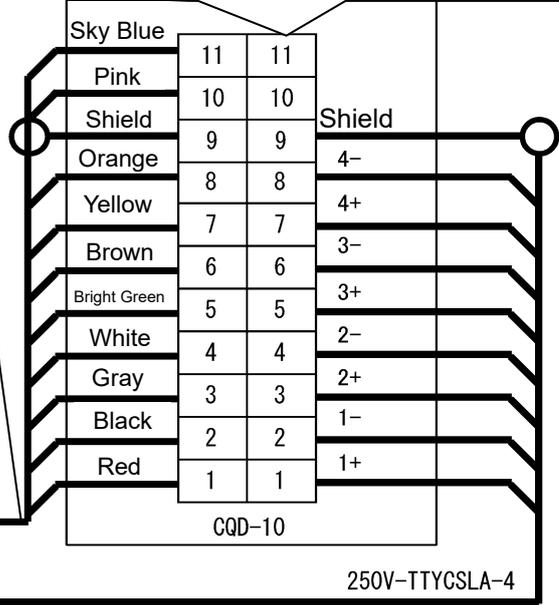
Connecting a junction box

Please crimped using the crimping tool for insulated with nylon round terminal (straight type) (N1.25-M3) to the Crimp terminals

Cut off the three cables that are used (green, blue, purple) at the base and wrap around each one with insulation tape to prevent any short-circuit.

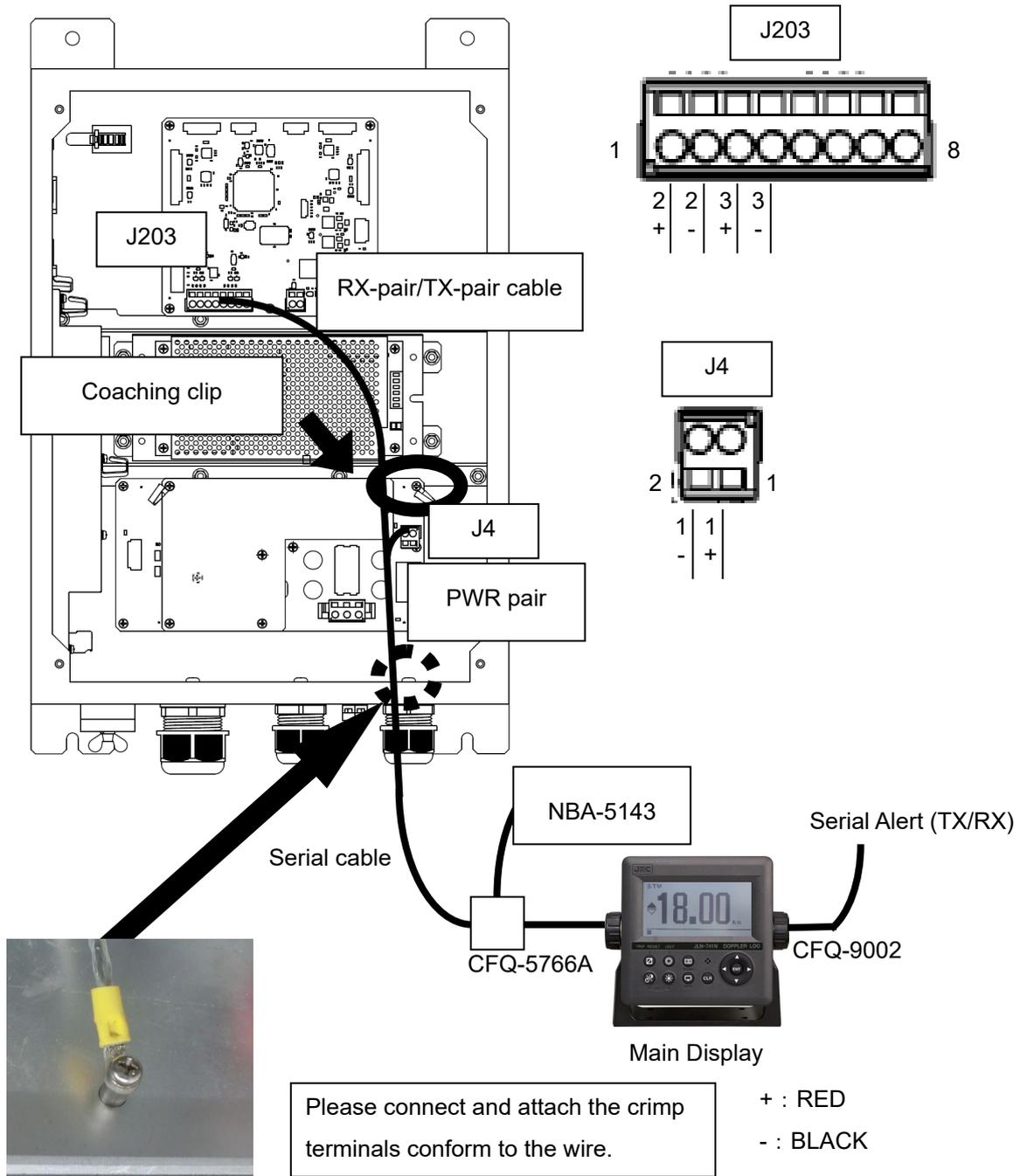


CFQ-5766A

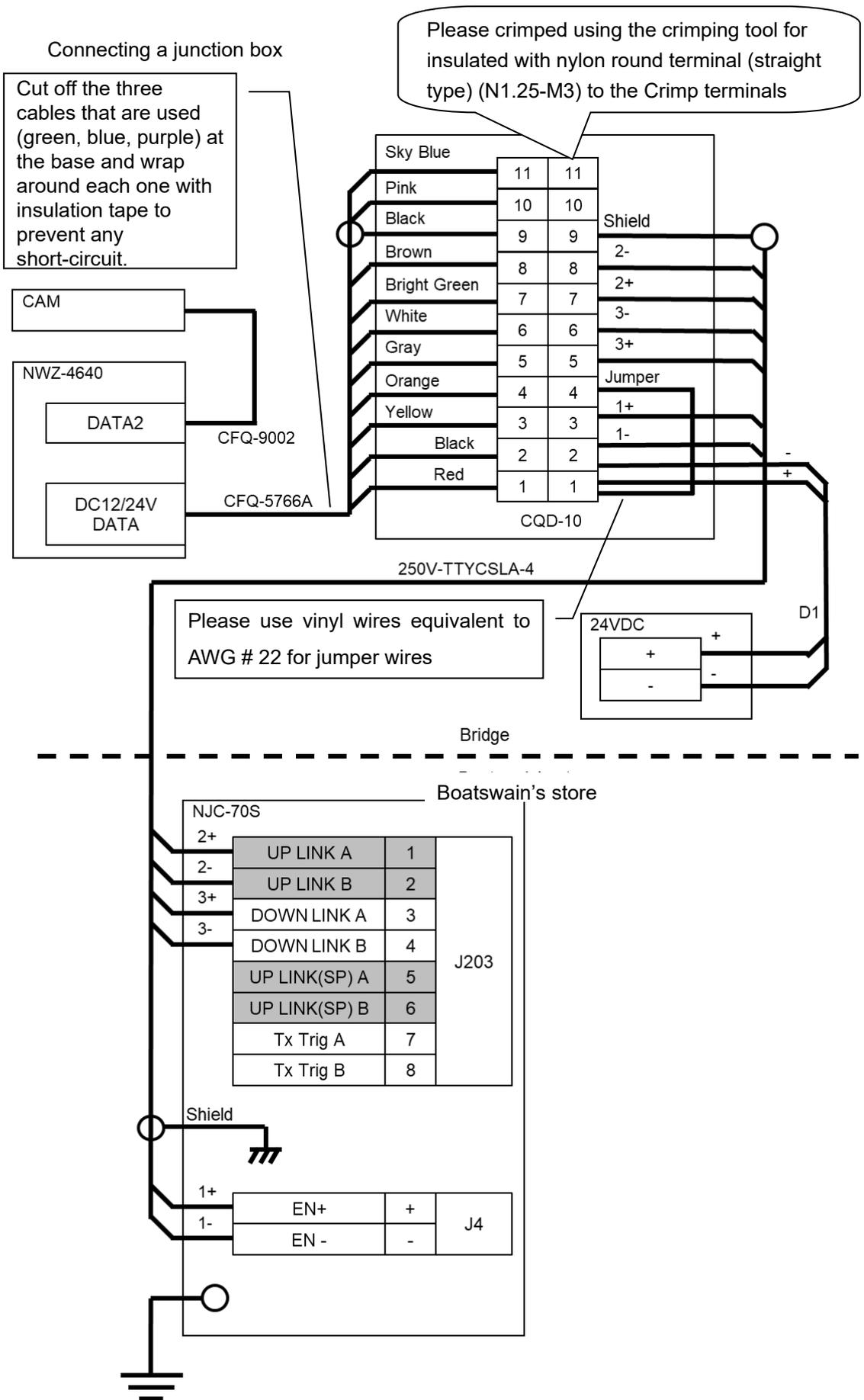


8.3.2. JLN-741N

- Connect to NJC-70S as shown below.
- Serial cable, using the coaching clip, please firmly fixed.  
Coached clip, please be fixed in order to suppress the stress to the cable and connectors.



Note : Please Unused core wire not to be short-circuited.



## 8.4. Mounting Guide

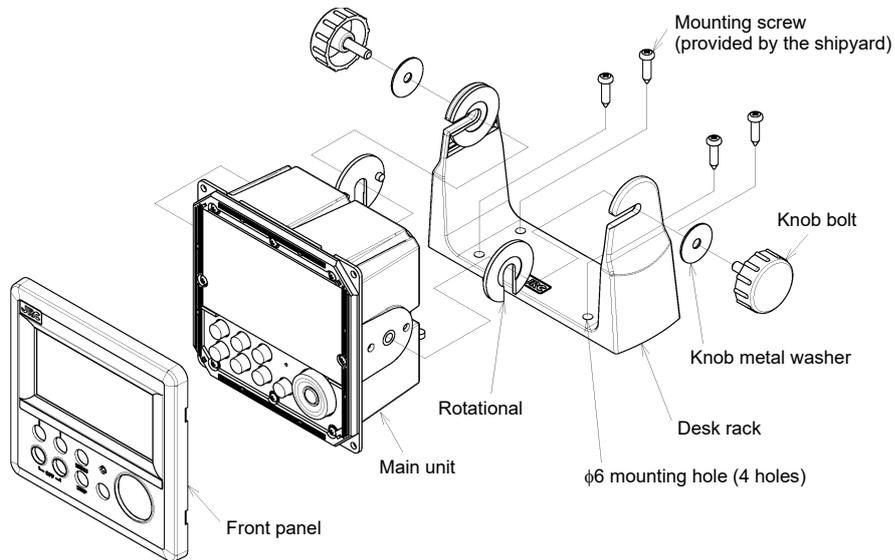
### Mounting Location

- Since the signal cable easily receives and generates noise, install the unit in a location where it hardly receives interference.

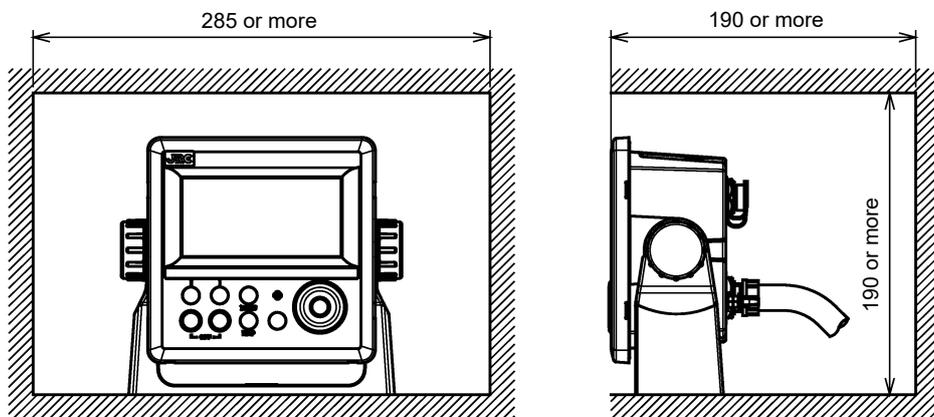
### Mounting Procedure

#### (1) Desktop (NWZ-4640)

- Fix the desktop rack at the required installation position by using screws (provided by the shipyard).
- Insert the front panel into the main unit.
- Attach the rotational washer on the side of the main unit. Attach the rotational washer on the side of the desktop rack.
- Assemble the main unit on the desktop rack, insert the knob metal washer between the desktop rack and the knob bolt, and fix the main unit by tightening the knob bolts.

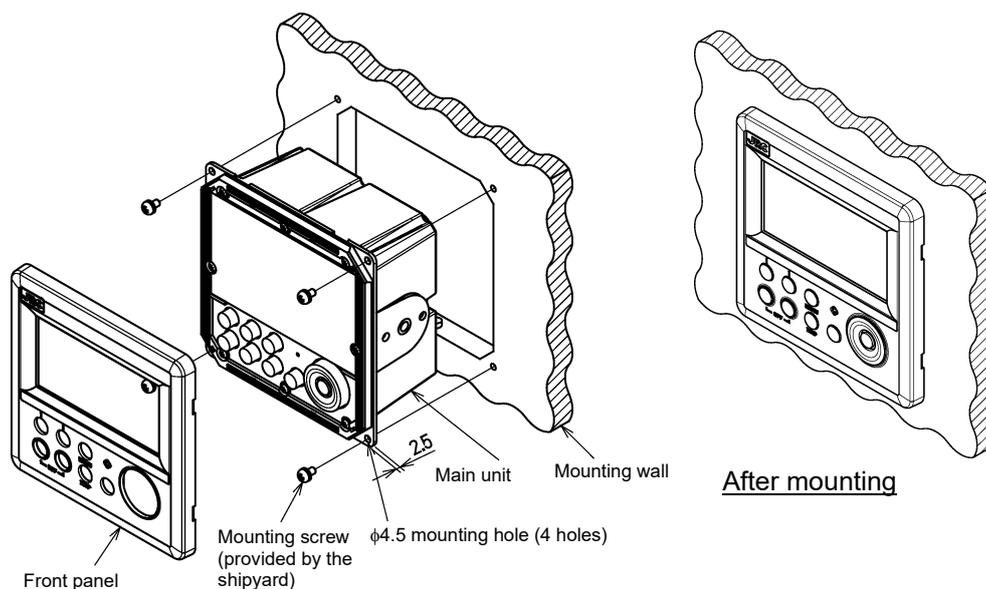


- Require the maintenance space.

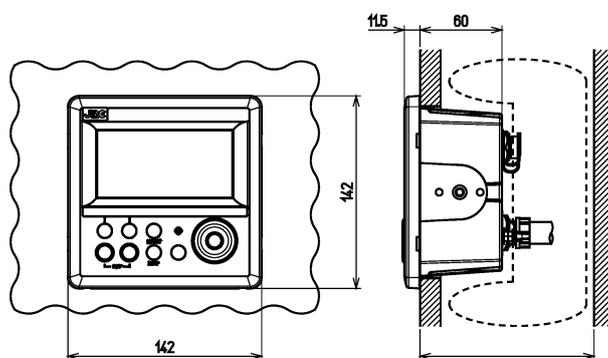


(2) Flush-mount (NWZ-4640)

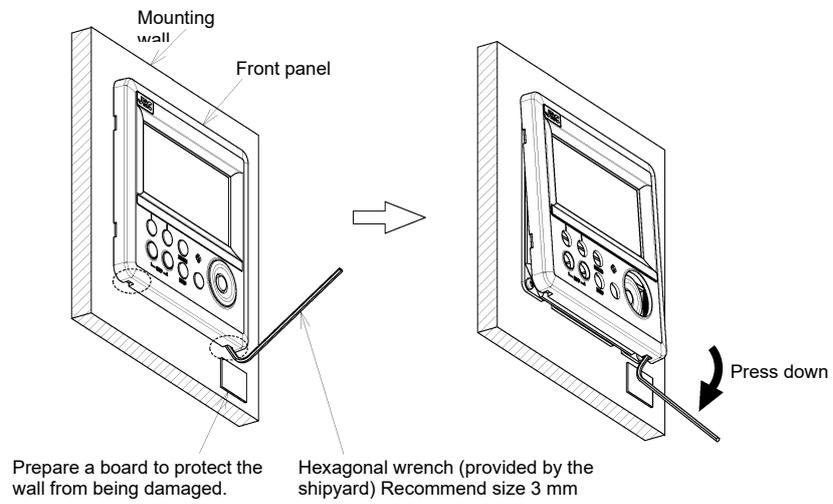
- Insert the main unit in the installation location. Fix the main unit using screws (provided by the shipyard). The sizes of the heads of the screws to be used are restricted as follows including the washers.
  - Diameter: Up to  $\phi 8$  mm, • Height: Up to 4.5 mm
- Insert the front panel into the main unit



- Require the maintenance space.

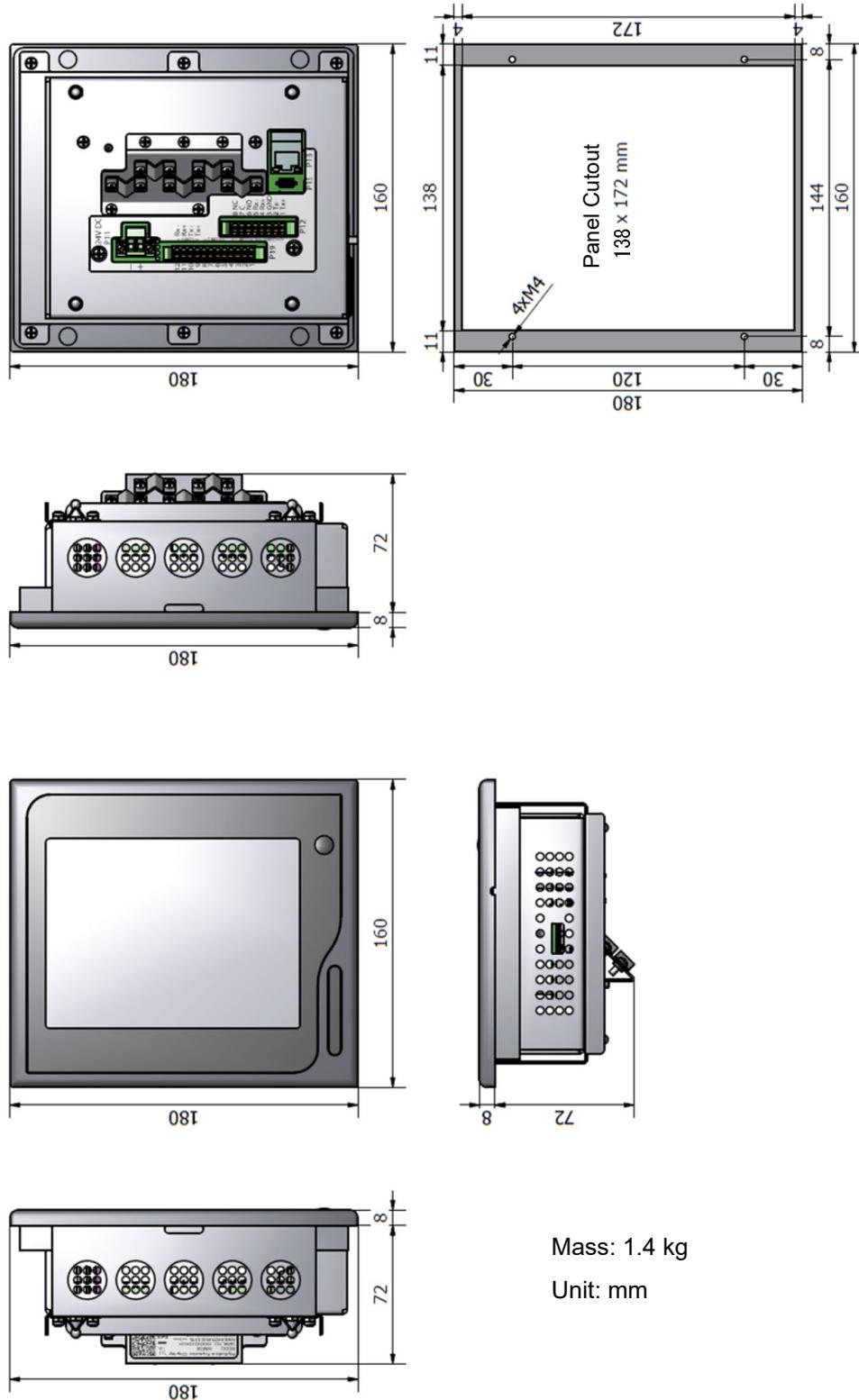


- To remove the flush mount, insert a hexagonal wrench into the holes (2 holes) at the bottom of the front panel and press down on the wrench to remove the panel.



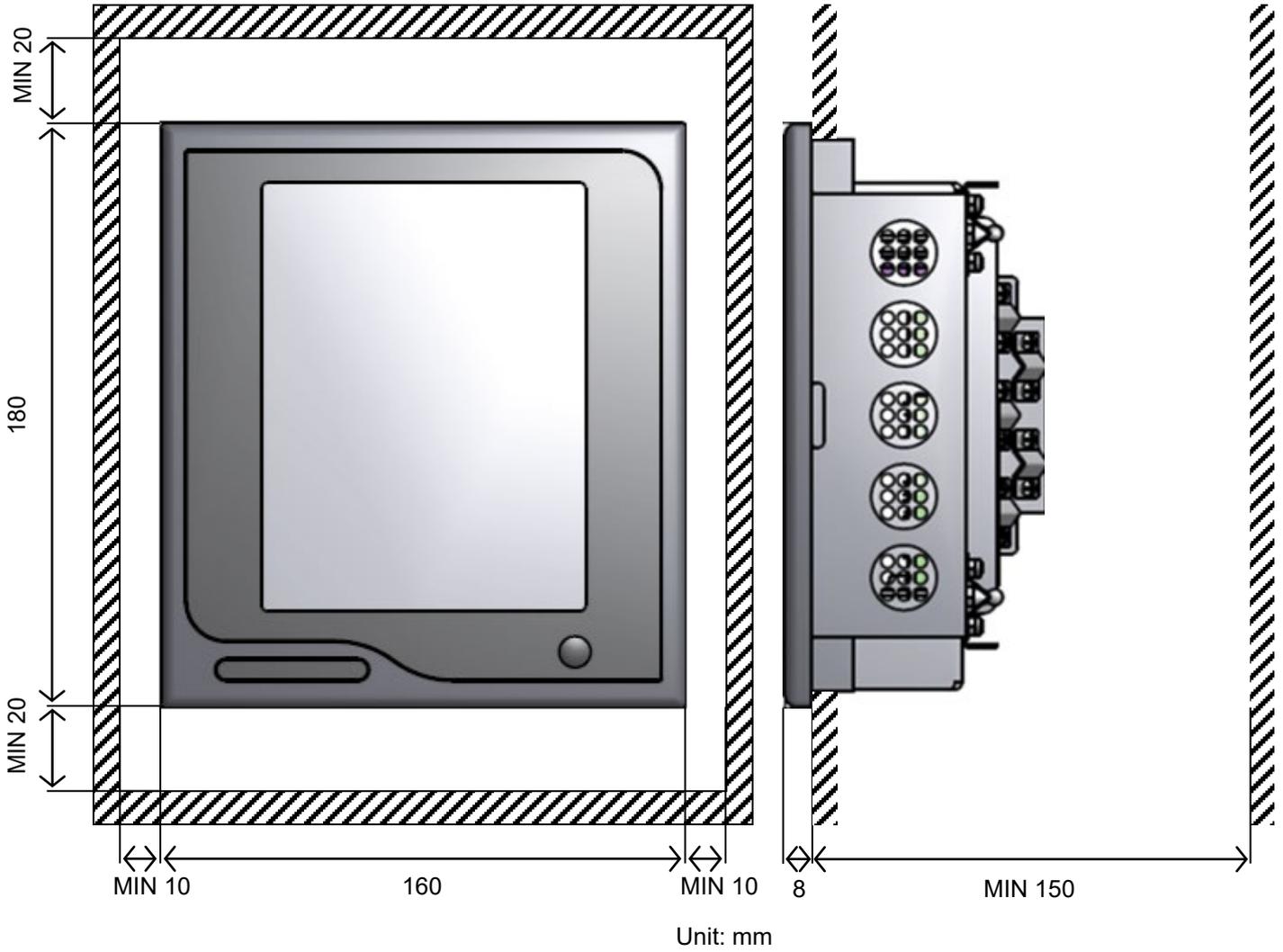
# 9. Installing of NWZ-650SDR

## 9.1. Installation Drawing



- Installation Drawing

Note : Install with the space indicated by the following drawing.



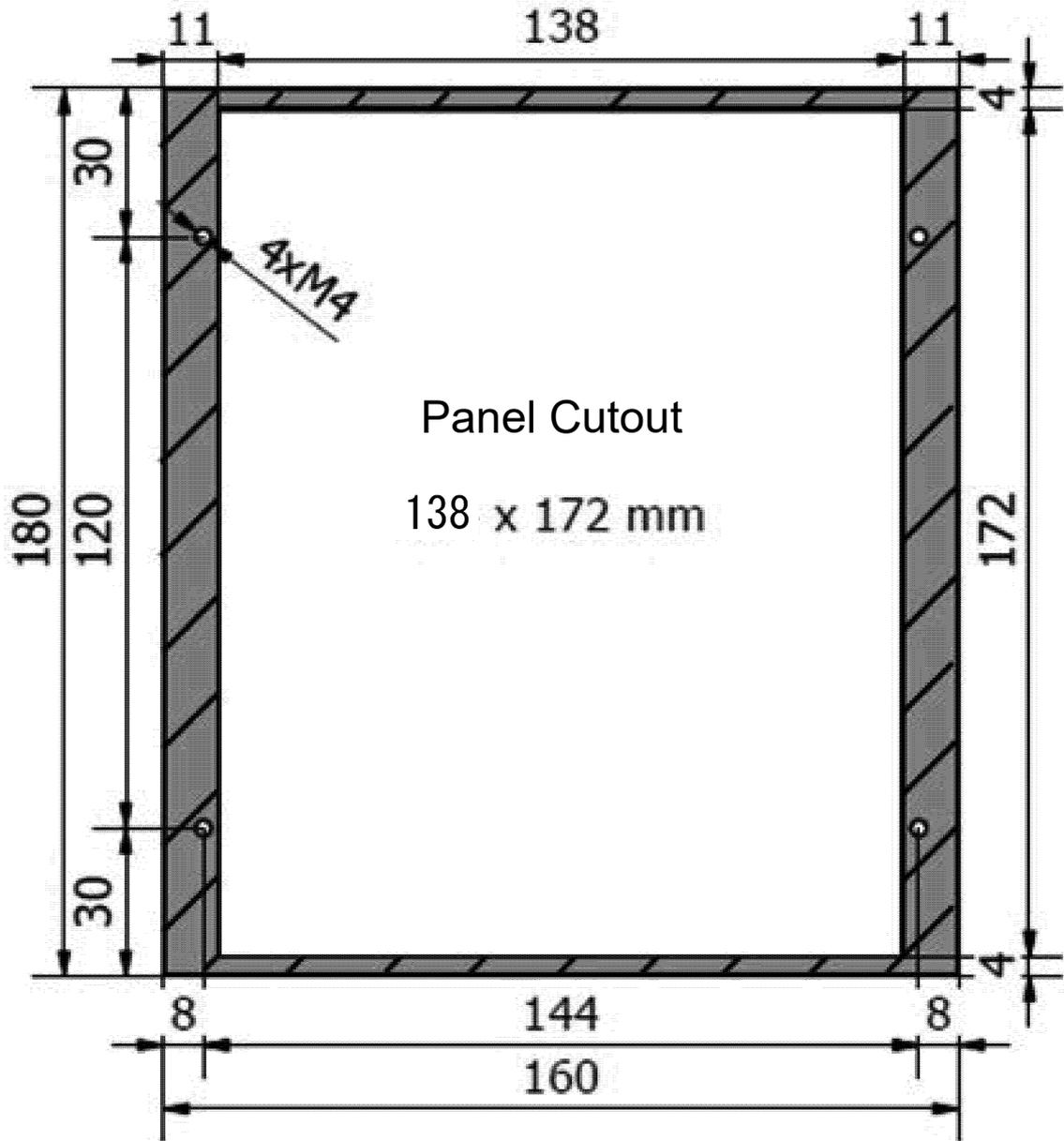
## 9.2. Installation Procedure

- Since the signal cable easily receives and generates noise, install the unit in a location where it hardly receives interference.

Do not install the unit on the coaxial cable side of DSB radio equipment or amateur radio equipment.

- Do not install the unit to a place directly exposed to the sunlight (excluding the Wing Display), the splash of waves, or hot air.

- 1) Cut out holes on the mounting location according to the panel cutout sizes given in the installation drawing.



- 2) Hold the attachment metal firmly with both hands and remove the attachment metal by pulling it.

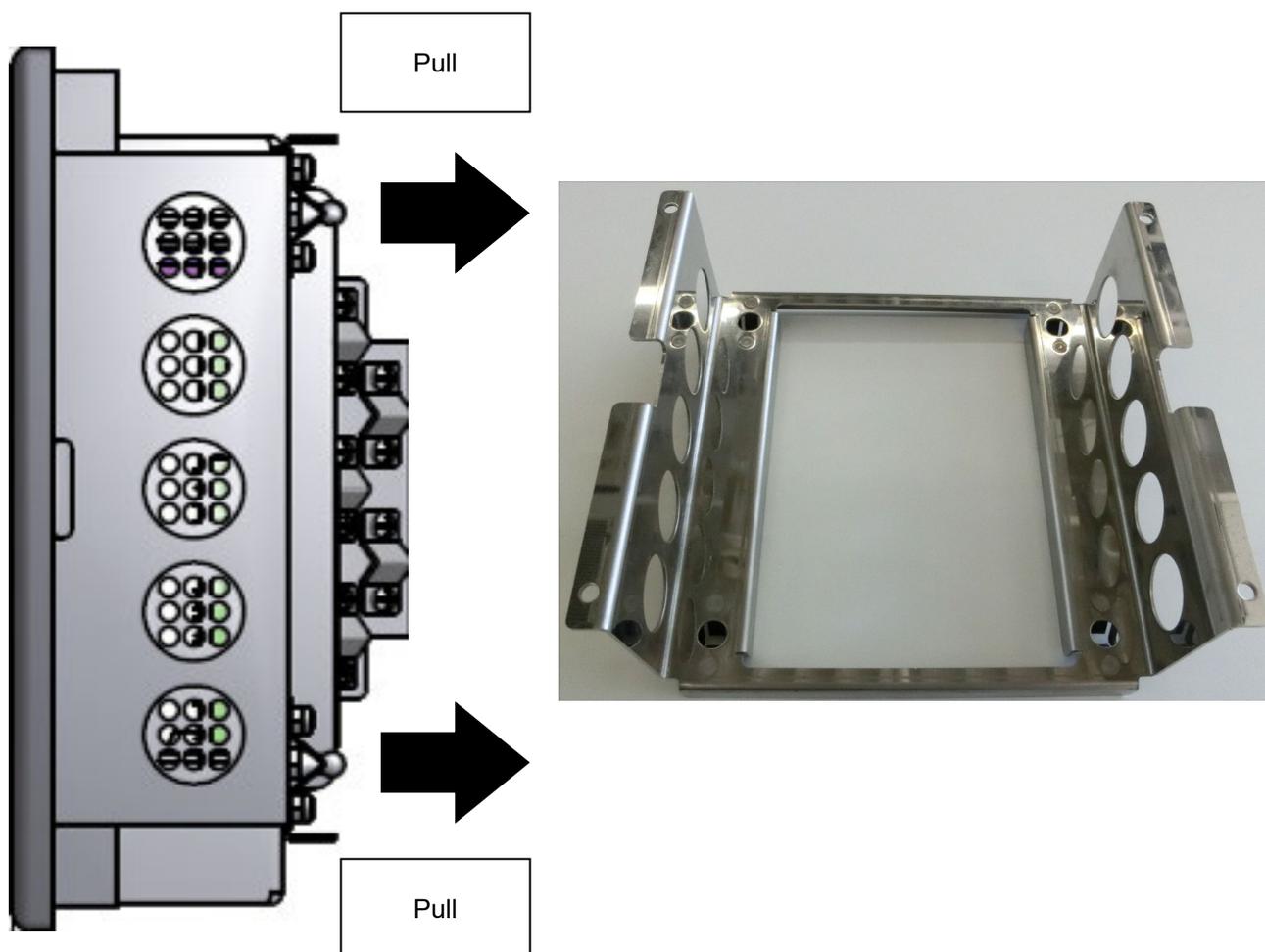
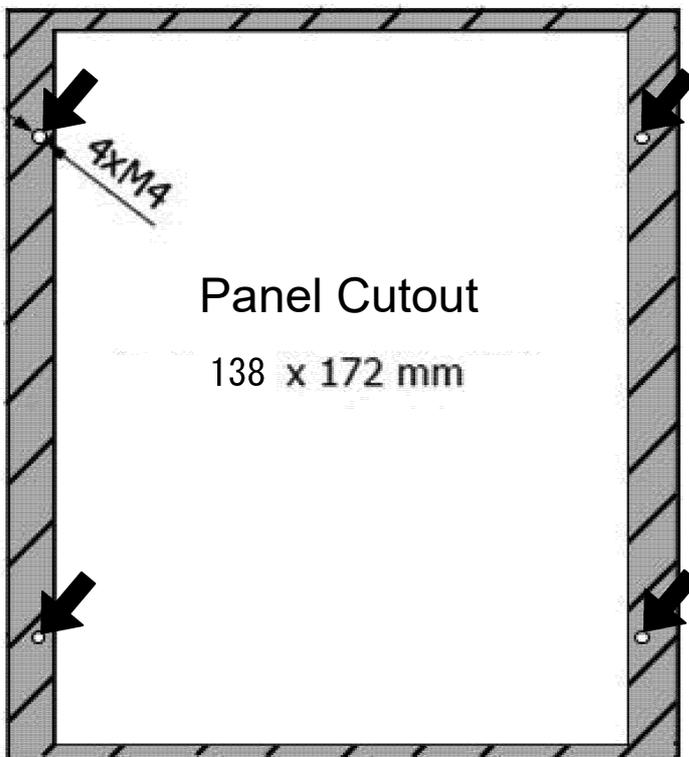


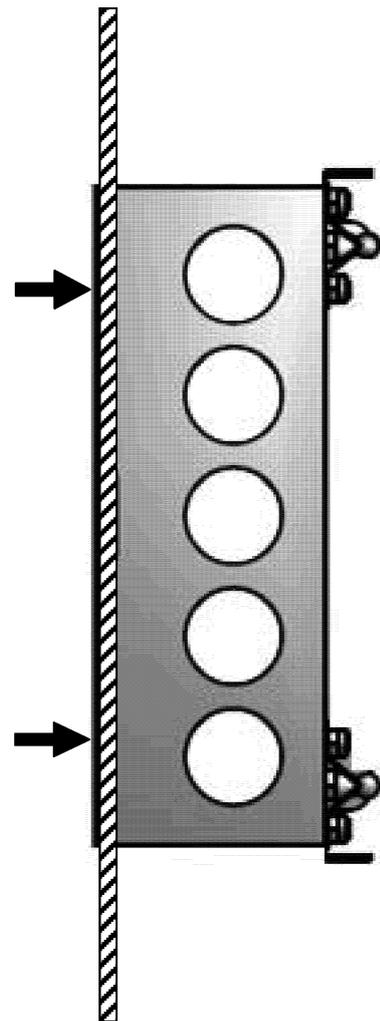
Figure 9.1 Attachment Metal

- 3) Fit the attachment metal into the mounting location and fix it to the mounting location by tightening the screws at the positions as marked with arrows in the following drawing.

Note : Be sure to draw the cables from the back side of the attachment metal.

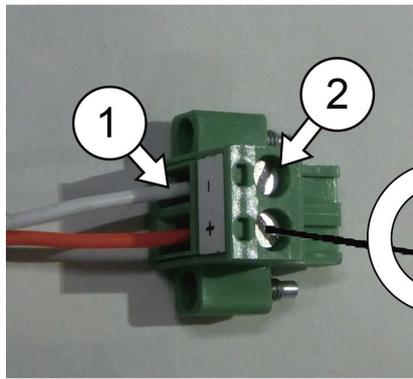


Front view



Side view

- 4) Insert the power supply cable part of the CFS-6680A into the holes ① of the connector and secure them firmly by tightening the screws ② with a flathead screwdriver having a thin top end.



\* The recommended flathead screwdriver is the one with a blade width of 3.5 × a blade thickness of 0.5 mm.

Figure 9.2 Attachment to the Connector

- 5) Insert the connector into P11, and secure it firmly by tightening the screws marked with arrows in the picture below with a flathead screwdriver having a thin top end.

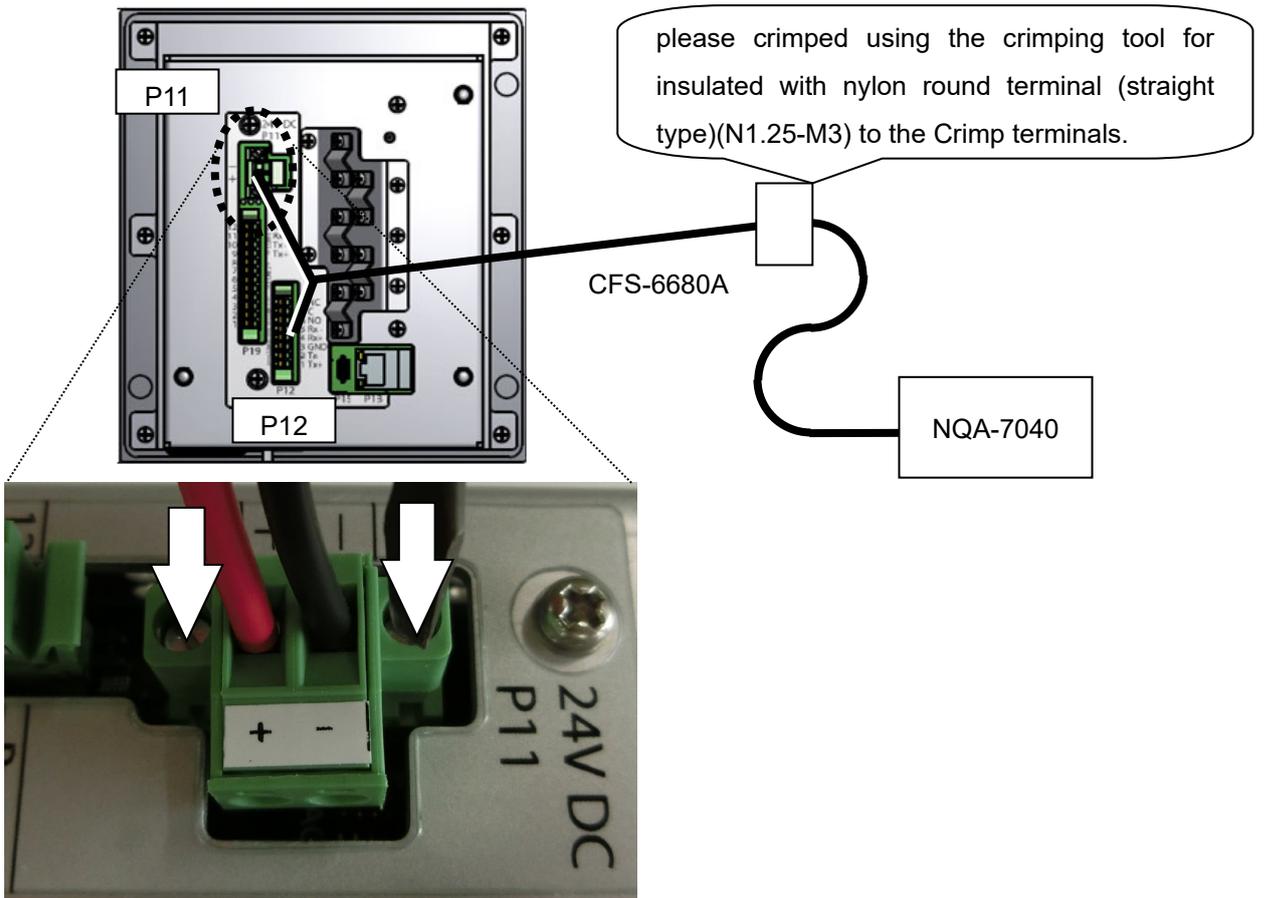
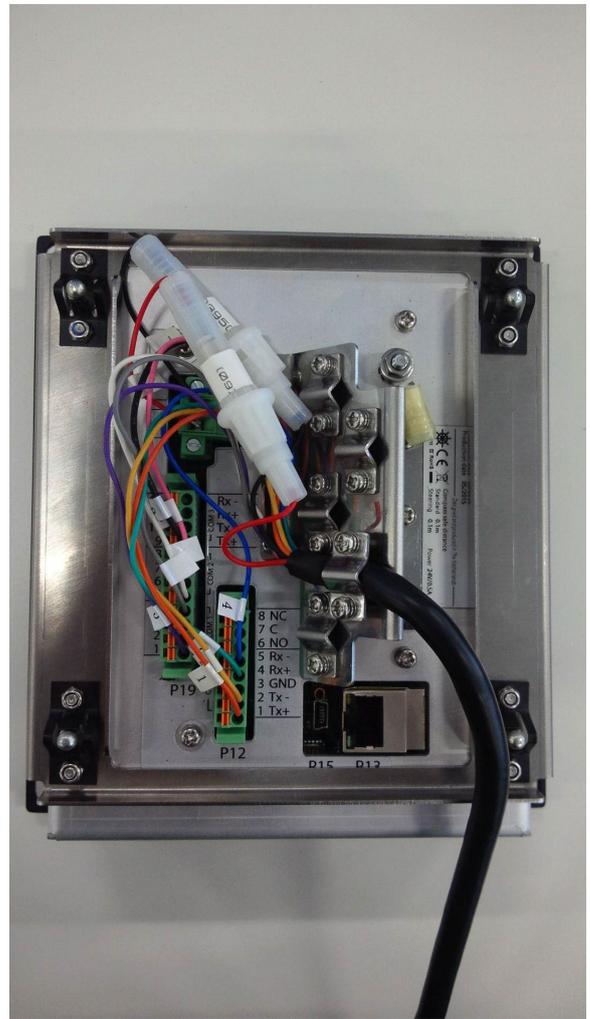


Figure 9.3 Attachment of the Power Cable

- For wiring, refer to the figure below.

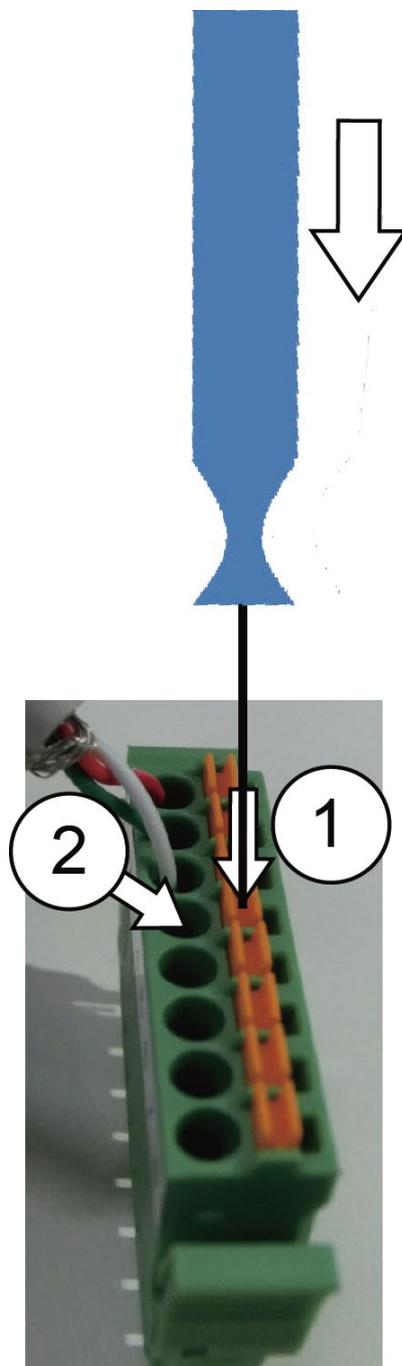


Cable Depth

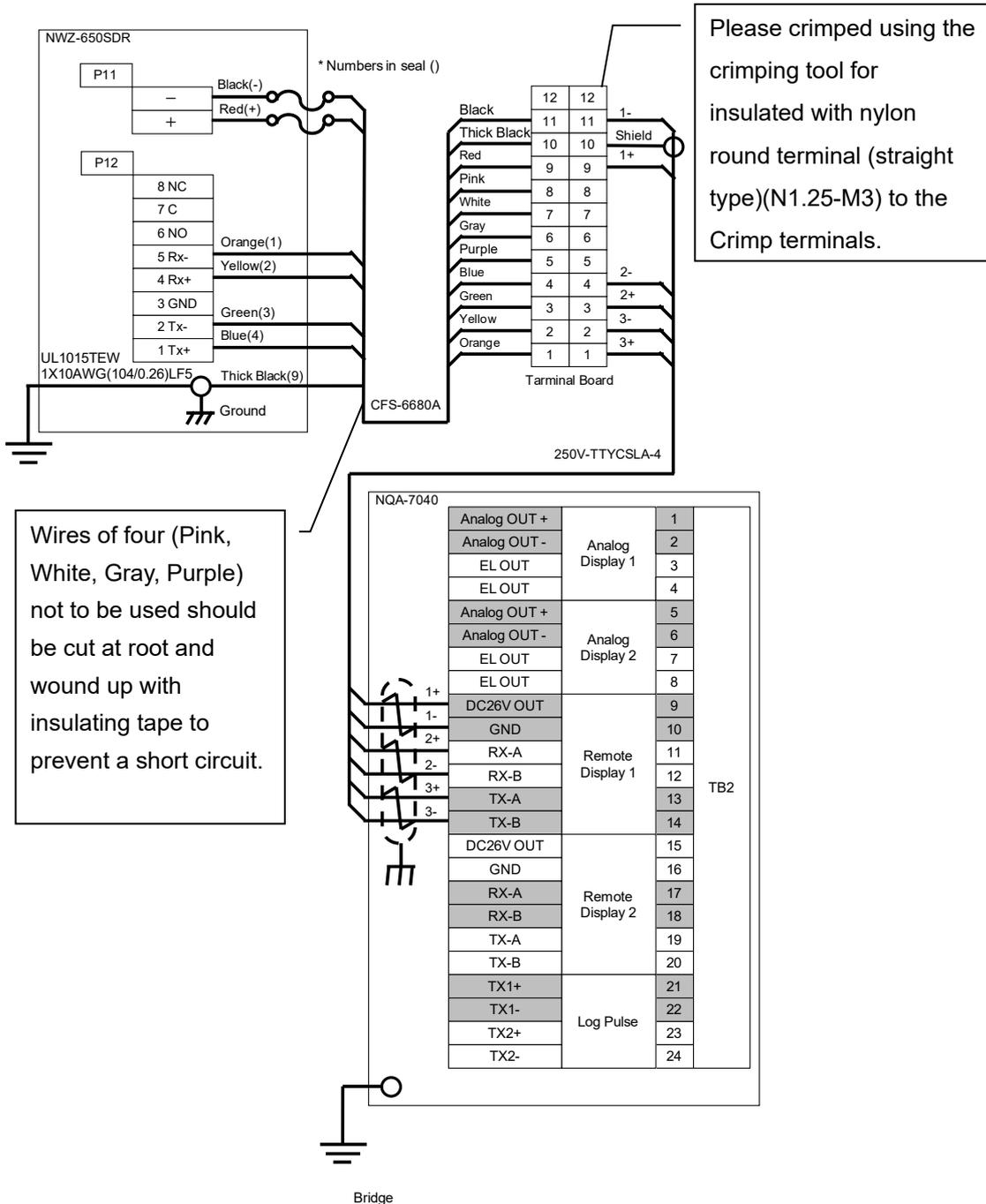


Rear

- 6) Push the orange ledge of ① by tightening the screws, plug the cable into the hole of ②.

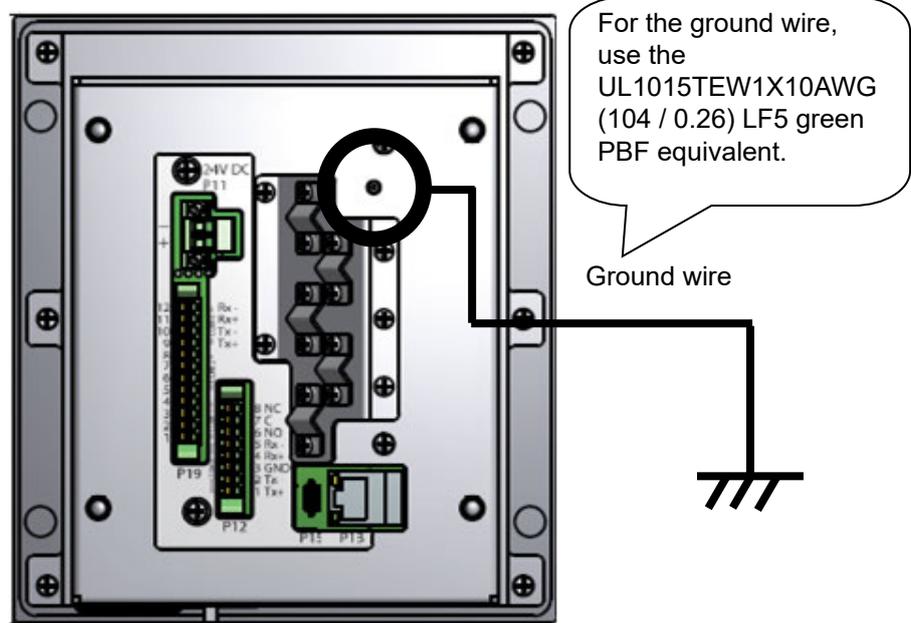


- 7) Plug the signal cable portion of the CFS-6680A to the serial port P12. The figure below is connection example.

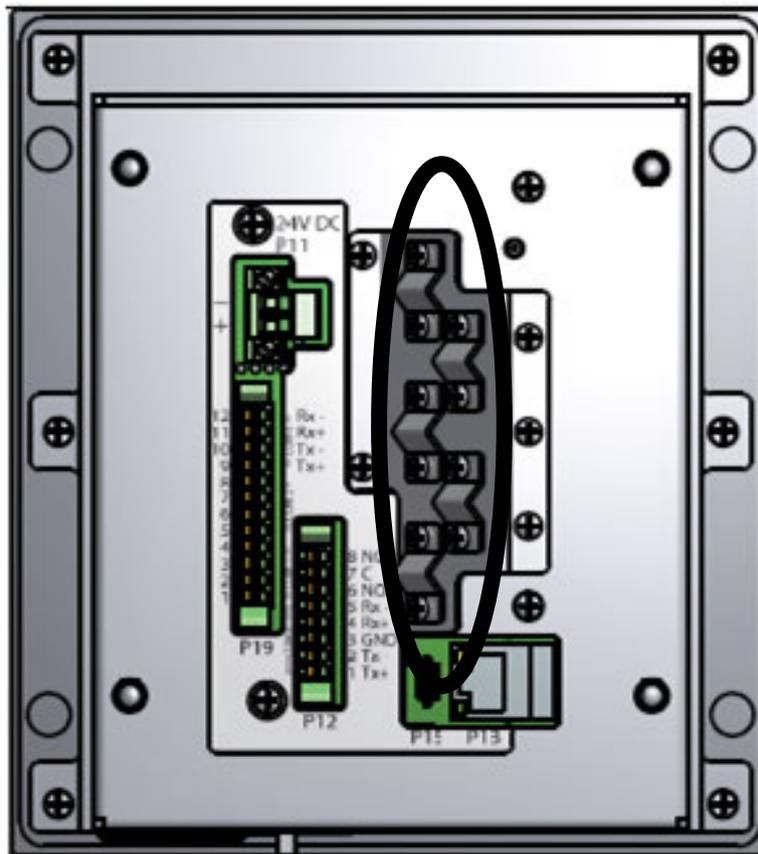


**CAUTION** During installation, the maintenance PC tool must be used to change the remote display connection setting. Since the remote display port "Remote Display 1" or "Remote Display 2" must be selected during change, be sure to take note of the port number to which the remote display is connected and change the connection setting correctly.

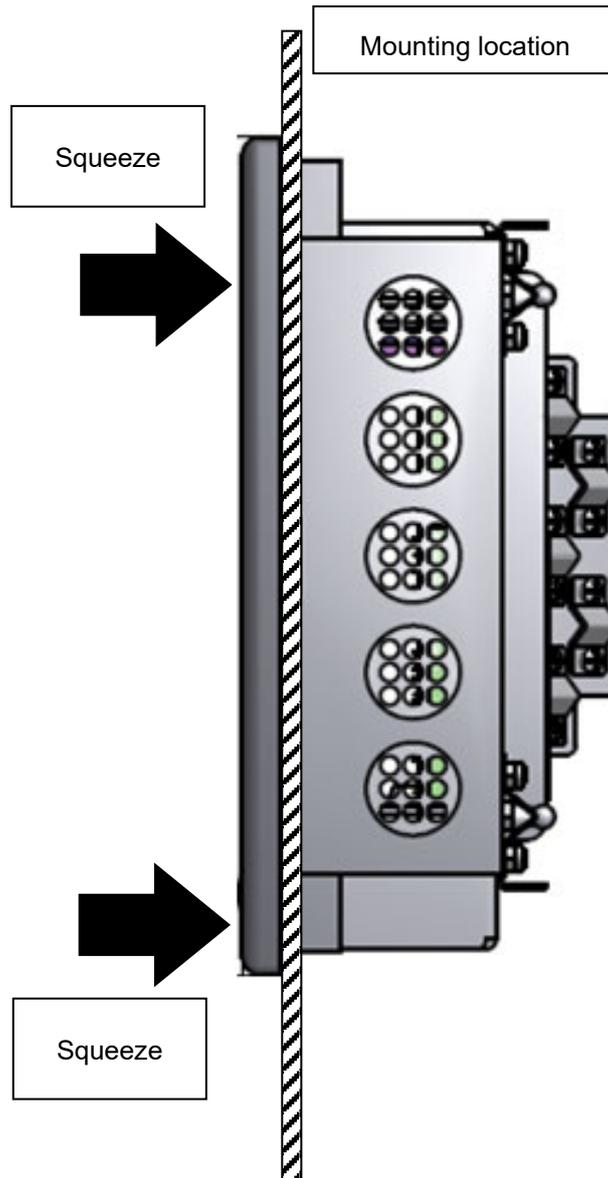
- 8) Connect the ground wire.



- 9) After wiring, adjust the cables so that excessive tension is not applied to them. Then secure the cables with the cable attachment metal.



- 10) Install the main display into the attachment metal.  
Confirm that the mounting location and the display have no gap and are fit together with a clicking noise.



- NWZ-650SDR replacement procedure

- 1) Insert a hexagonal wrench into the hole (1 hole) at the bottom of the NWZ-650SDR.



Bottom side hole

- 2) Press down on the hexagonal wrench and remove the NWZ-650SDR.



Hexagonal wrench  
Recommended  
size: 3 mm

Prepare a sheet to protect the wall  
from being scratched.

- 3) Hold the lower part of the front panel firmly with both hands and pull the NWZ-510SDW toward you to remove it from the attachment metal.

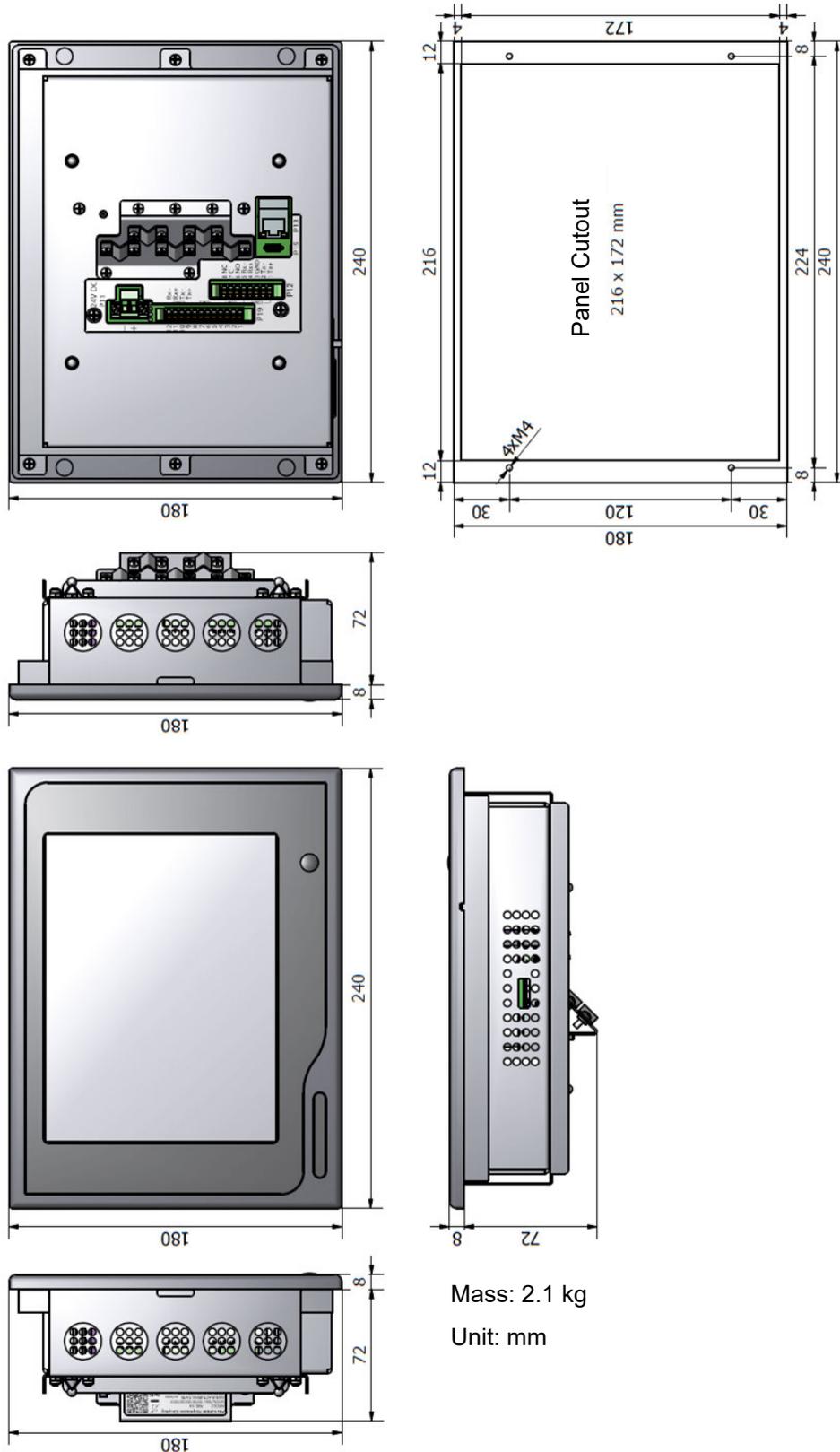


- 4) Remove the cable.

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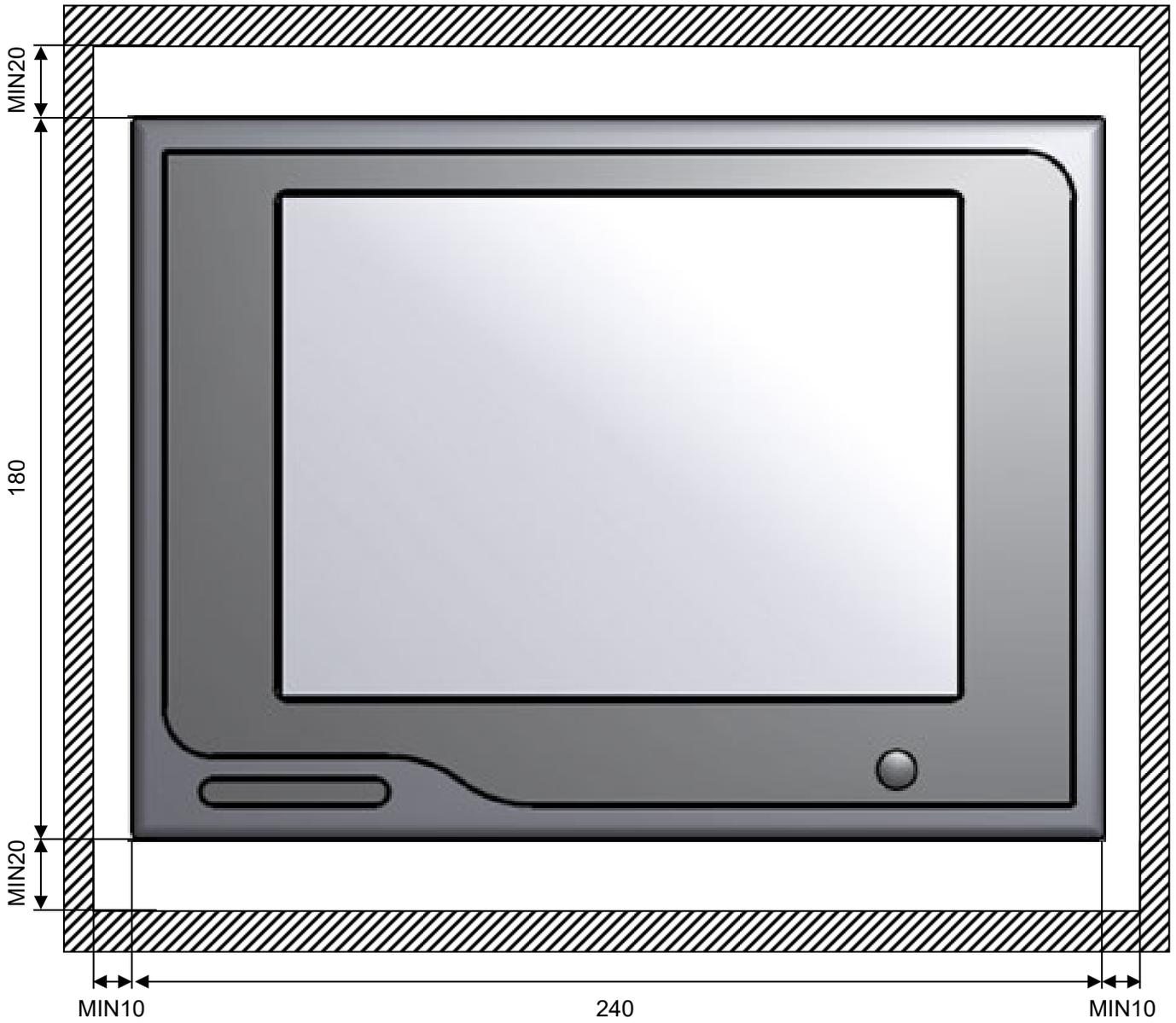
# 10. Installing of NWZ-840SDR

## 10.1. Installation Drawing



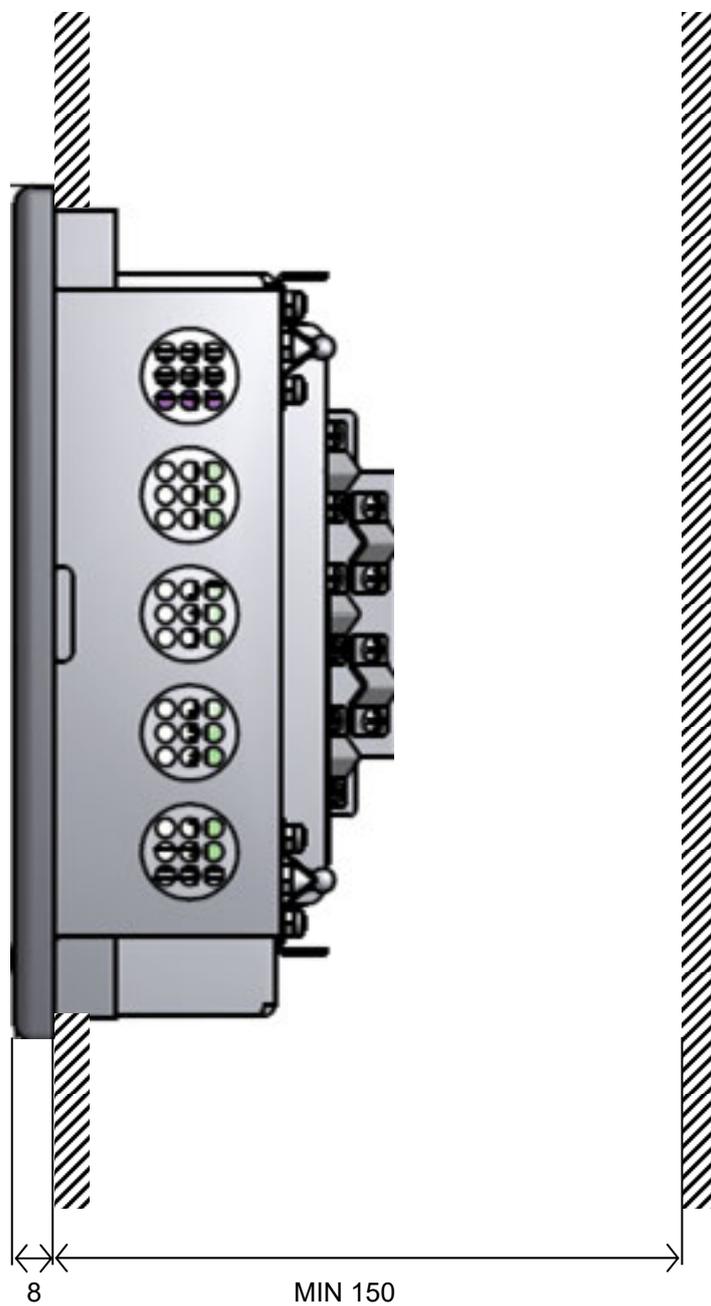
- Installation Drawing

Note : Install with the space indicated by the following drawing.



Unit: mm

Note : Install with the space indicated by the following drawing.



Unit: mm

## 10.2. Installation Procedure

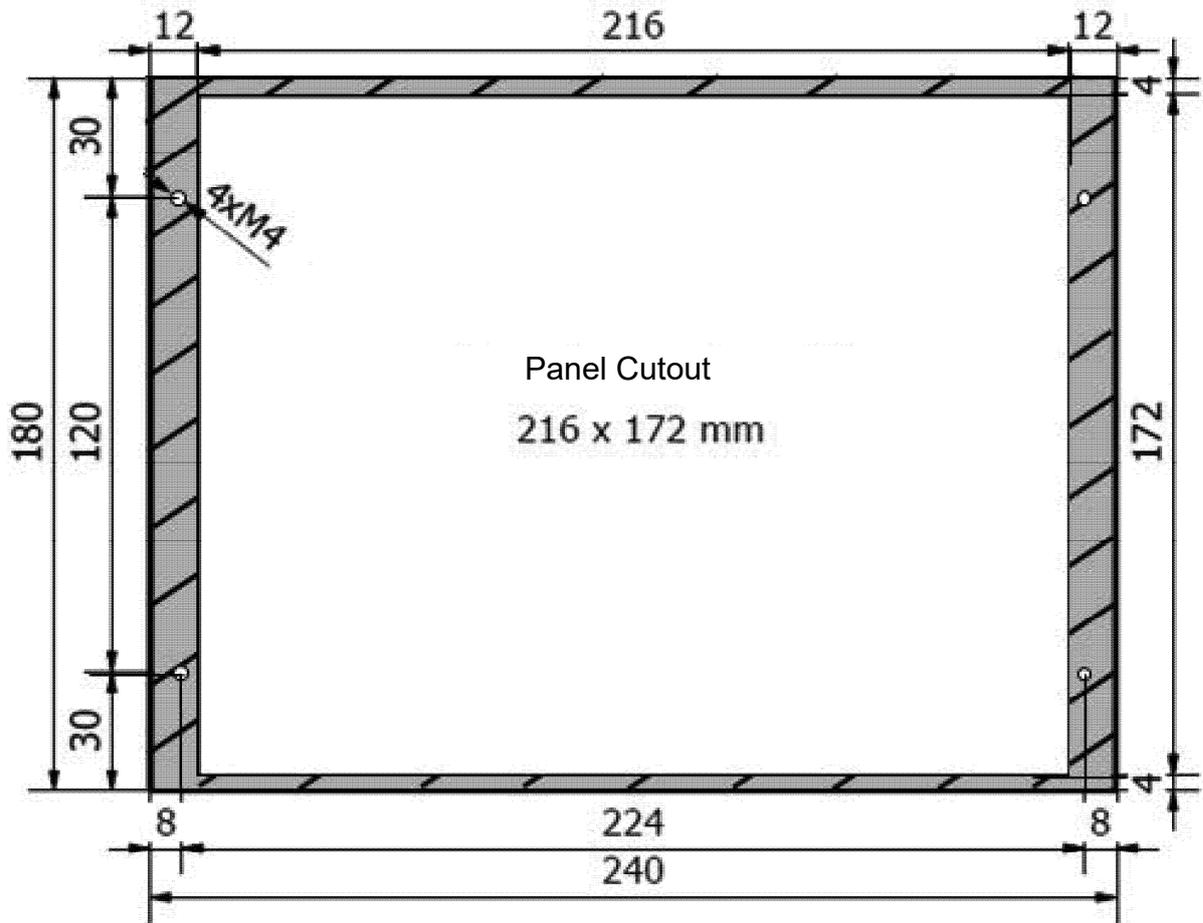
- Since the signal cable easily receives and generates noise, install the unit in a location where it hardly receives interference.

Do not install the unit on the coaxial cable side of DSB radio equipment or amateur radio equipment.

- Do not install the unit to a place directly exposed to the sunlight (excluding the Wing Display), the splash of waves, or hot air.
- The maximum brightness levels differ between WZ-650SDR and NWZ-840SDR.

It is recommended to install not NWZ-840SDR but NWZ-650SD for the location that requires a high brightness level such as a place exposed to the natural light.

- 1) Cut out holes on the mounting location according to the panel cutout sizes given in the installation drawing.



- 2) Hold the attachment metal firmly with both hands and remove the attachment metal by pulling it.

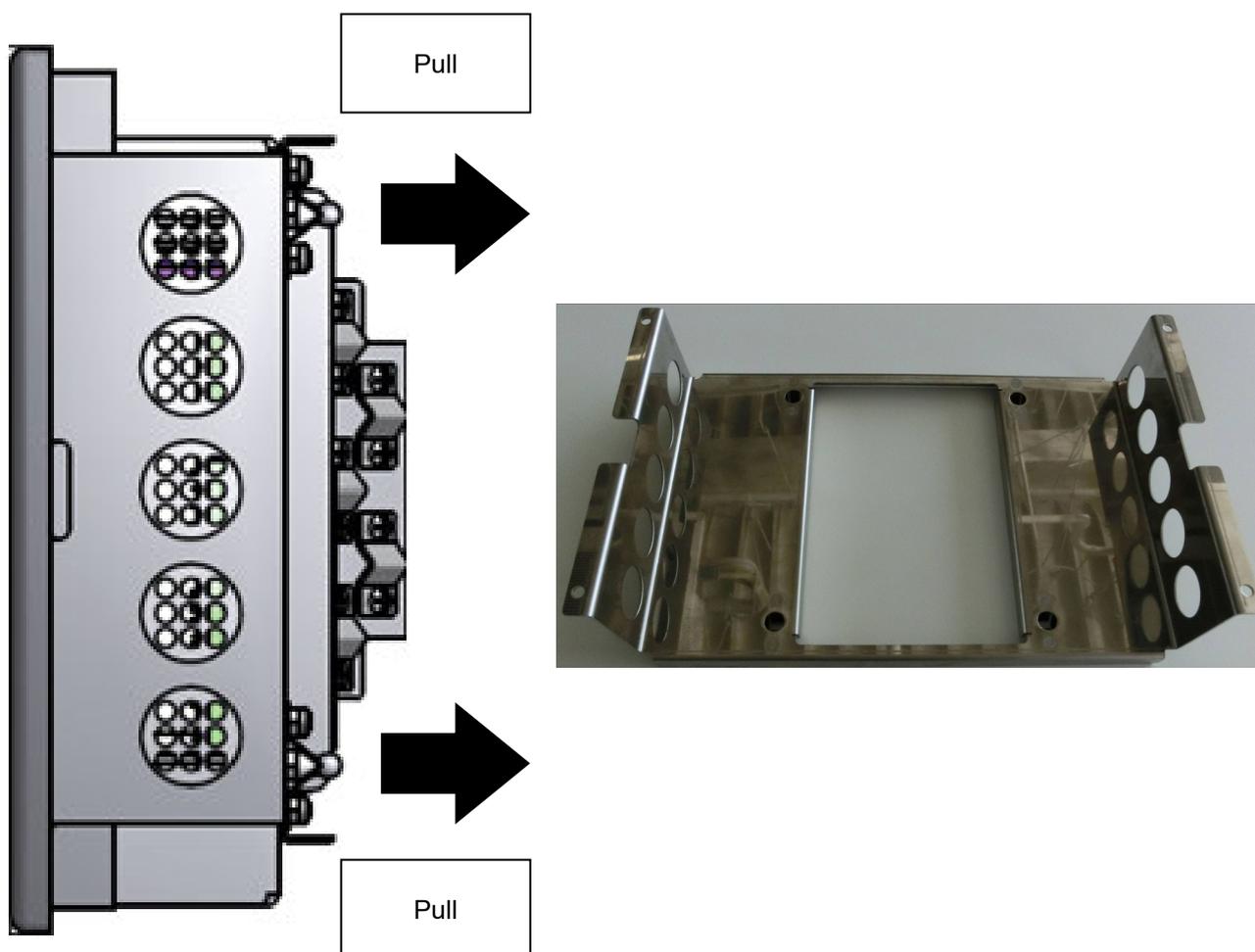
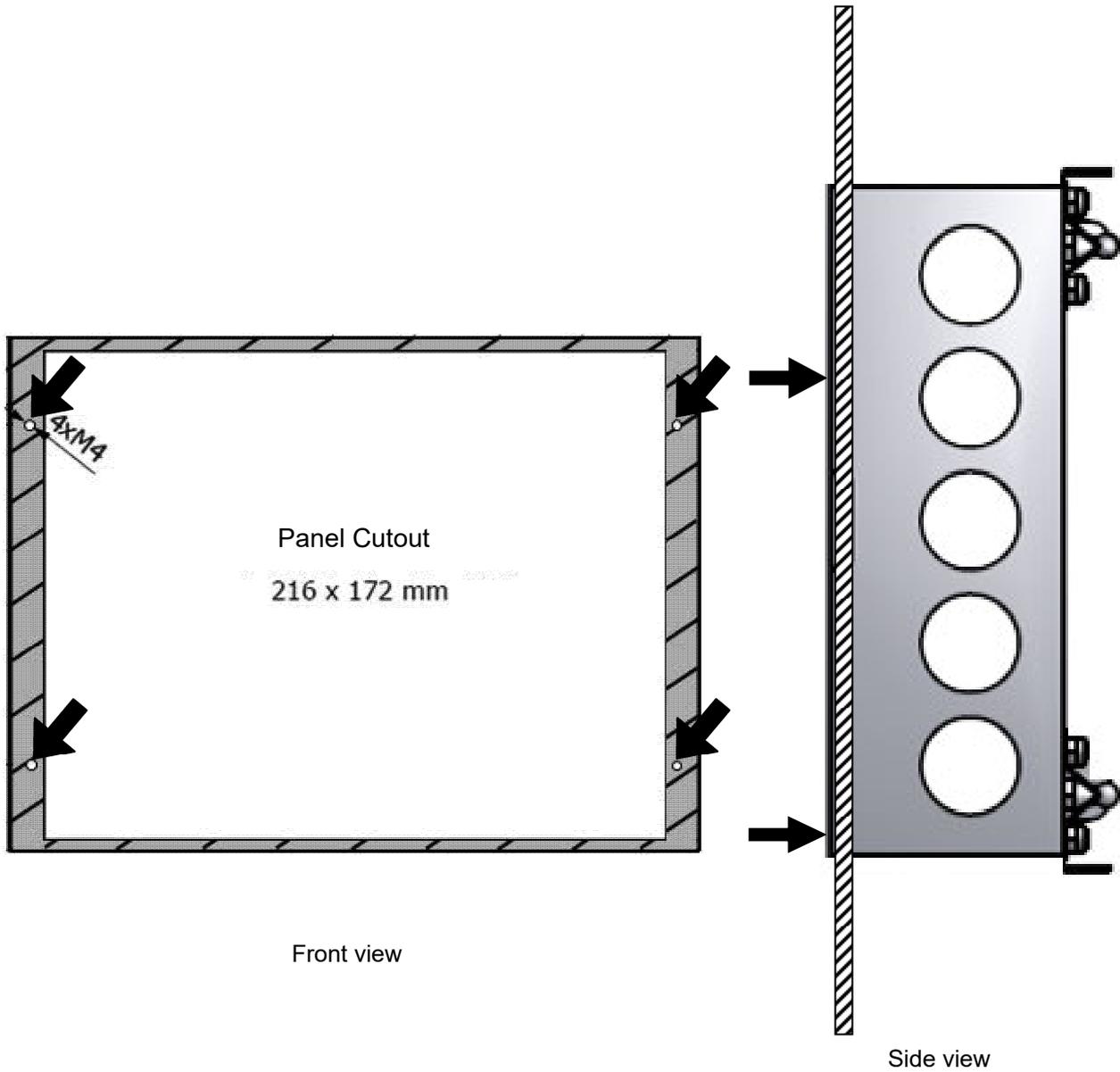


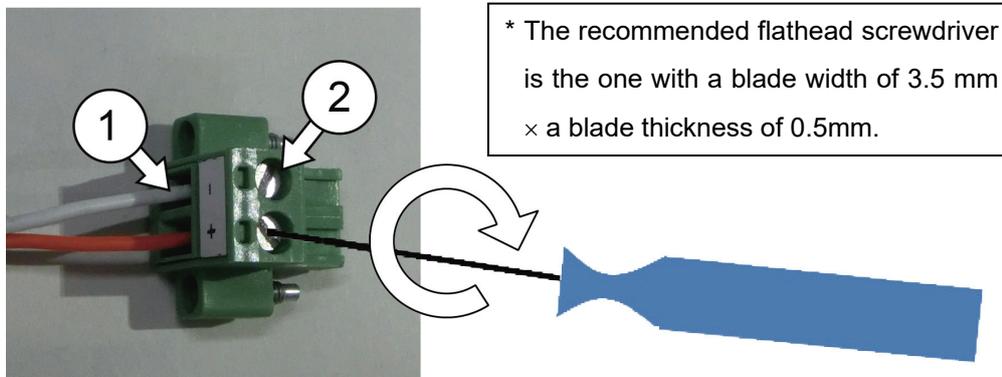
Figure 10.1 Attachment Metal

- 3) Fit the attachment metal into the mounting location and fix it to the mounting location by tightening the screws at the positions as marked with arrows in the following drawing.

Note : Be sure to draw the cables from the back side of the attachment metal.



- 4) Insert the power supply cable part of the CFS-6680A into the holes ① of the connector and secure them firmly by tightening the screws ② with a flathead screwdriver having a thin top end.



\* The recommended flathead screwdriver is the one with a blade width of 3.5 mm × a blade thickness of 0.5mm.

Figure 10.2 Attachment to the Connector

- 5) Insert the connector into P11, and secure it firmly by tightening the screws marked with arrows in the picture below with a flathead screwdriver having a thin top end.

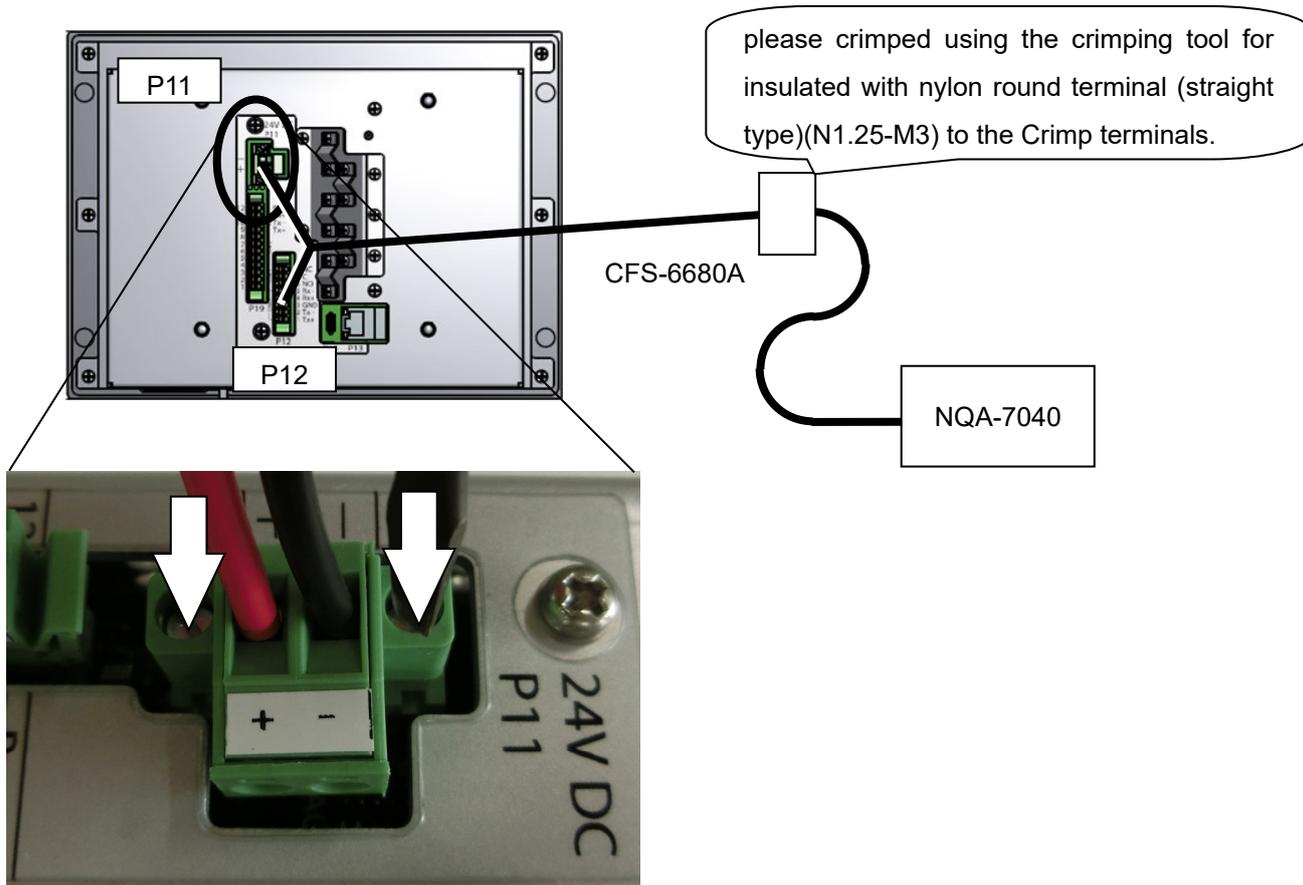


Figure 10.3 Attachment of the Power Cable

- For wiring, refer to the figure below.

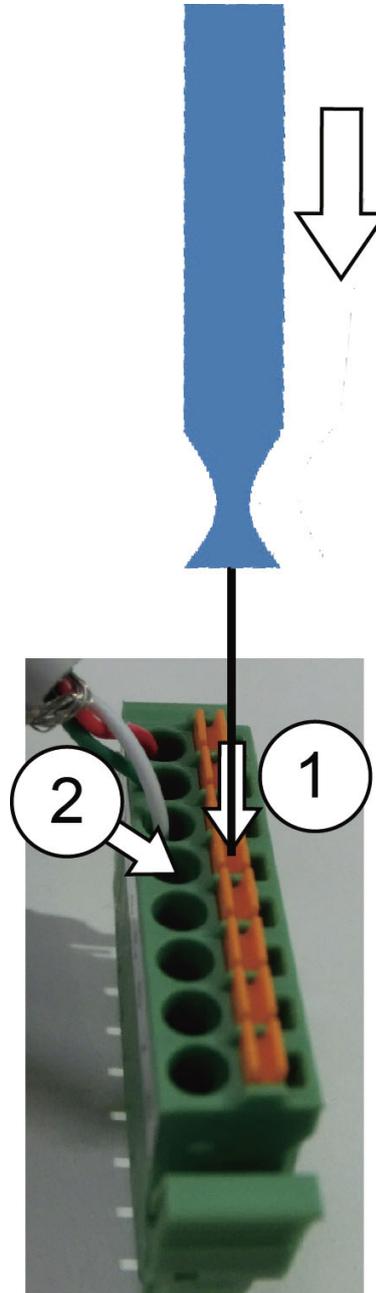


Cable Depth

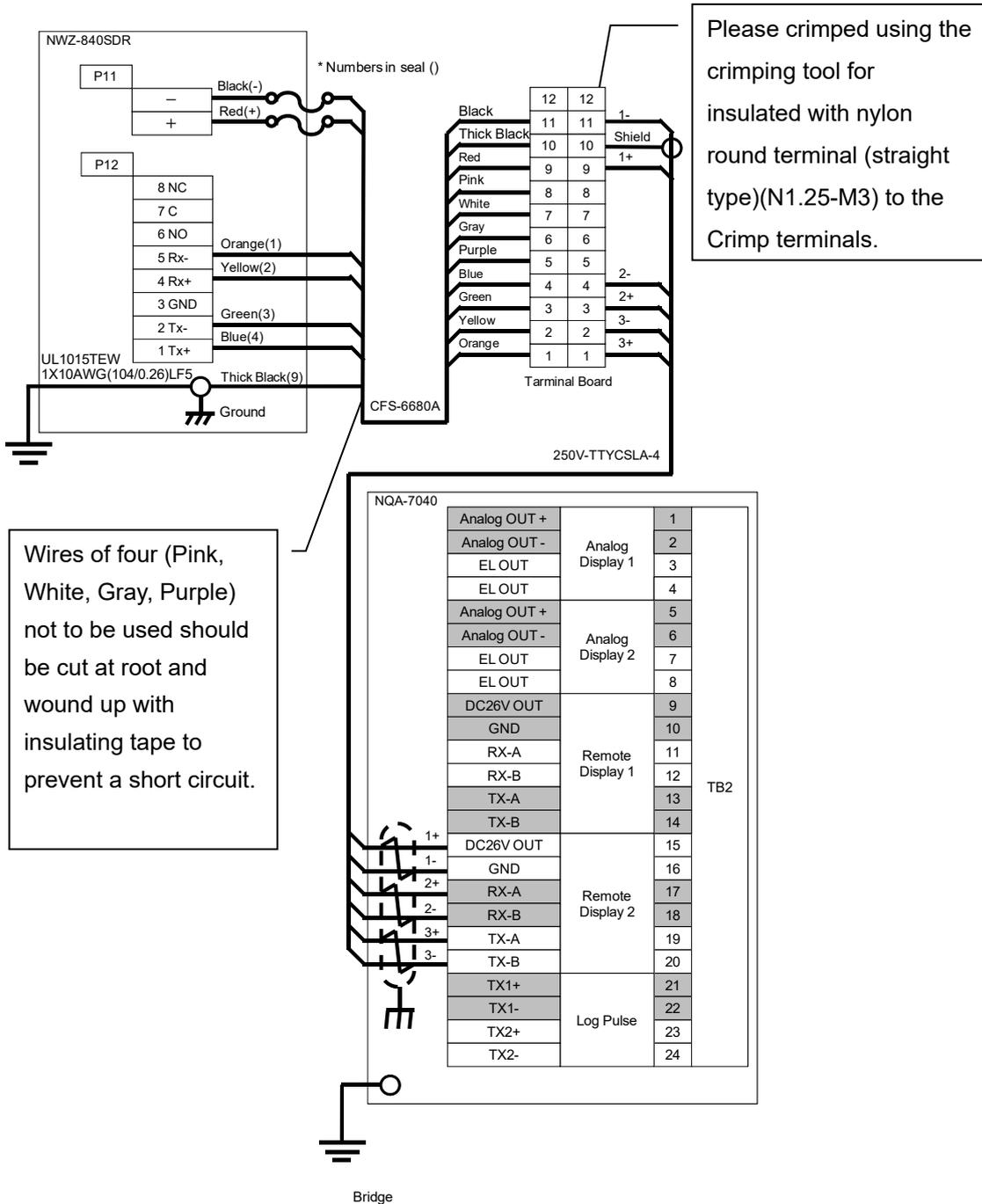


Rear

- 6) Push the orange ledge of ① by tightening the screws, plug the cable into the hole of ②.



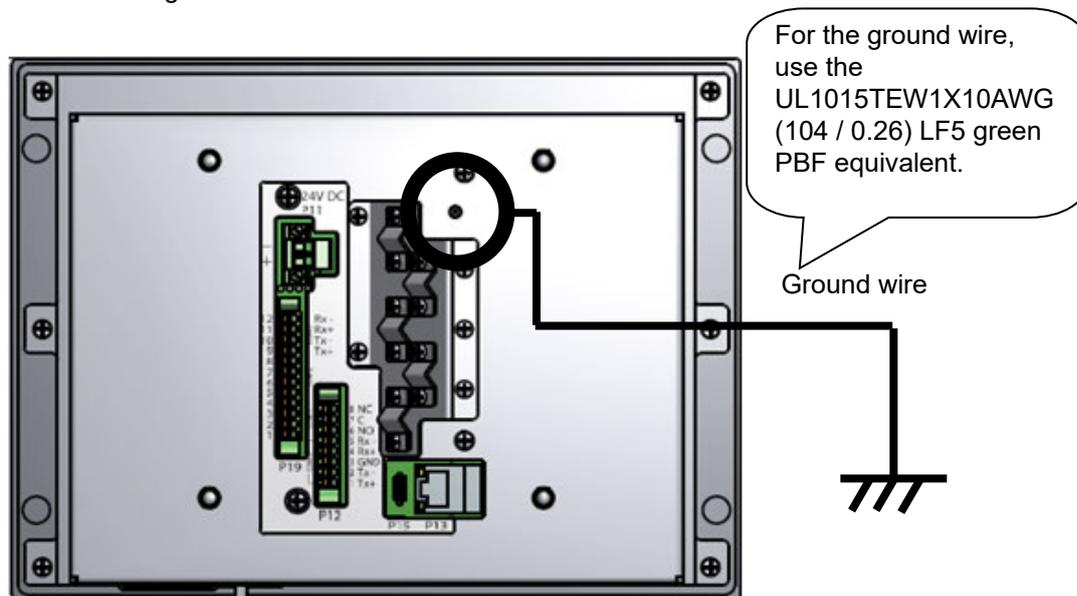
- 7) Plug the signal cable portion of the CFS-6680A to the serial port P12. The figure below is connection example.



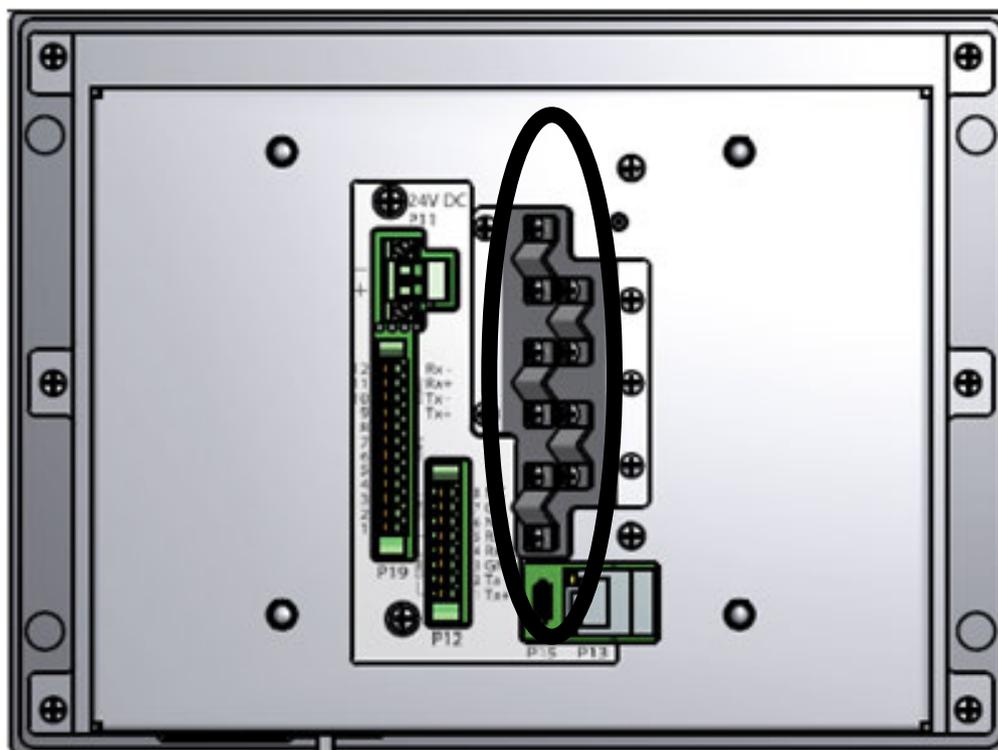
**CAUTION**

During installation, the maintenance PC tool must be used to change the remote display connection setting. Since the remote display port "Remote Display 1" or "Remote Display 2" must be selected during change, be sure to take note of the port number to which the remote display is connected and change the connection setting correctly.

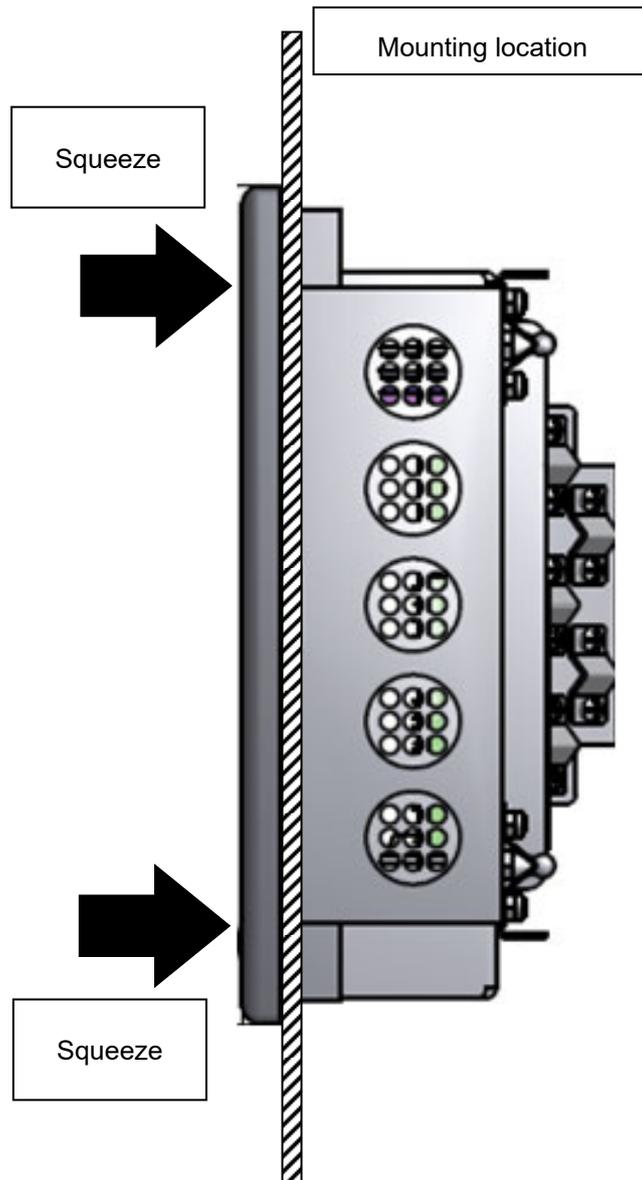
- 8) Connect the ground wire.



- 9) After wiring, adjust the cables so that excessive tension is not applied to them. Then secure the cables with the cable attachment metal.



- 10) Install the main display into the attachment metal.  
Confirm that the mounting location and the display have no gap and are fit together with a clicking noise.



- NWZ-840SDR replacement procedure

- 1) Insert a hexagonal wrench into the hole (1 hole) at the bottom of the NWZ-840SDR.



Bottom side hole

- 2) Press down on the hexagonal wrench and remove the NWZ-650SDR.



Hexagonal wrench  
Recommended  
size: 3 mm

Prepare a sheet to protect the wall  
from being scratched.

- 3) Hold the lower part of the front panel firmly with both hands and pull the NWZ-650SDW toward you to remove it from the attachment metal.

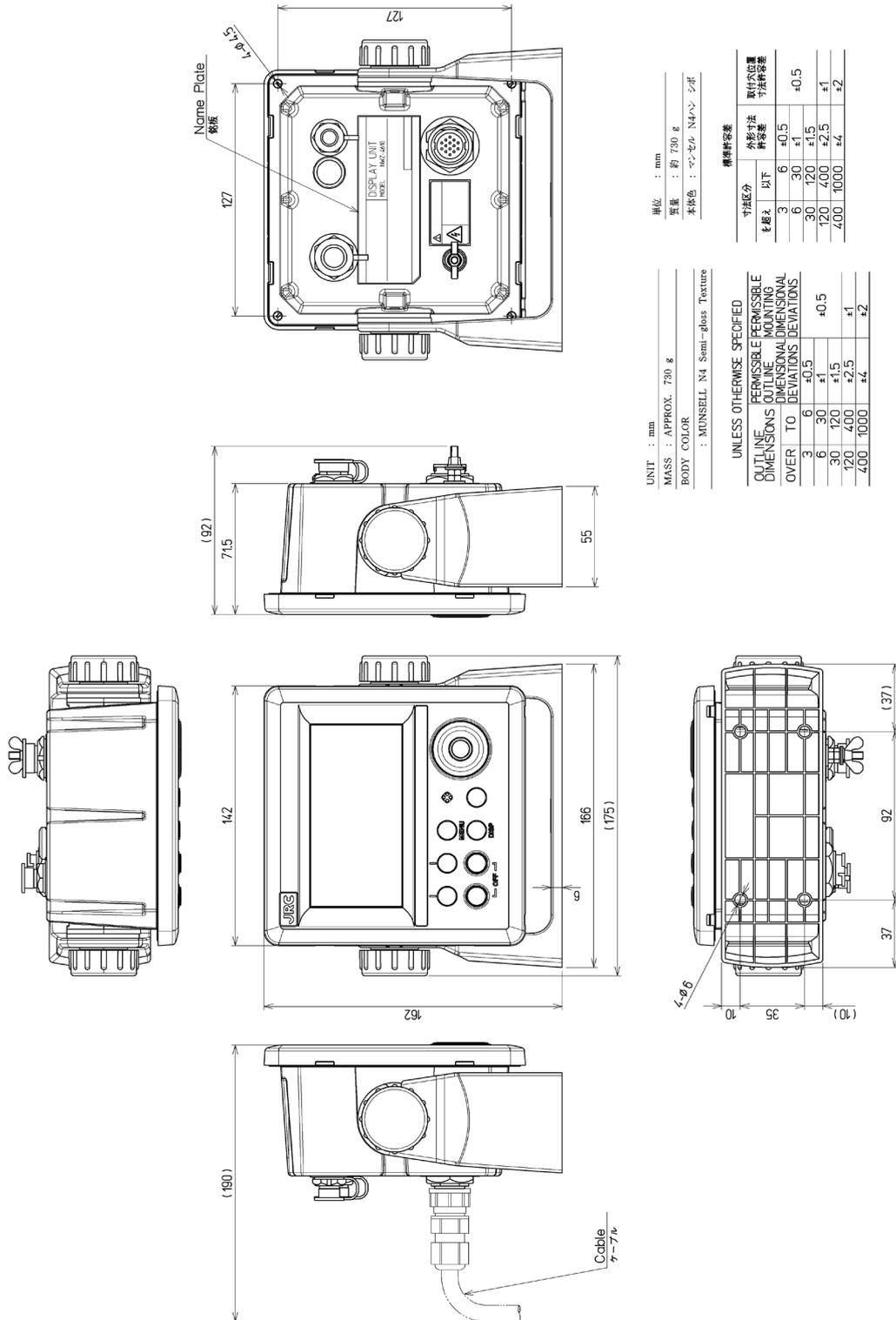


- 4) Remove the cable.

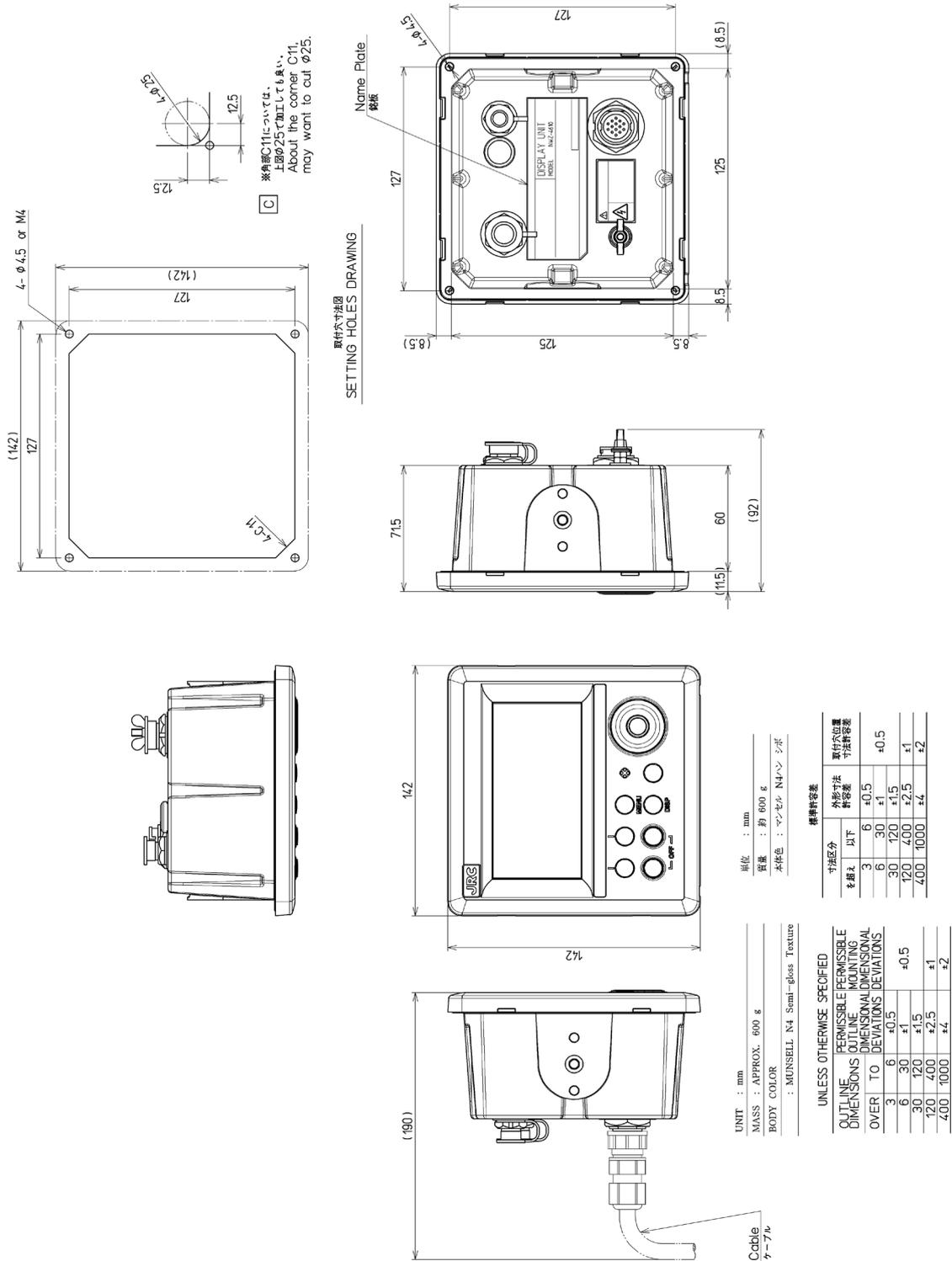
# 11. Installing of NWZ-4610

## 11.1. Installation Drawing

### 1) NWZ-4610 Multi Information Display (Desktop type)

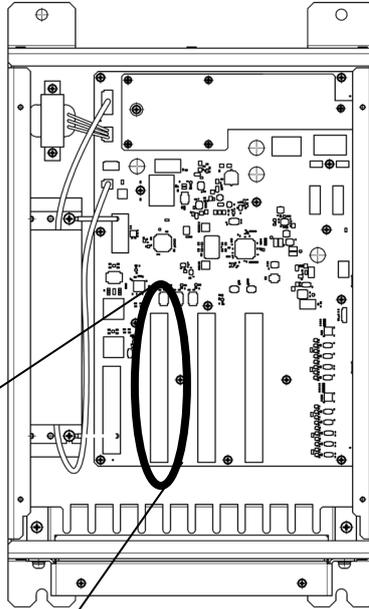


## 2) NWZ-4610 Multi Information Display (Flush mount type)



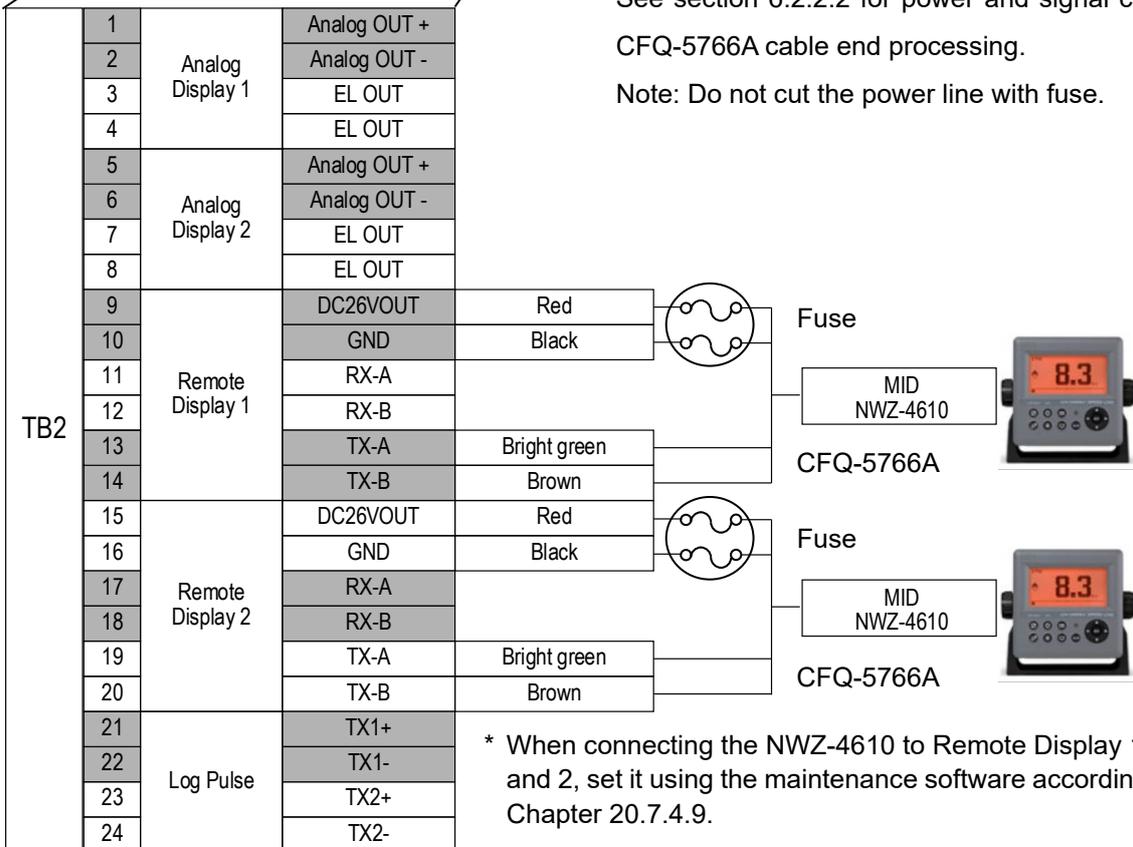
11.2. NWZ-4610 installing procedure

Connect CFQ-5766A as follows.



See section 6.2.2.2 for power and signal cable CFQ-5766A cable end processing.

Note: Do not cut the power line with fuse.



\* When connecting the NWZ-4610 to Remote Display 1 and 2, set it using the maintenance software according to Chapter 20.7.4.9.

### 11.3. Installation Procedure

#### Mounting Location

- Since the signal cable easily receives and generates noise, install the unit in a location where it hardly receives interference.

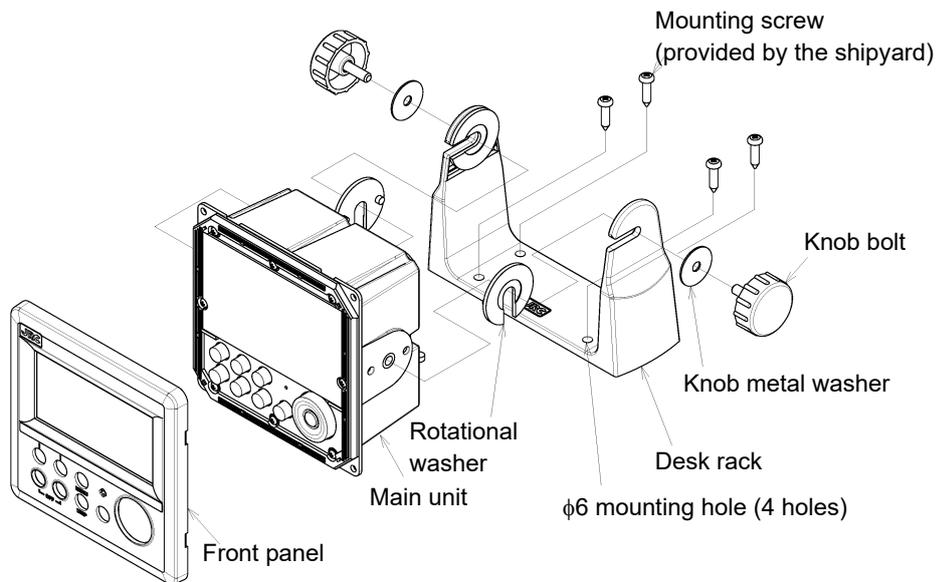
#### CAUTION

Do not install the unit near DSB radio, amateur radio or their coaxial cables.

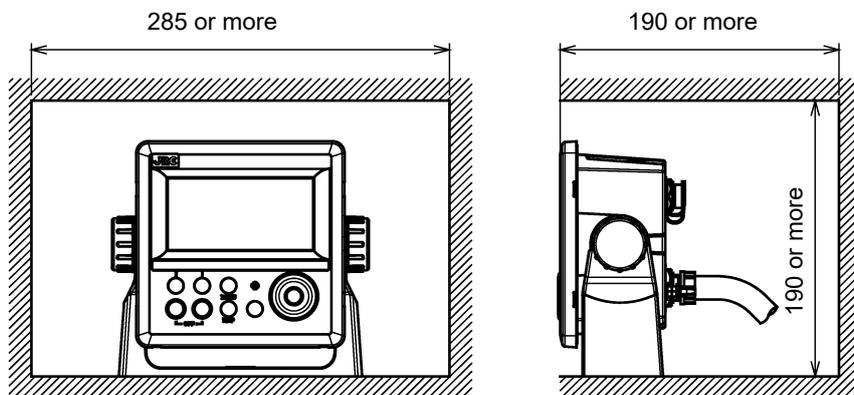
#### Mounting Procedure

##### (1) Desktop(NWZ-4610)

- Fix the desktop rack at the required installation position by using screws (provided by the shipyard).
- Insert the front panel into the main unit.
- Attach the rotational washer on the side of the main unit. Attach the rotational washer on the side of the desktop rack.
- Assemble the main unit on the desktop rack, insert the knob metal washer between the desktop rack and the knob bolt, and fix the main unit by tightening the knob bolts.

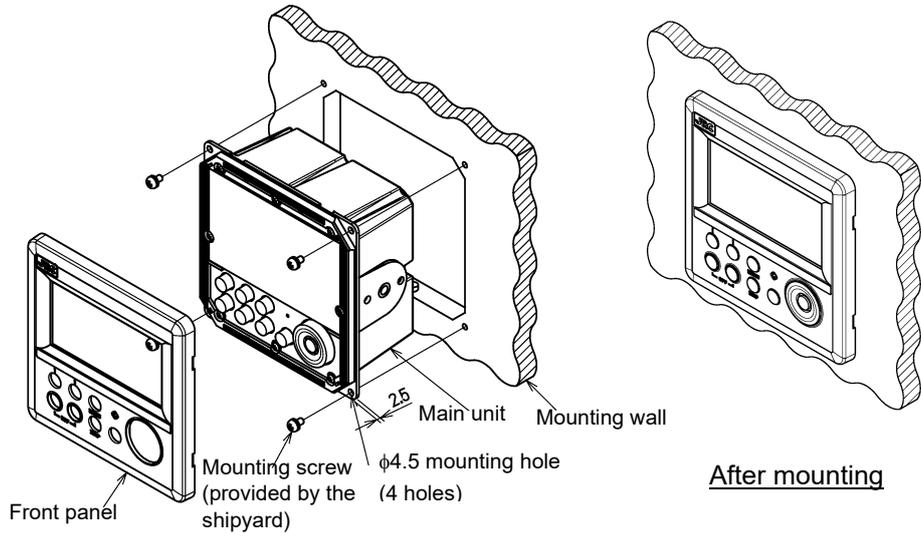


- Secure the maintenance space as shown below.

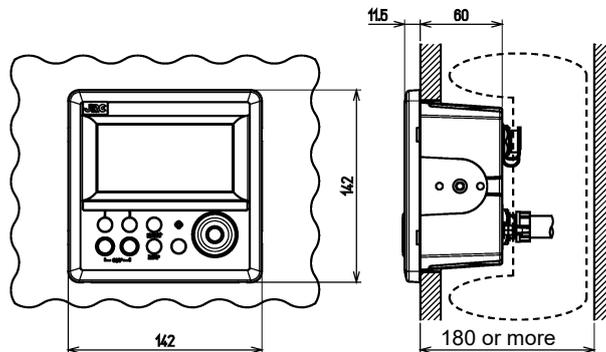


(2) Flush-mount (NWZ-4610)

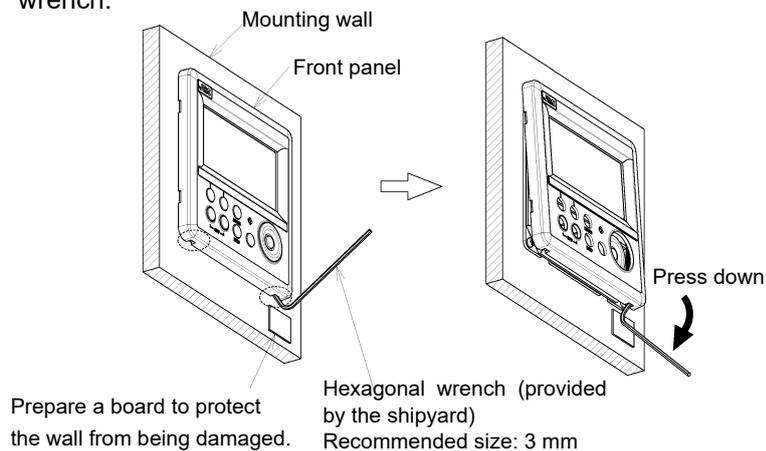
- Insert the main unit in the installation location. Fix the main unit using screws (provided by the shipyard).  
The sizes of the heads of the screws to be used are restricted as follows including the washers. Diameter: Up to  $\phi 8$  mm, • Height: Up to 4.5 mm
- Insert the front panel into the main unit



- Secure the maintenance space as shown below.



- Removing the display unit by flash mounting. Use the following procedure to remove the display unit. Insert a hexagonal wrench into the holes (2) at the bottom of the front panel. Remove the front panel by pressing down the hexagonal wrench.



Prepare a board to protect the wall from being damaged.

#### 11.4. Installation Setting

- After start-up, prepare the setting as indicated in the table below.

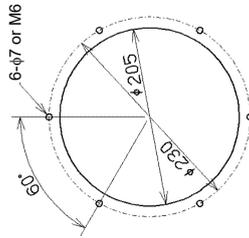
Procedure	Chapter of the NWZ-4610 man	Configuration
1	4.2.1. Turning on the power	Please select the "MID" models
2	4.10.1. Changing to a maintenance mode	Or later, you will do the equipment settings in maintenance mode.
3	4.7. Language setting	Please select "English".
4	4.10.9. Checking the input port	Port Select the "SIO [6]", make sure that the data is displayed.
5	4.5.4.4. STEP3 Selecting display contents	Category selects the "DOPPLER [doppler]", The display contents can be displayed "TRIP [trip distance]", "ODO [odometer]", the two types.

You can make the screen settings with your choice by referring to section 4.5.4.

Note : For NCM-227 dimmer unit connection and setting method, refer to section 6.4.1 of the NWZ-4610 instruction manual

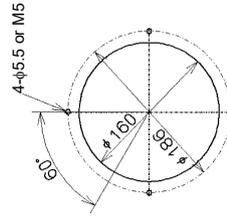
# 12. Installing of NWW-24

## 12.1. Installation Drawing



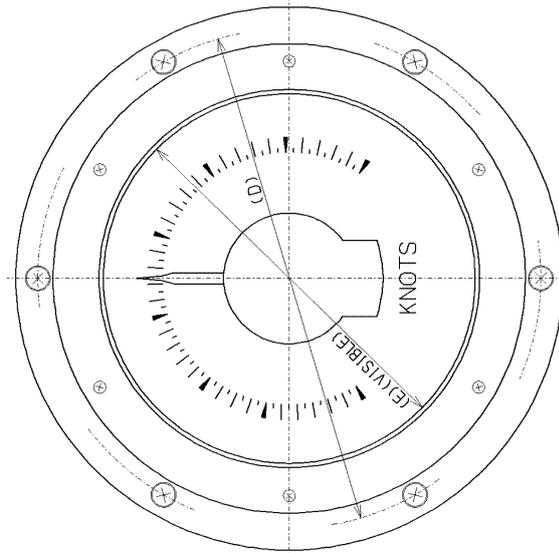
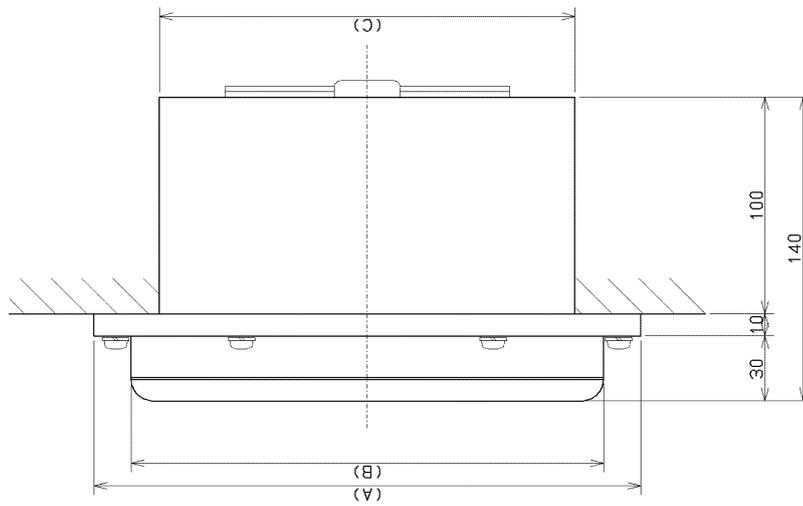
NWW-24L mounting hole

Scale 1/5



NWW-24S mounting hole

Scale 1/5



Model name	A	B	C	D	E	Mass	Scale sheet	E.L. sheet
NWW-24L	φ250	φ216	φ190	φ230	φ170	6.5 kg	-4~20 -5~25	Green
NWW-24S	φ200	φ173	φ150	φ186	φ125	3 kg	-6~30 -7~35 -8~40	Orange

PAINTING COLOR

Model name

Scale sheet

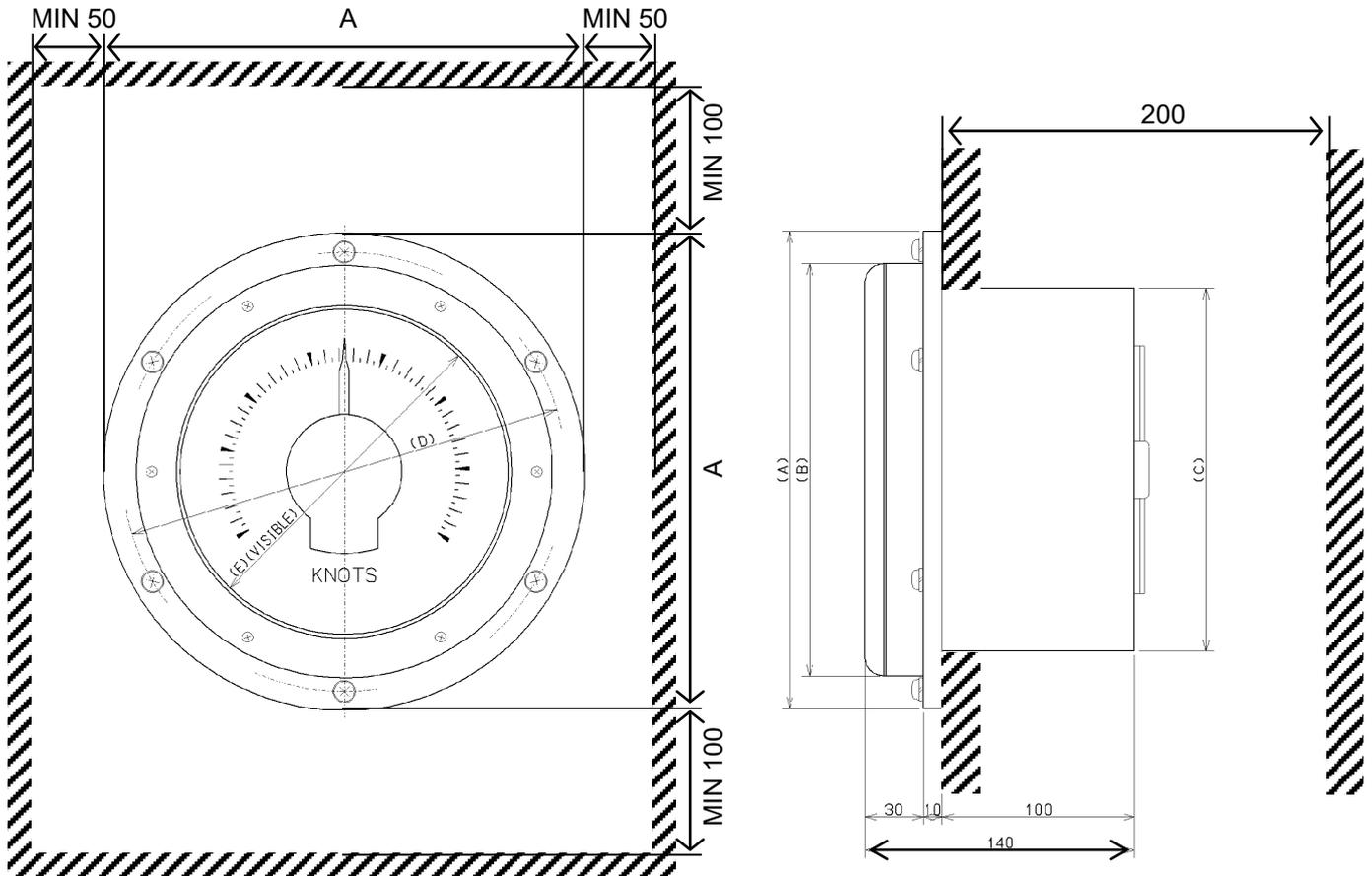
E.L. sheet

NWW-24  
(L) (20) (G)  
(S) (25) (O)  
(30)  
(35)  
(40)

### Installation Drawing

Note : Install with the space indicated by the following drawing.

NWW-24 Analog Display



Unit: mm

TYPE	A	B	C	D	E	MASS.	SCALE	E.L.PLATE
NWW-24L	φ250	φ216	φ190	φ230	φ170	6.5kg	-4 to 20	GREEN
							-5 to 25	
NWW-24S	φ200	φ173	φ150	φ186	φ125	3.0kg	-6 to 30	ORANGE

## 12.2. Installation Procedure

- Since the signal cable easily receives and generates noise, install the unit in a location where it hardly receives interference.  
Do not install the unit on the coaxial cable side of DSB radio equipment or amateur radio equipment.
- Do not install the unit to a place directly exposed to the sunlight (excluding the Wing Display), the splash of waves, or hot air.

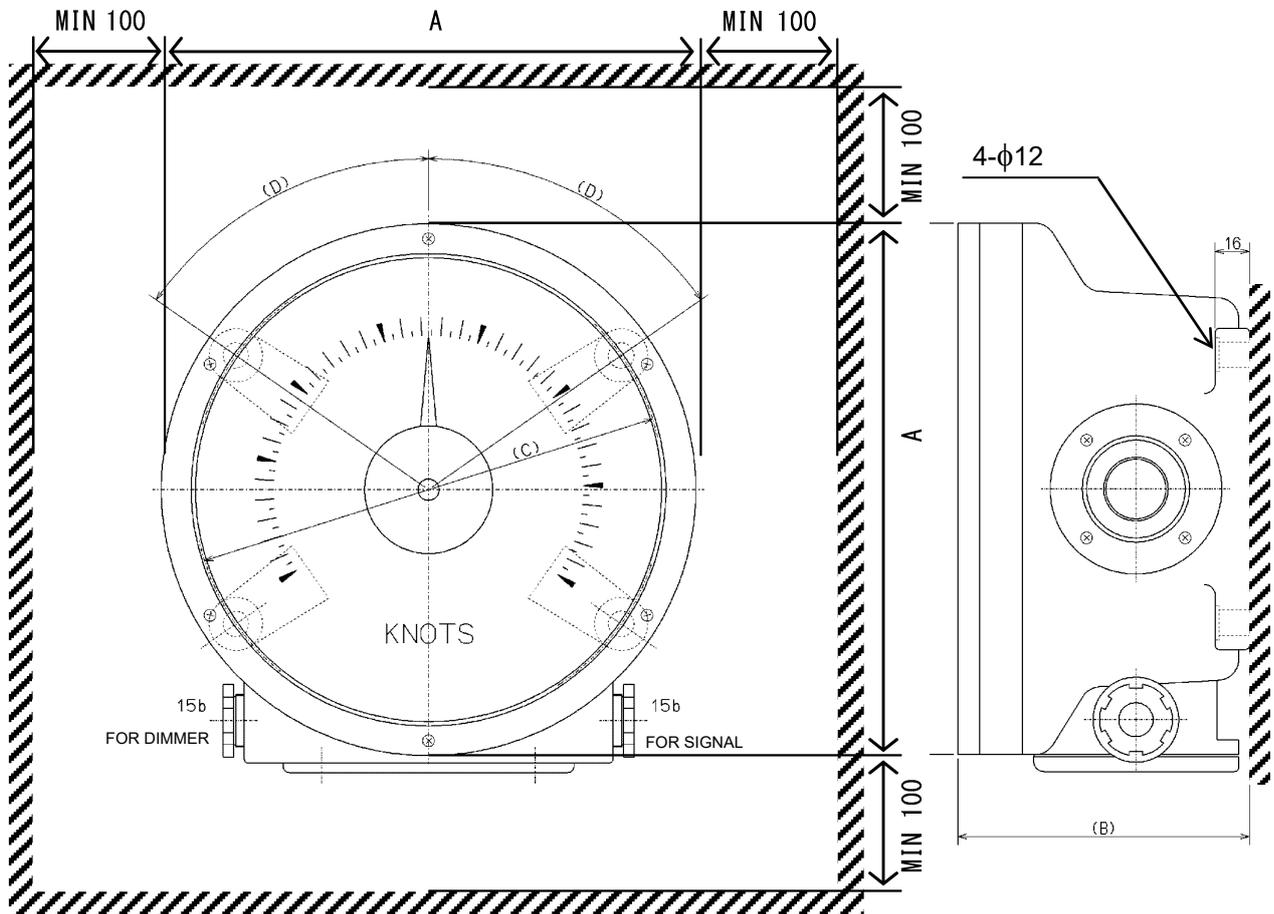
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- Installation Drawing

Note : Install with the space indicated by the following drawing.

NWW-25 Analog Display



Unit: mm

TYPE	A	B	C	D	E	MASS.	SCALE	E.L.PLATE
NWW-25L	φ250	136	φ220	φ230	55°	7.0kg	-4 to 20	GREEN
							-5 to 25	
NWW-25S	φ200	140	φ180	φ186	60°	5.0kg	-6 to 30	ORANGE

## 13.2. Installation Procedure

- Since the signal cable easily receives and generates noise, install the unit in a location where it hardly receives interference.  
Do not install the unit on the coaxial cable side of DSB radio equipment or amateur radio equipment.
- Do not install the unit to a place directly exposed to the sunlight (excluding the Wing Display), the splash of waves, or hot air.

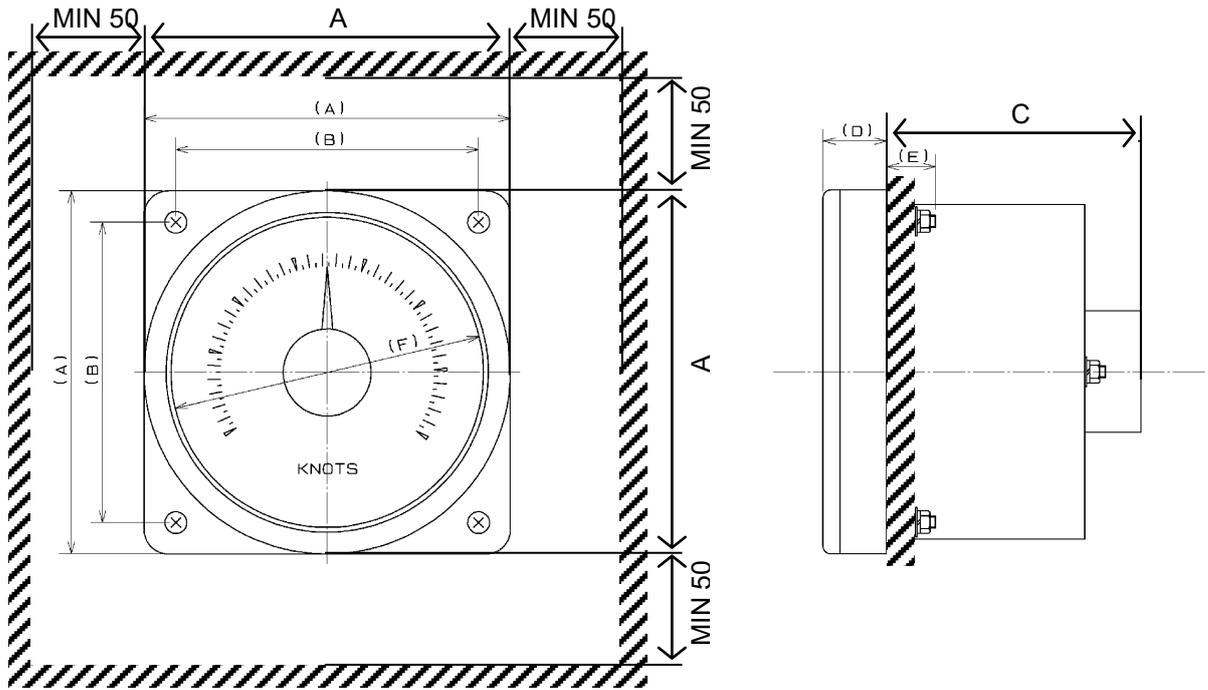
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- Installation Drawing

Note : Install with the space indicated by the following drawing.

NWW-26 Analog Display



Unit: mm

TYPE	A	B	C	D	E	F	MASS	SCALE	E.L.PLATE
NWW-26L	150	124	105	26	20	φ128	2.5kg	-4 to 20	GREEN
NWW-26M	120	100	90	23	15	φ100	1.5kg	-5 to 25	
NWW-26S	110	90	90	11	15	φ100	1.0kg	-6 to 30	ORANGE

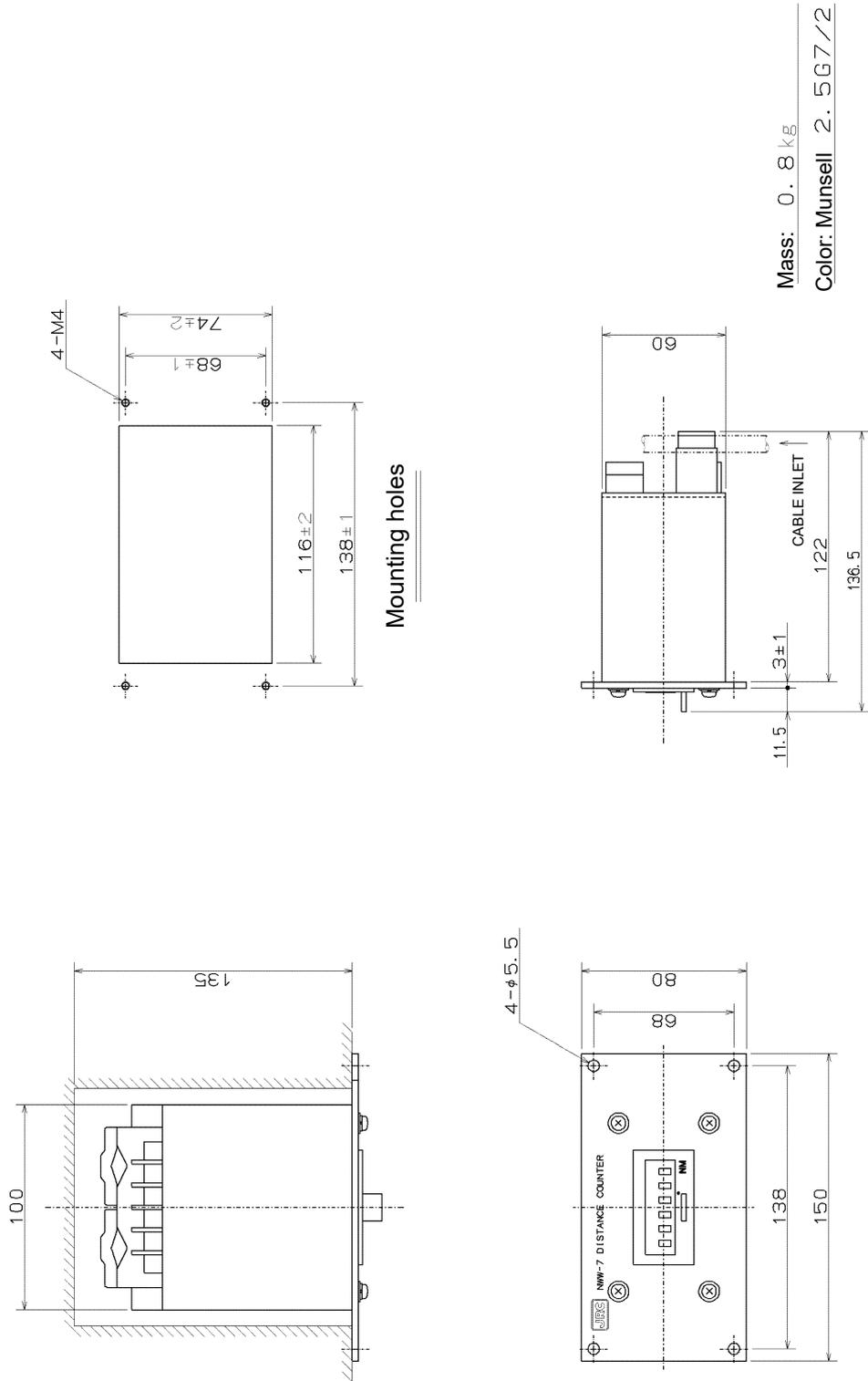
## 14.2. Installation Procedure

- Since the signal cable easily receives and generates noise, install the unit in a location where it hardly receives interference.  
Do not install the unit on the coaxial cable side of DSB radio equipment or amateur radio equipment.
- Do not install the unit to a place directly exposed to the sunlight (excluding the Wing Display), the splash of waves, or hot air.

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# 15. Installing of NWW-7

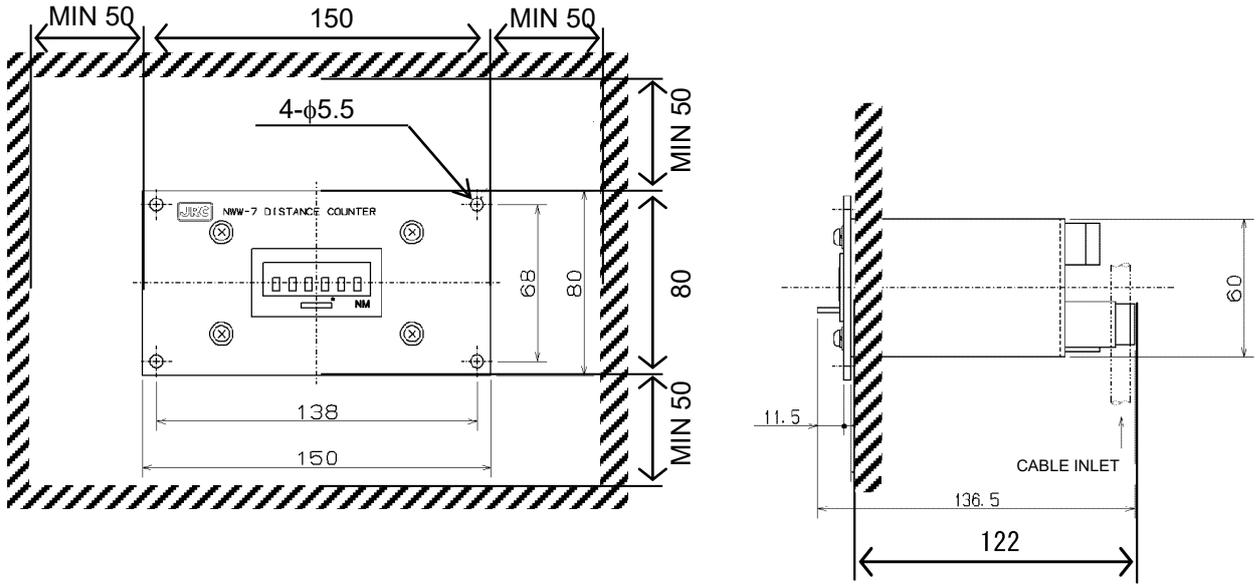
## 15.1. Installation Drawing



- Installation Drawing

Note: Install with the space indicated by the following drawing.

NWW-7 Distance Counter



Unit: mm

## 15.2. Installation Procedure

- Since the signal cable easily receives and generates noise, install the unit in a location where it hardly receives interference.  
Do not install the unit on the coaxial cable side of DSB radio equipment or amateur radio equipment.
- Do not install the unit to a place directly exposed to the sunlight (excluding the Wing Display), the splash of waves, or hot air.

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## 16. Setting of NWZ-510SDW

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### 16.1. Supplying power (JLN-740A/741A)

When the main power of the power board is turned on, the power for the display unit is automatically turn on.

When the power is disconnected by using the key on the display unit, power is turned on when the power switch is pressed.

Main power OFF



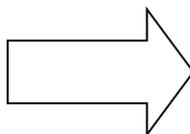
Main power ON

Main power ON



Power switch ON

(Hold down for about one second)



Opening screen

After the factory shipment or at the initial power ON

- 1) When the following screen is displayed, select a display unit model by touching the [

JLN-740A: Changes the model to JLN-740A.

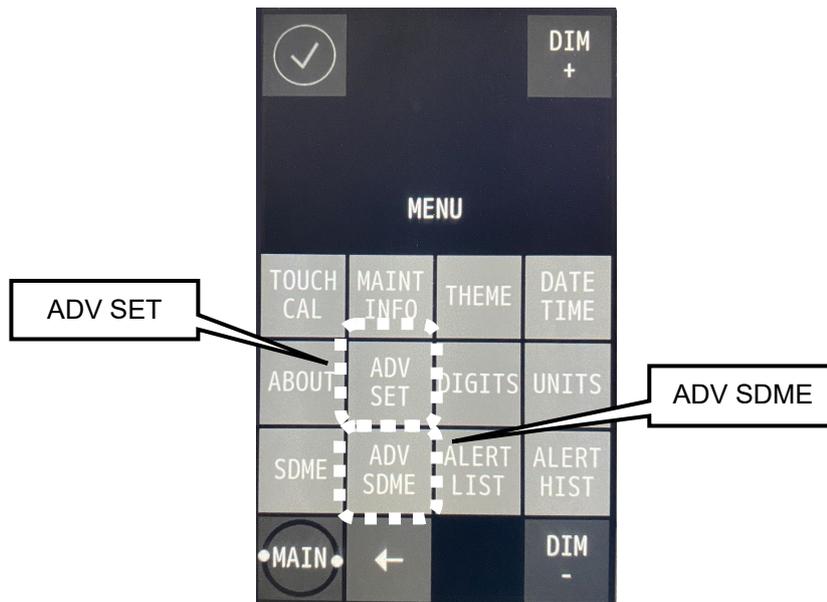
JLN-741A: Changes the model to JLN-741A.



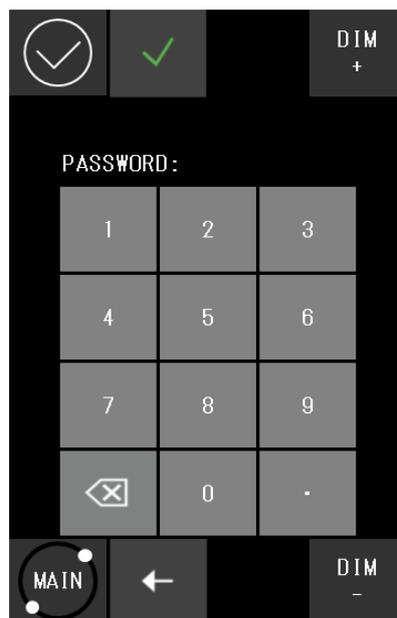
- 2) Touch the [Start application] button.
- 3) Wait for about 3 minutes for rebooting.

## 16.2. Installation Setting Menu

- This section explains items to be set at the time of installation.
- The items to be used at the time of installation are two items, "ADV SET" and "SDME ADV".
- "ADV SDME" can be used to change the display model that has been selected at initial power on after factory shipment.



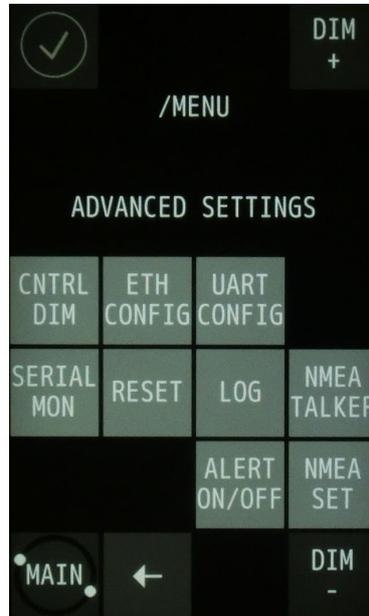
- **PASSWORD**  
A password is necessary to set "ADV SET" and "SDME ADV".



Password: 1456

### 16.2.1. ADV SET

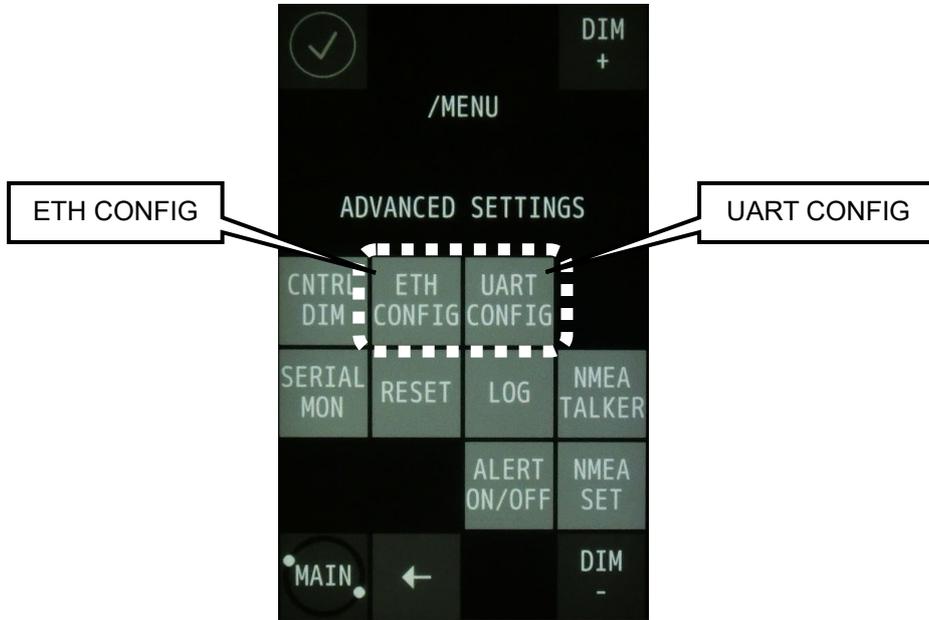
- ADV SET Menu List
  - ADVANCED SETTINGS Menu Explains



Menu	Description
[CNTRL DIM] (Configuration of central Dimmer)	To set the use or non-use / output of the central dimmer
[ETH CONFIG] (Configuration of Ethernet)	To set IP address, subnet mask, gateway
[UART CONFIG] (Configuration of UART)	To set port, parity bit, stop bit, data bit, baud rate, protocol
[SERIAL MON] (Input and output of the monitor)	Will monitor the input and output of serial communication
[RESET] (Factory reset)	Will reset to the factory default settings
[LOG]	Will display a log of the NWZ-510SDW
[NMEA TALKER] (Configuration of NMEA sentence)	Set the use or non-use of NMEA sentence
[ALERT ON/OFF] (Configuration of alert)	Set the use or non-use of alert
[NMEA SET] (Setting NMEA)	Set the details of NMEA.

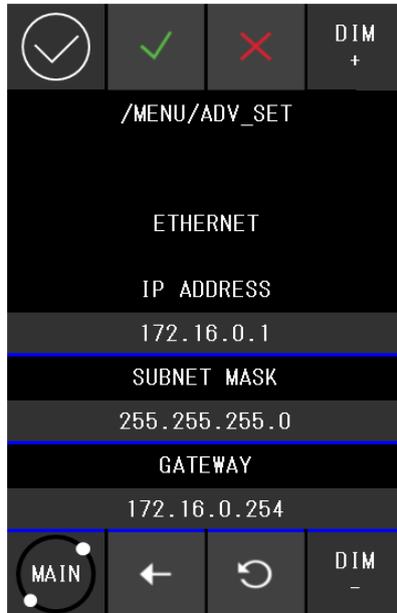
- **ADVANCED SETTINGS**

The items to be used at the time of installation are two (2) items, "ETH CONFIG" and "UART CONFIG".



4) **ETH CONFIG**

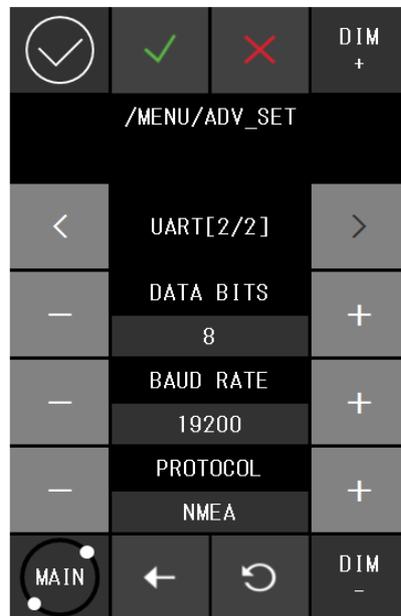
This is to set the three (3) items, "IP ADDRESS", "SUBNET MASK" and "GATEWAY".



Note: Set value is no problem with remain default.

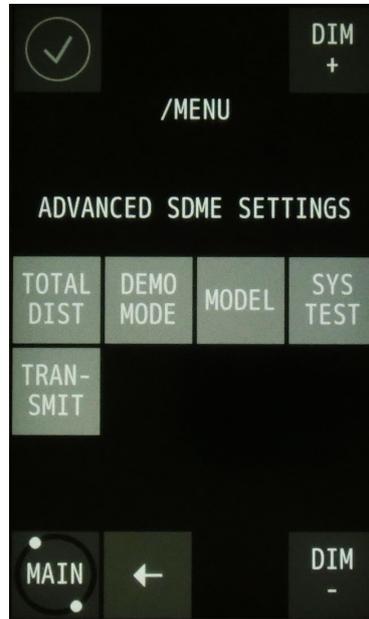
5) UART CONFIG

Set six items, "UART", "PARITY", "STOP BITS", "DATA BITS", "BAUD RATE", and "PROTOCOL".



### 16.2.2. ADV SDME

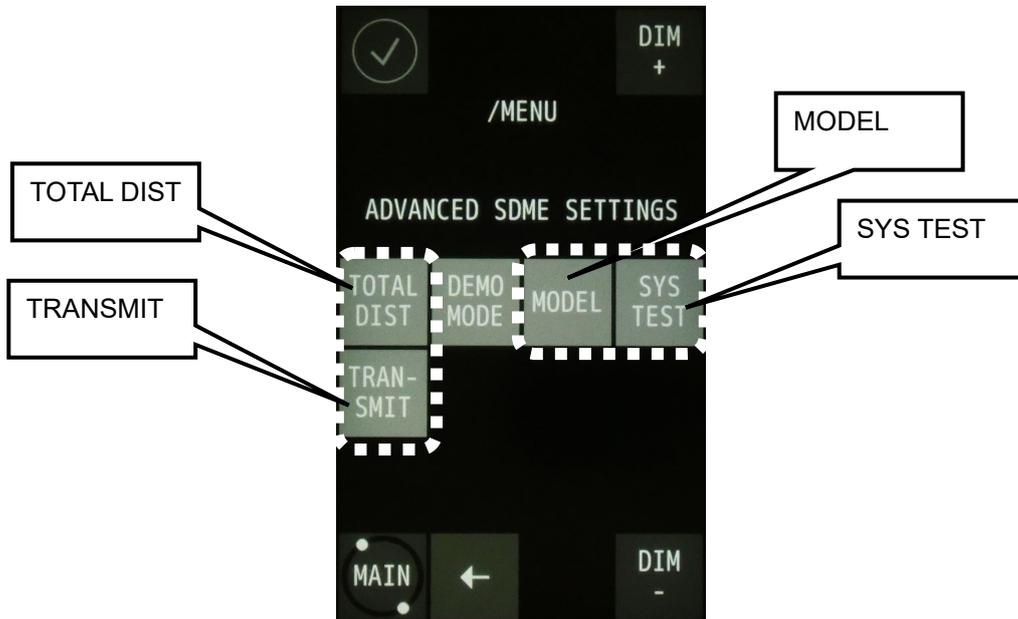
- ADV SDME Menu List
  - ADVANCED SDME SETTINGS Menu Explains



Menu	Description
[TOTAL DIST] (Total distance setting)	To set the total distance.
[DEMO MODE] (Demonstration mode)	Perform demonstration.
[MODEL] (Model setting)	To set the model.
[SYS TEST] (System test)	Perform system test.
[TRANSMIT] (Automatic start setting)	Set automatic transmission of a transducer.

- ADVANCED SDME SETTINGS

The items to be used at the time of installation are four (4) items, "TOTAL DIST," "MODEL," "SYS TEST," and "TRANSMIT."



1) TOTAL DIST

This is to set one (1) item, "TOTAL DIST."



The total distance can be set.

[TOTAL DIST]: 000000.00~999999.99

- 2) MODEL  
Change the model.



When the [CONFIRM RESET ALL SETTINGS AND CHANGE MODEL] button is touched, the system reboots.  
In about one (1) minute, the model selection screen is displayed.



Touch the [<]/[>] button to select a model.  
[JLN-740A]: Changes the model to JLN-740A.  
[JLN-741A]: Changes the model to JLN-741A.  
[JLN-750]: Changes the model to JLN-750.

When the [Start application] button is touched, the setting is accepted and the system reboots.

In about two (2) minutes, the normal screen is displayed.

3) SYS TEST

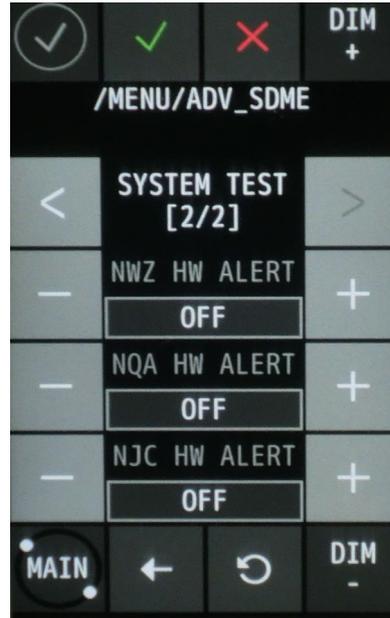
For JLN-740A, set the five (5) items, "18kn TEST," "LOST ALERT," "NWZ HW ALERT," "NQA HW ALERT," and "NJC HW ALERT."

For JLN-741A, set the two (2) items, "18kn TEST" and "LOST ALERT."

TRIP is set to 0 when a ship sails under SYSTEM TEST.

**CAUTION**

If sail under SYSTEM TEST, the remote display NWZ-650SDR/840SDR TRIP indication is set to 0.



Perform test for checking the connection of the equipment.

- [18kn TEST]: Fix the ship speed to 18.00 kn when set to ON.  
The connection of LOG pulse contact and distance counter can be checked.
- [LOST ALERT]: Generate the [TESTING LOST SPEED STW] alert when set to ON.  
The connection of system alert contact can be checked.
- [NWZ HW ALERT]: Generate the [TESTING HW ERROR (NWZ-510)] alert when set to ON.  
If NWZ-510SDW connection is poor, the alert is not generated.
- [NQA HW ALERT]: Generate [TESTING HW ERROR (NQA-7040)] alert when set to ON.  
If NQA-7040 connection is poor, the alert is not generated.
- [NJC HW ALERT]: Generate [TESTING HW ERROR (NJC-70)] alert when set to ON.  
If NJC-70S connection is poor, the alert is not generated.

#### 4) TRANSMIT

Set the one (1) item, "AUTO START."



Auto start of the transducer at the activation can be set.

[AUTO START]: Auto-start the transducer at the activation when set to ON.

If set to OFF (default setting), [START TRANSMIT] screen is always displayed after start up. Touch the [START TRANSMIT] to start transmitting.

**⚠ CAUTION** If a ship is not on water due to its docking, do not start transmission. Starting transmission causes the transducer to become faulty. To draw a ship up to the dock, be sure to set this set value to OFF.

**⚠ CAUTION** Do not start transmit on dry dock. The transducer would be broken. On dry docking, [AUTO START] menu should set to OFF.

**⚠ CAUTION** After the blackout test, [START TRANSMIT] screen would display. after start up. Touch the [START TRANSMIT] to start transmitting. Normally [AUTO START] menu should set to OFF for prevent the transducer breaking by open air transmitting.

## 17. Setting of NWZ-4640

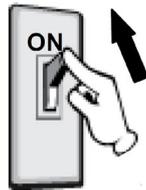
---

### 17.1. Supplying power (JLN-740N/741N)

When the main power of the power board is turned on, the power for the display unit is automatically turned on.

When the power for the display unit is disconnected by using the key on the display unit, press  The power is turned on.

Main power OFF



Main power ON

Main power ON



Power key ON

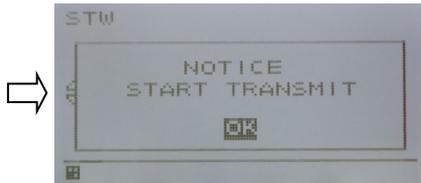
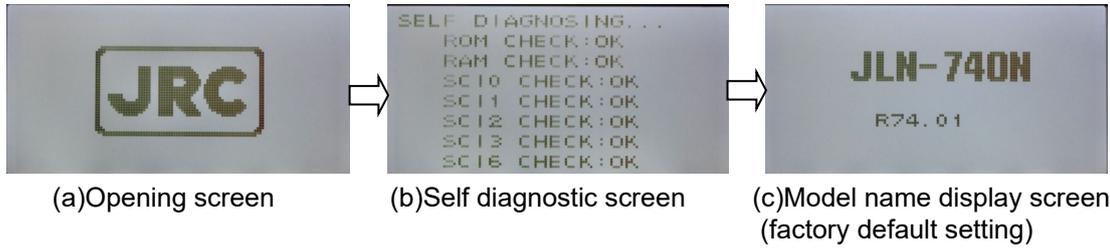


Opening screen

When  and  are pressed simultaneously, the power is turned off.

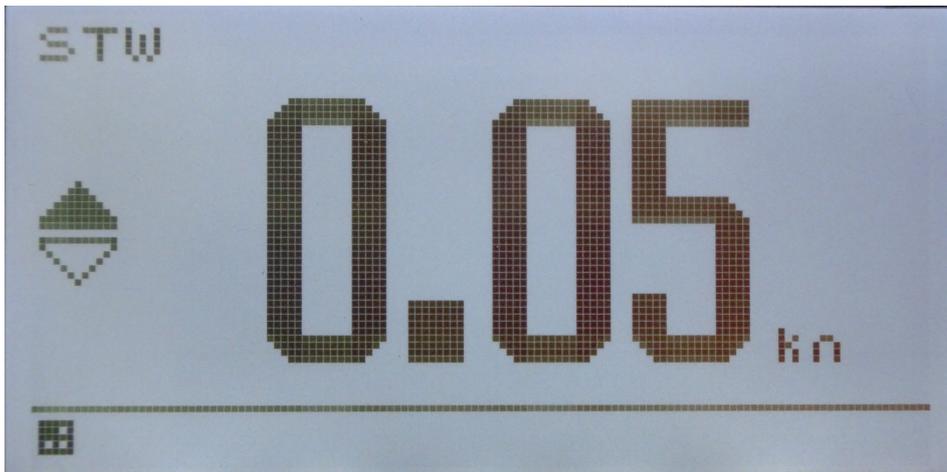
Please press  and turn off the power.

17.2. JLN-740N Display at the time of initial power-on (JLN-740N) after factory shipment



(d)Transmission start screen

is pressed, Start transmission and switch to the normal screen.



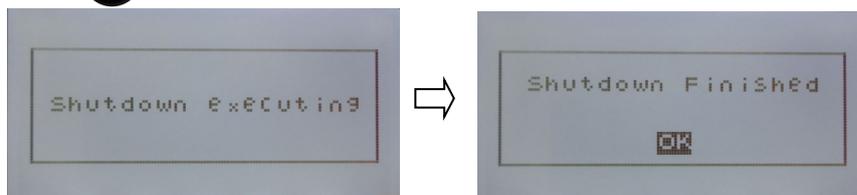
(e)Normal screen

In the case of JLN-740N, if normal wiring is done, this normal screen will be displayed without adjustments.

When and are pressed simultaneously, Enter shutdown operation.

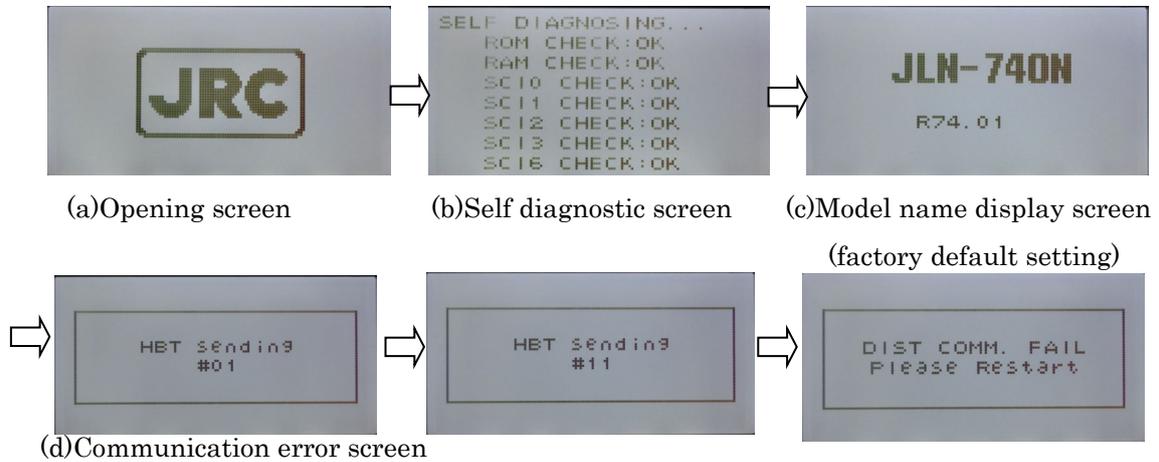
When the Shutdown Finished display is displayed,

Please press and turn off the power.



### 17.3. JLN-741N Display at the time of initial power-on (JLN-741N) after factory shipment

In the initial state, it is set to JLN-740N. To change to JLN-741N, please do the following operation.



HBT SENDING # 01 to # 11 will count up for about 1 minute.

Finally the "DIST COMM.FAIL" screen will appear.

To cancel the DIST COMM.FAIL screen, When  and  are press and hold for 8 seconds.

Since the transmission start screen is displayed, pressing the  button starts transmission and switches to the normal screen.

 <b>CAUTION</b>	<p>If the ship is not on the water with a dock or the like, there is a danger that the transducer will fail if the transmission starts.</p> <p>To switch to JLN - 741N, please go on water.</p>
--	---

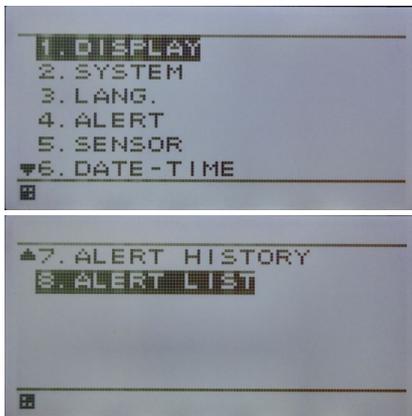
17.4. Switch display unit setting to JLN-741N (JLN-741N)

1. Press  to display the main menu (normal mode).
2. When  and  are press and hold for 3 seconds (shift to Equipment Mode). When switching to Equipment mode, the [M] icon is displayed at the bottom of the screen.

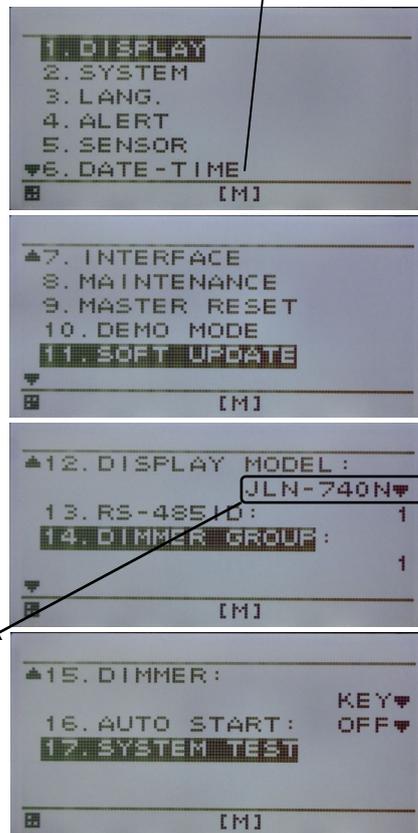
Press  and  again for 3 seconds or return to normal mode if you do not operate anything for 3 minutes. When power is on, start up in normal mode.

3. Select [DISPLAY MODEL] by using .
4. Select [JLN-741N] by using  and press .

Normal mode



Maintenance mode



5. Press  and  simultaneously to shut down. Then, press  and  again to reboot.

## 17.5. Checking the installation

### 17.5.1 Changing to the maintenance mode

Please follow the procedure in 17.4 and switch to the maintenance menu.

### 17.5.2 Checking the input port

The data that is received through an input port can be displayed on the screen.

The input port and display format (ASCII/BINARY) can be selected.

The port that is set for output cannot be displayed.

1. Select [8.MAINTENANCE] and [1.INPUT DATA] by using **ENT** and press  .  
The following operation procedure screen is displayed.
2. aTo change the display format, press  . The format changes between ASCII and BINARY.
3. a Select the port to be displayed by using  and press **ENT** . Received data is displayed on the screen.  
When **ENT** is pressed again, the display update stops. While the update is stopped, the  mark on the screen stops blinking.  
To return to the operation description screen, press **CLR** .



With JLN-740N / 741N, data received by the display can be displayed with SIO [6].

When no information is displayed, check the connections and setting of the serial port again.

### Reception display example of SIO [6] JLN-740N

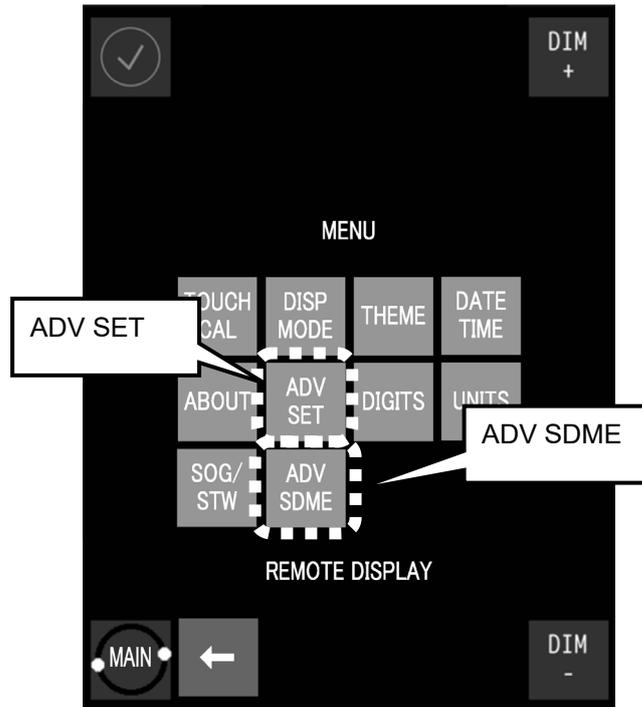
```
SIO[6]      ASCII  *
▲$VDHBT,5.0,A,1*3B++
$VDVBW,0.13,,A,,V,,
V,,V*5A++
$VDVLW,1364.11,N,336
.51,N,393.84,N,74.22
,N*5B++
```

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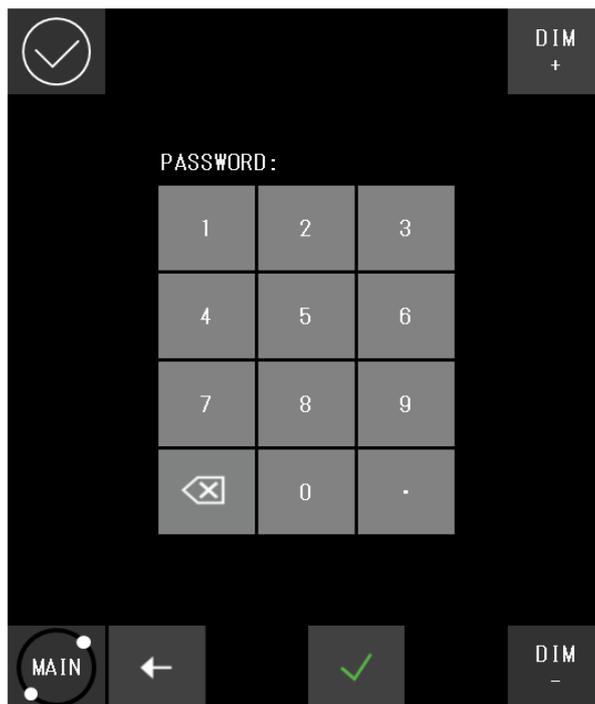
# 18. Setting of NWZ-650SDR

## 18.1. Installation Setting Menu

- This section explains items to be set at the time of installation.
- The items to be used at the time of installation are two items, "ADV SET" and "ADV SDME".



- **PASSWORD**  
A password is necessary to set "ADV SET" and "ADV SDME".

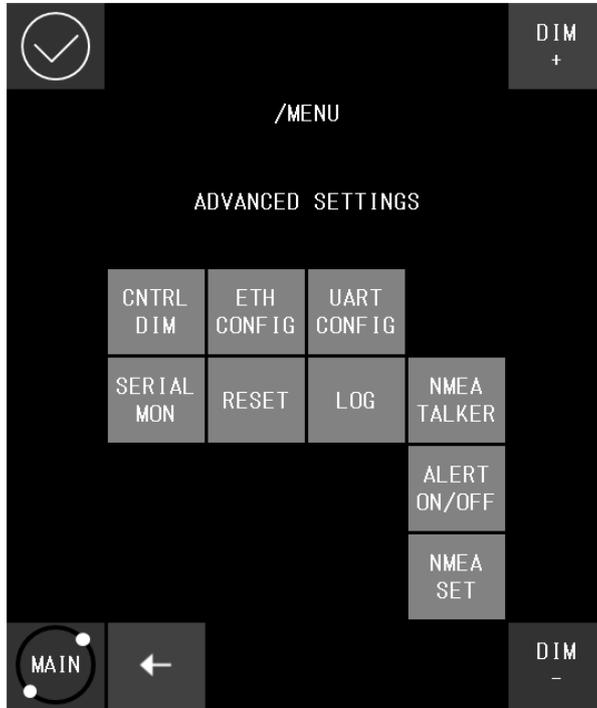


Password: 1456

18.1.1. ADV SET

18.1.1.1. ADV SET Menu List

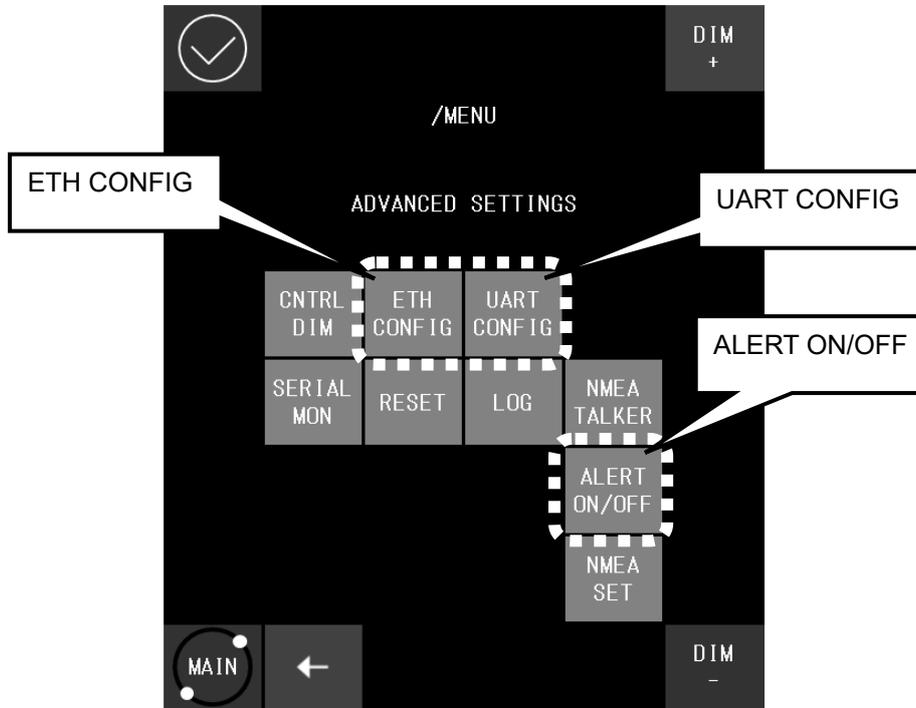
- ADVANCED SETTINGS Menu Explains



Menu	Description
[CNTRL DIM] (Configuration of central Dimmer)	To set the use or non-use / output of the central dimmer
[ETH CONFIG] (Configuration of Ethernet)	To set IP address, subnet mask, gateway
[UART CONFIG] (Configuration of UART)	To set port, parity bit, stop bit, data bit, baud rate, protocol
[SERIAL MON] (Input and output of the monitor)	Will monitor the input and output of serial communication
[RESET] (Factory reset)	Will reset to the factory default settings
[LOG]	Will display a log of the NWZ-650SDR
[NMEA TALKER] (Configuration of NMEA sentence)	Set the use or non-use of NMEA sentence
[ALERT ON/OFF] (Configuration of alert)	Set the use or non-use of alert
[NMEA SET] (Setting NMEA)	Set the details of NMEA

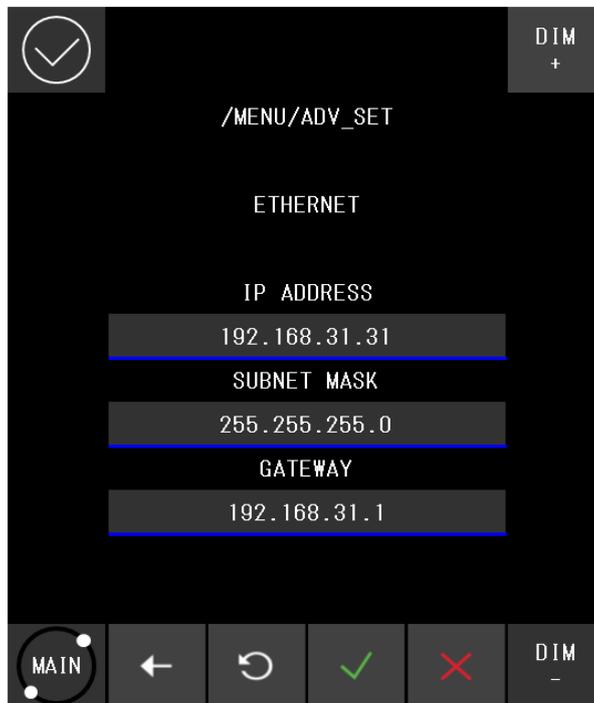
- **ADVANCED SETTINGS**

The items to be used at the time of installation are two (2) items, "ETH CONFIG" and "UART CONFIG".



- 1) **ETH CONFIG**

This is to set the three (3) items, "IP ADDRESS", "SUBNET MASK" and "GATEWAY".



Note : Set value is no problem with remain default.

## 2) UART CONFIG

This is to set the six (6) items, "UART", "PARITY", "STOP BITS", "DATA BITS", "BAUD RATE", and "PROTOCOL".



Note : Set value is no problem with remain default.

Caution : Remote display at shipment state is section distance display has become a -----.

Refer to the instruction manual section 7.2.2, please perform the TRIP RESET at first.

3) ALERT ON/OFF

Select alert function "ENABLED/ DISABLED".



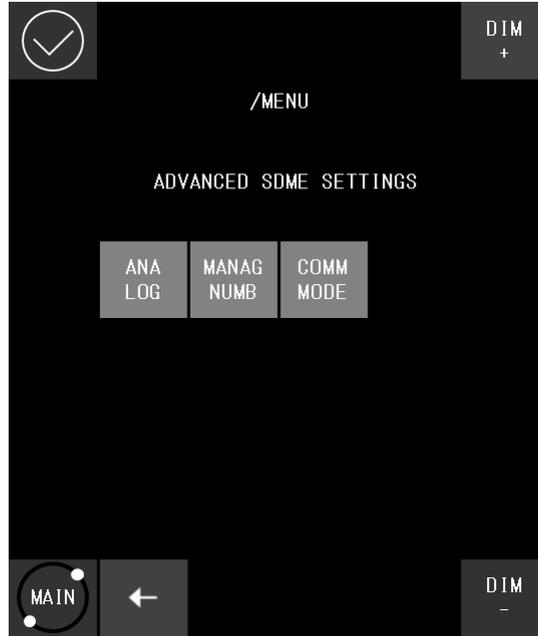
 **CAUTION**

Set to "DISABLED". Because in some cases, the remote display alert is difficult to acknowledge. So, We recommend the remote display alert as "DISABLED".

## 18.1.2. ADV SDME

### 18.1.2.1. ADV SDME Menu List

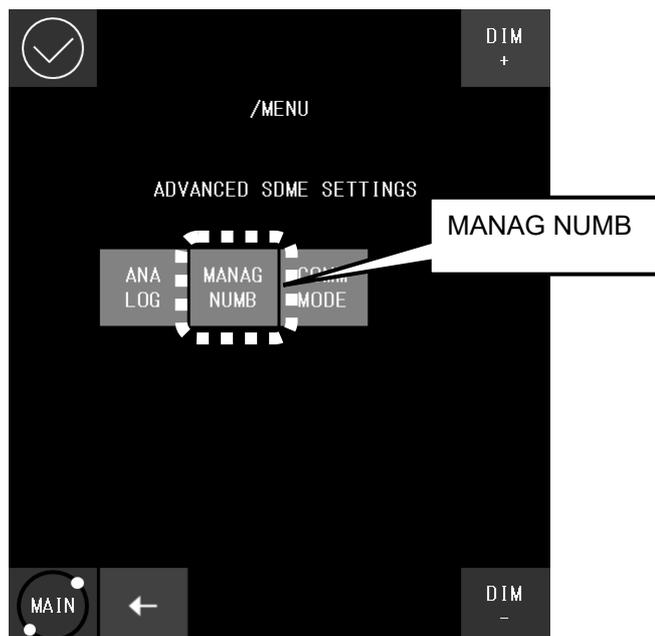
- ADVANCED SDME SETTINGS Menu Explains



Menu	Description
[ANALOG] (Configuration of the analog display scale)	Set the analog display scales
[MANAG NUMB] (Configuration of the management number)	Set the management number
[COMM MODE] (Configuration of the communication condition)	Set the communication condition

- ADV SDME

The items to be used at the time of installation are one items, "MANAG NUMB".



1) MANAG NUMB

This is to set the one items, "MANAGEMENT NUMBER".



 <b>CAUTION</b>	<p>* If connecting the same model (NWZ-650SDR / NWZ-840SDR) of two or more, please set so that the management numbers do not overlap. If the management numbers are set erroneously, software can no longer be updated.</p>

- "MANAGEMENT NUMBER"

Management numbers, is the number for identifying the individual when multiple connections to the same model (NWZ-650SDR / NWZ-840SDR).

All default value because it is the same management number, please be sure to set individually.

When the remote display was reset please always set again.

Management number and port number, there is no relationship.

The list of setting values is as follows:

Management number
10010701 (Default value)
10010901

Refer to the following table for the setting examples.

Port number	Model name	Management number
Remote Display 1	NWZ-650SDR	10010701
Remote Display 2	NWZ-840SDR	10011701

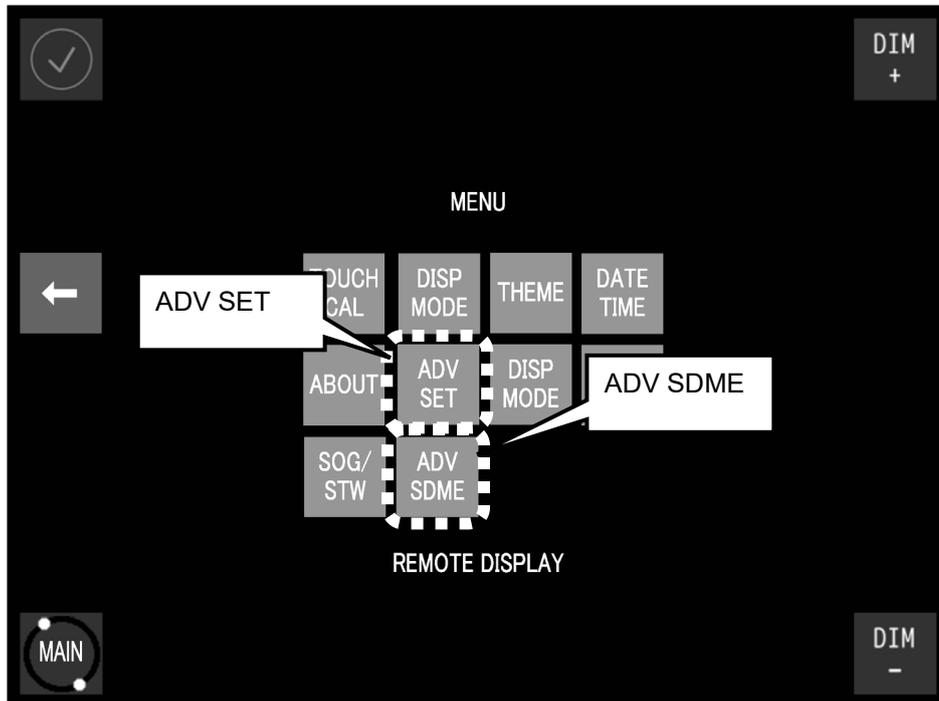
Management number setting examples

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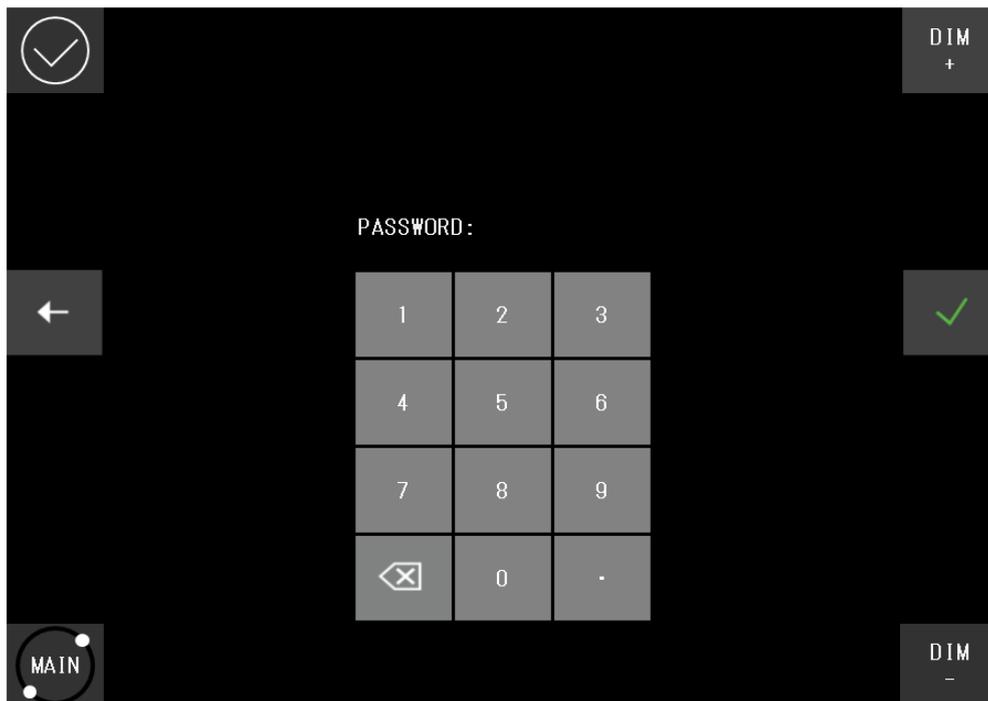
# 19. Setting of NWZ-840SDR

## 19.1. Installation Setting Menu

- This section explains items to be set at the time of installation.
- The items to be used at the time of installation are two items, "ADV SET" and "ADV SDME".



- **PASSWORD**  
A password is necessary to set "ADV SET" and "SDME ADV".

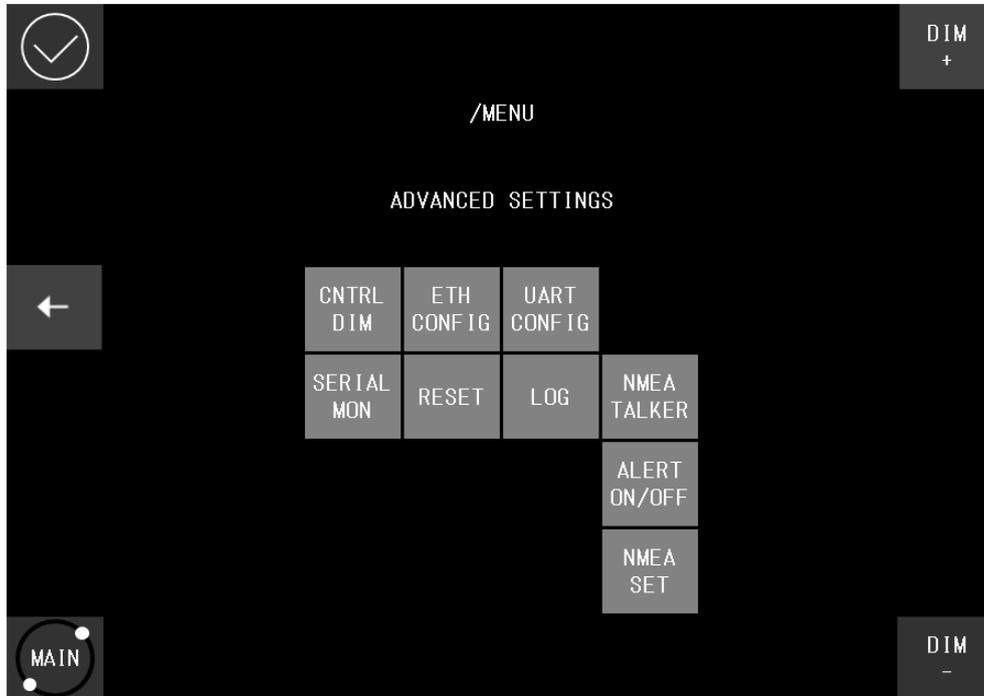


Password:  
1456

### 19.1.1.1. ADV SET

#### 19.1.1.1.1. ADV SET Menu List

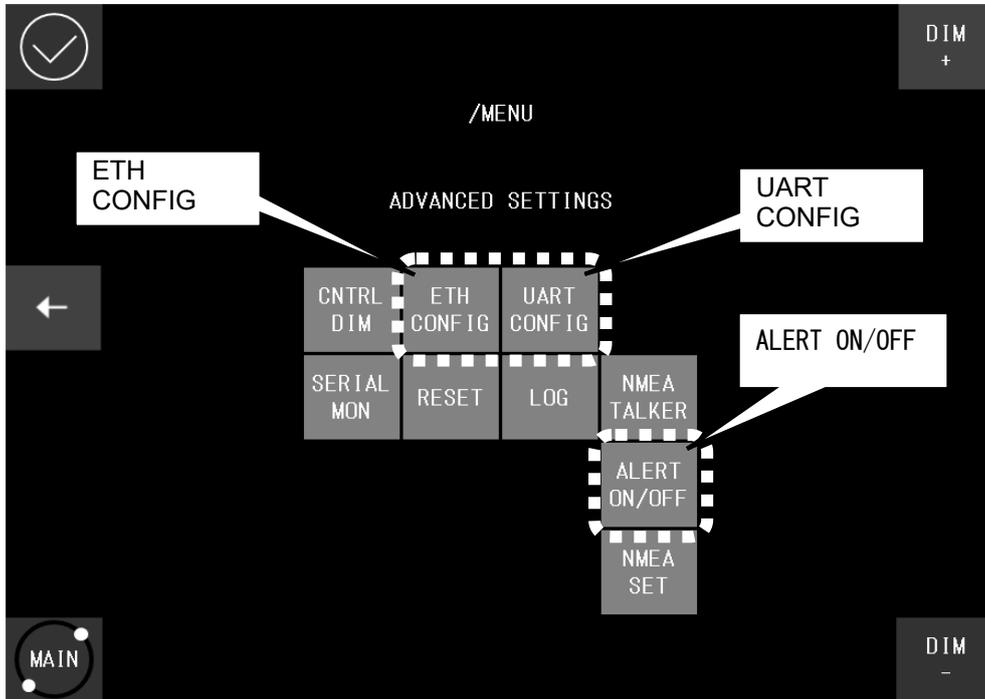
- ADVANCED SETTINGS Menu Explains



Menu	Description
[CNTRL DIM] (Configuration of central Dimmer)	To set the use or non-use / output of the central dimmer
[ETH CONFIG] (Configuration of Ethernet)	To set IP address, subnet mask, gateway
[UART CONFIG] (Configuration of UART)	To set port, parity bit, stop bit, data bit, baud rate, protocol
[SERIAL MON] (Input and output of the monitor)	Will monitor the input and output of serial communication
[RESET] (Factory reset)	Will reset to the factory default settings
[LOG]	Will display a log of the NWZ-840SDR
[NMEA TALKER] (Configuration of NMEA sentence)	Set the use or non-use of NMEA sentence
[ALERT ON/OFF] (Configuration of alert)	Set the use or non-use of alert
[NMEA SET] (Setting NMEA)	Set the details of NMEA

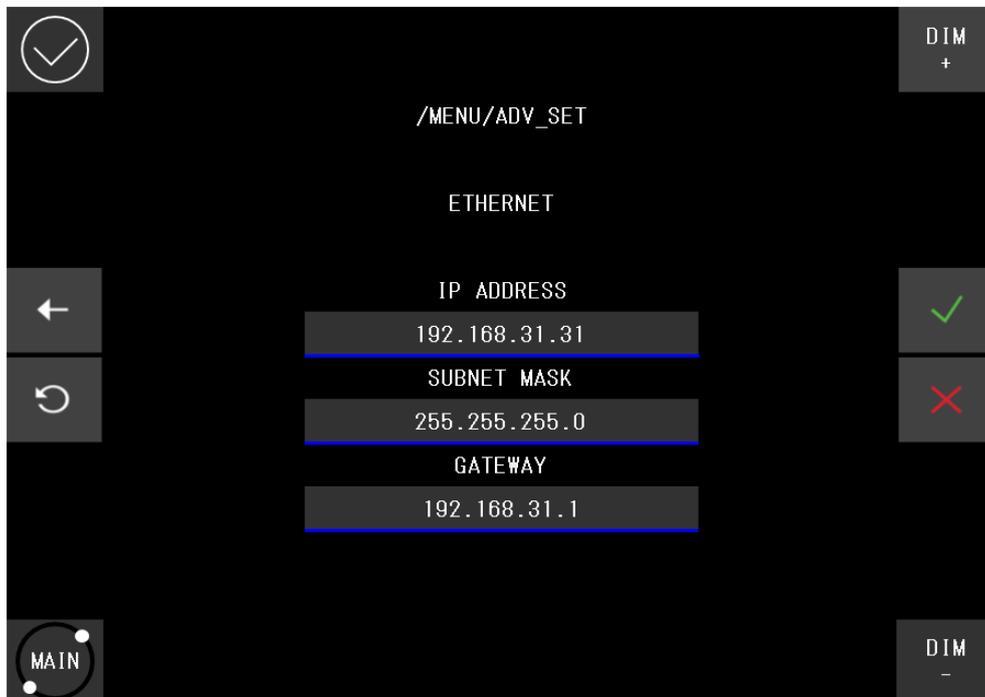
- **ADVANCED SETTINGS**

The items to be used at the time of installation are two (2) items, "ETH CONFIG" and "UART CONFIG".



- 1) **ETH CONFIG**

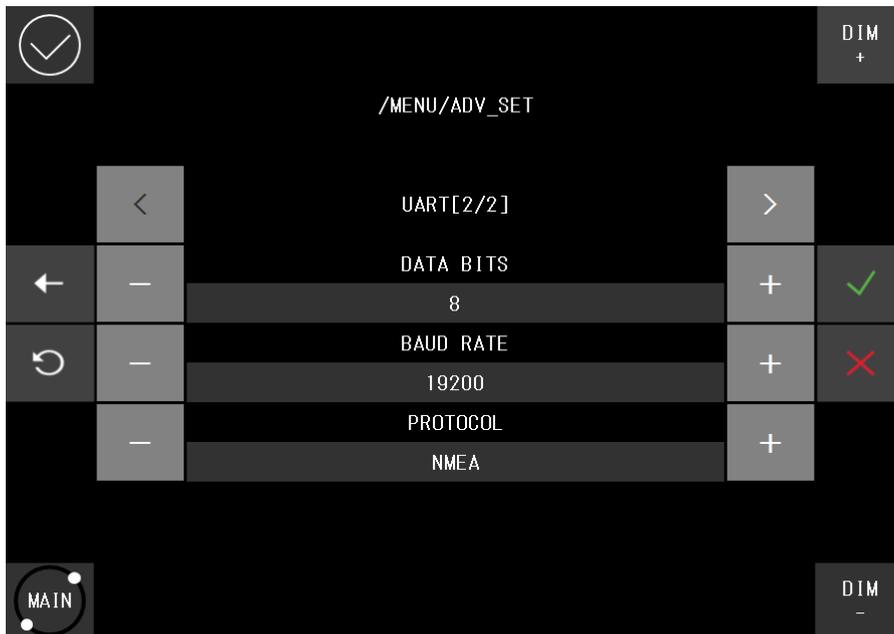
This is to set the three (3) items, "IP ADDRESS", "SUBNET MASK" and "GATEWAY".



Note : Set value is no problem with remain default.

## 2) UART CONFIG

This is to set the six (6) items, "UART", "PARITY", "STOP BITS", "DATA BITS", "BAUD RATE", and "PROTOCOL".



Note : Set value is no problem with remain default.

Caution : Remote display at shipment state is section distance display has become a -----.

Refer to the instruction manual section 7.2.2, please perform the TRIP RESET at first.

3) ALERT ON/OFF

Select alert function "ENABLED/ DISABLED".



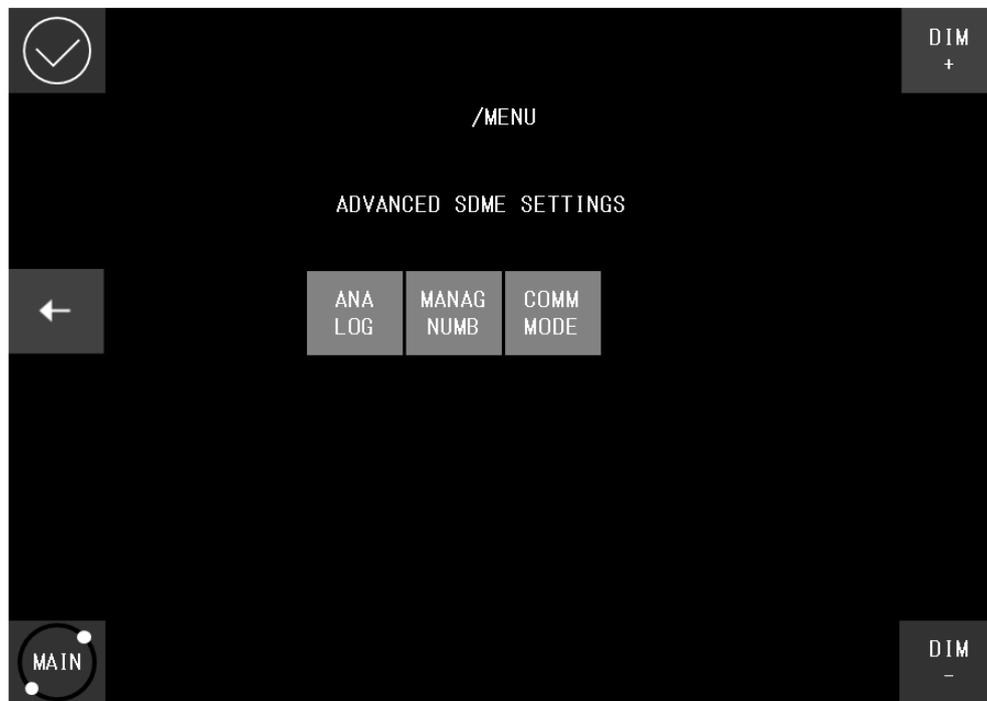
 **CAUTION**

Set to "DISABLED". Because in some cases, the remote display alert is difficult to acknowledge. So, We recommend the remote display alert as "DISABLED".

## 19.1.2. ADV SDME

### 19.1.2.1. ADV SDME Menu List

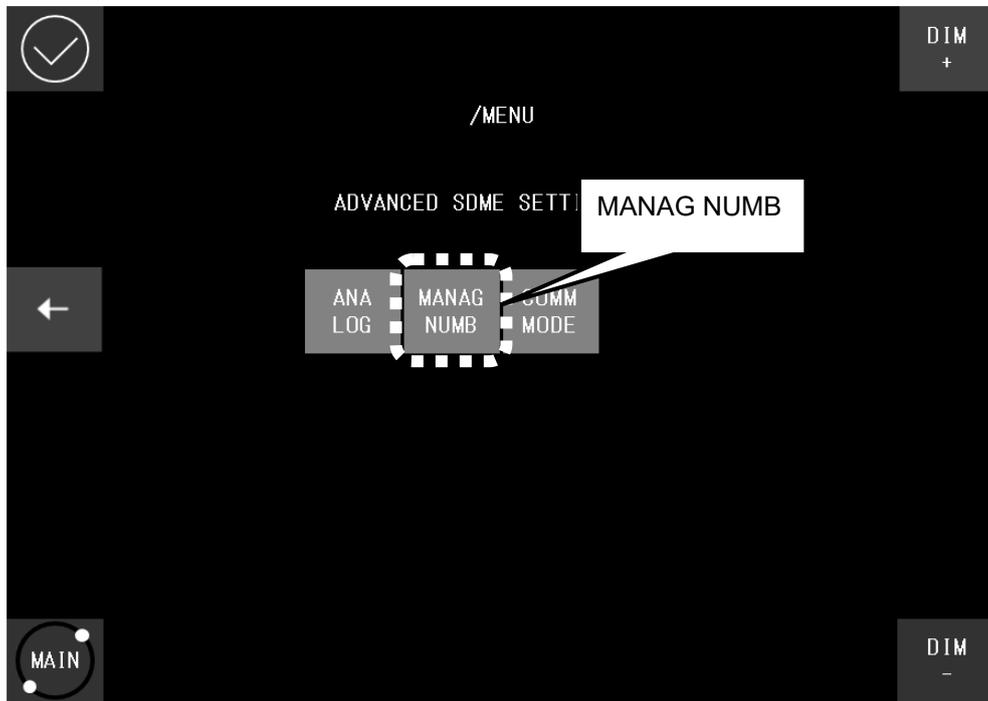
- ADVANCED SDME SETTINGS Menu Explains



Menu	Description
[ANALOG] (Configuration of the analog display scale)	Set the analog display scales
[MANAG NUMB] (Configuration of the management number)	Set the management number
[COMM MODE] (Configuration of the communication condition)	Set the communication condition

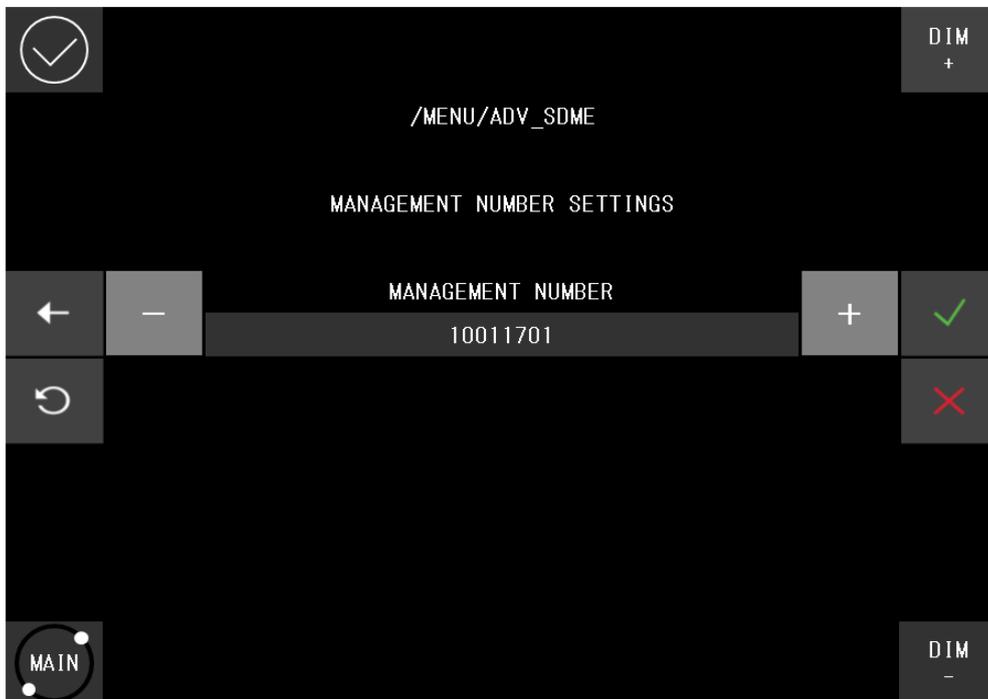
- ADV SDME

The items to be used at the time of installation are one items, "MANAG NUMB".



- 1) MANAG NUMB

This is to set the one items, "MANAGEMENT NUMBER".





## CAUTION

\* If connecting the same model (NWZ-650SDR / NWZ-840SDR) of two or more, please set so that the management numbers do not overlap. If the management numbers are set erroneously, software can no longer be updated.

- “MANAGEMENT NUMBER”

Management numbers, is the number for identifying the individual when multiple connections to the same model (NWZ-650SDR / NWZ-840SDR).

All default value because it is the same management number, please be sure to set individually.

When the remote display was reset please always set again.

Management number and port number, there is no relationship.

The list of setting values is as follows:

Management number
10011701 (Default value)
10011901

Refer to the following table for the setting examples.

Port number	Model name	Management number
Remote Display 1	NWZ-650SDR	10010701
Remote Display 2	NWZ-840SDR	10011701

Management number setting examples

## 20. Maintenance Software

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### 20.1. Required Items

#### 20.1.1. JLN-740A/740N

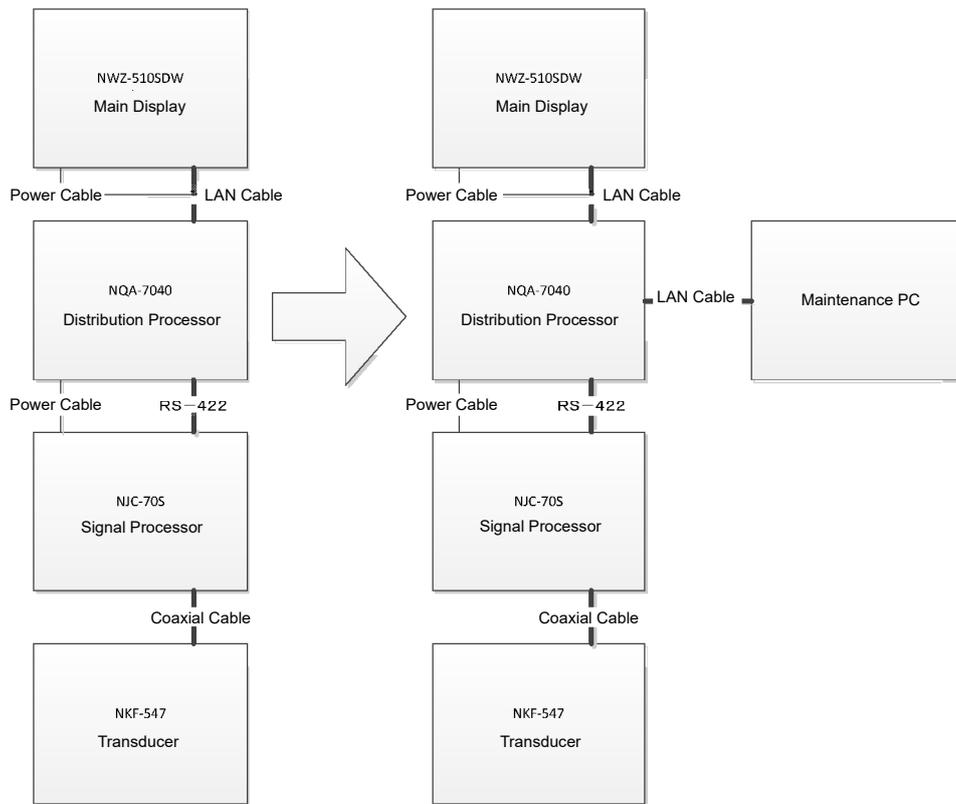
- PC..... 1 unit
- LAN cable ..... 1 pc

#### 20.1.2. JLN-741A/741N

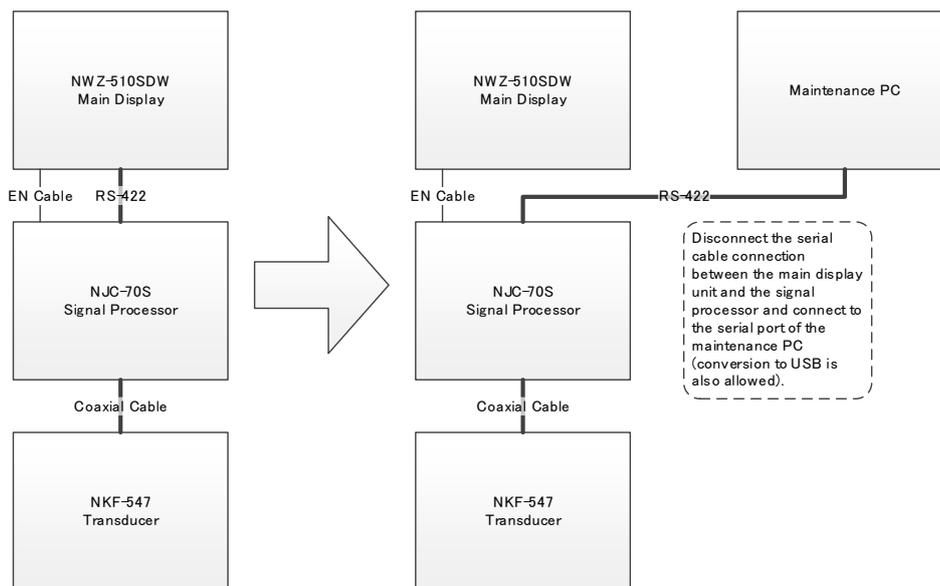
- PC..... 1 unit
- USB-RS422 conversion cable ..... 1 pc

### 20.2. Connection Method

Since JLN-741A/741N is 3-units model, the main display cannot be used while the maintenance PC tool is connected (see figure below). Therefore, confirm the vessel speed and the distance on the “First Settings” screen of the maintenance PC tool.



**Connection for maintenance (JLN-740A/740N)**



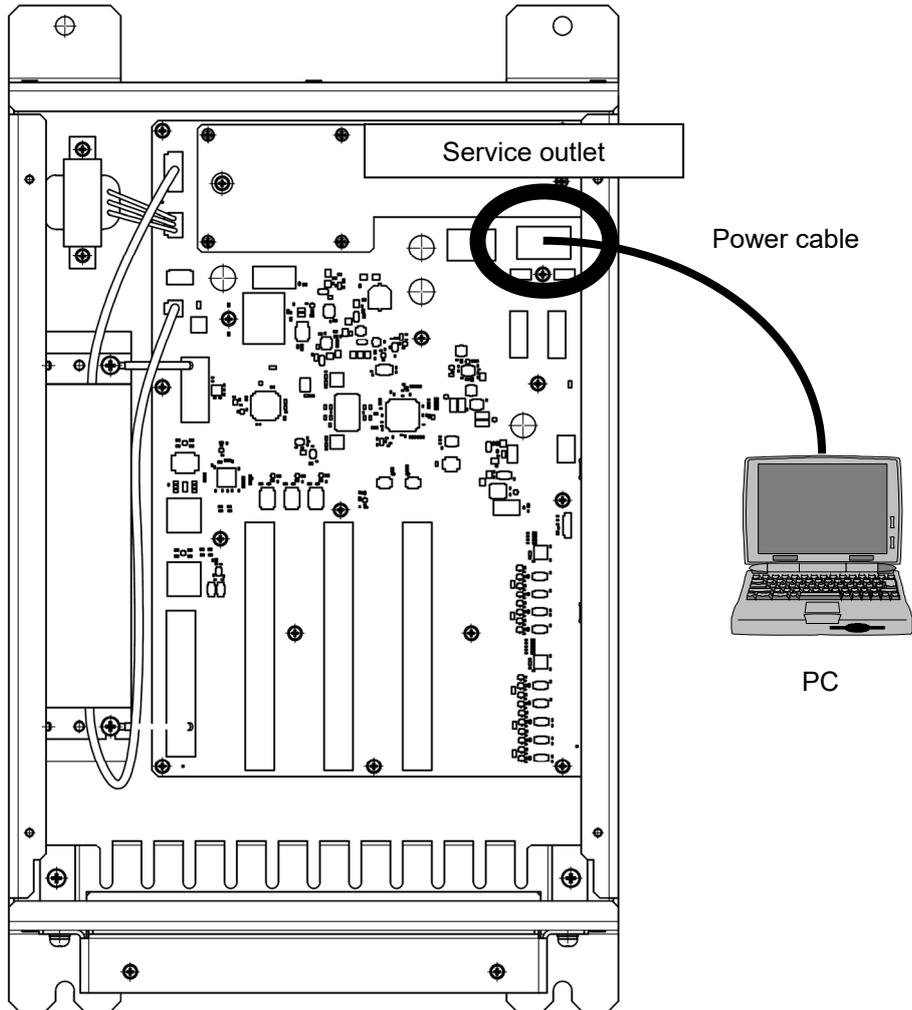
**Connection for maintenance (JLN-741A/741N)**

### 20.2.1. Connection Method of JLN-740A/740N

- The power to the PC can be supplied from the "service outlet".

Note: To output the AC voltage from this outlet, turn ON the main switch of the distribution processor.

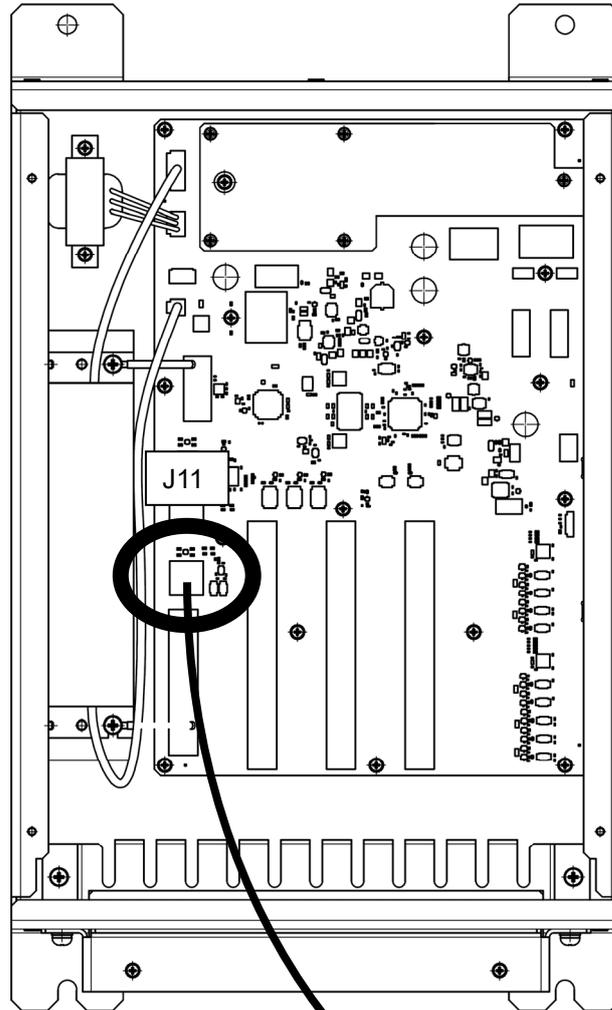
Also, AC voltage that is input to the distribution processor has been output.



- Connect the LAN cable as the following.

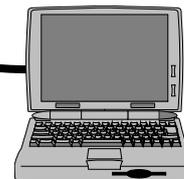
**⚠ CAUTION**

J11 is a VDR or PC dedicated LAN connection port.  
Do not connect to the LAN cable to any other LAN  
connection port.  
Otherwise, the PC may be damaged.



LAN cable

For fabrication, refer to section 5.3,  
"Assembling an Ethernet Connector".



PC

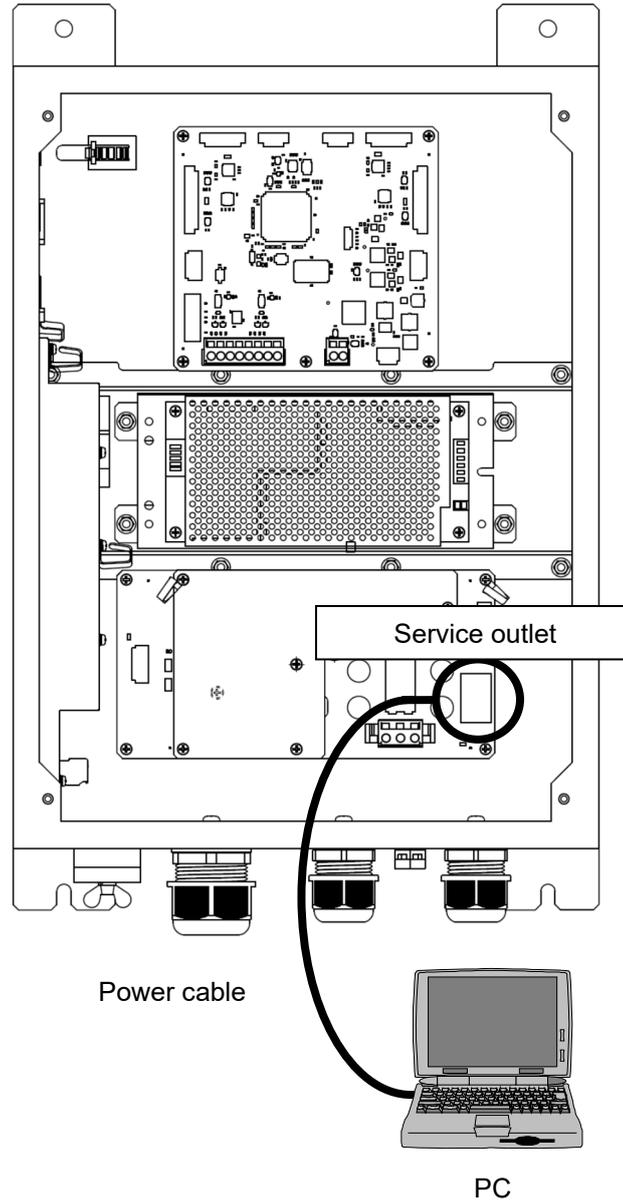
\*For the subsequent procedure, refer to "Notes" in 20.3.

### 20.2.2. Connection Method of LN-741A and JLN-741N

- The power to the PC can be supplied from the "service outlet".

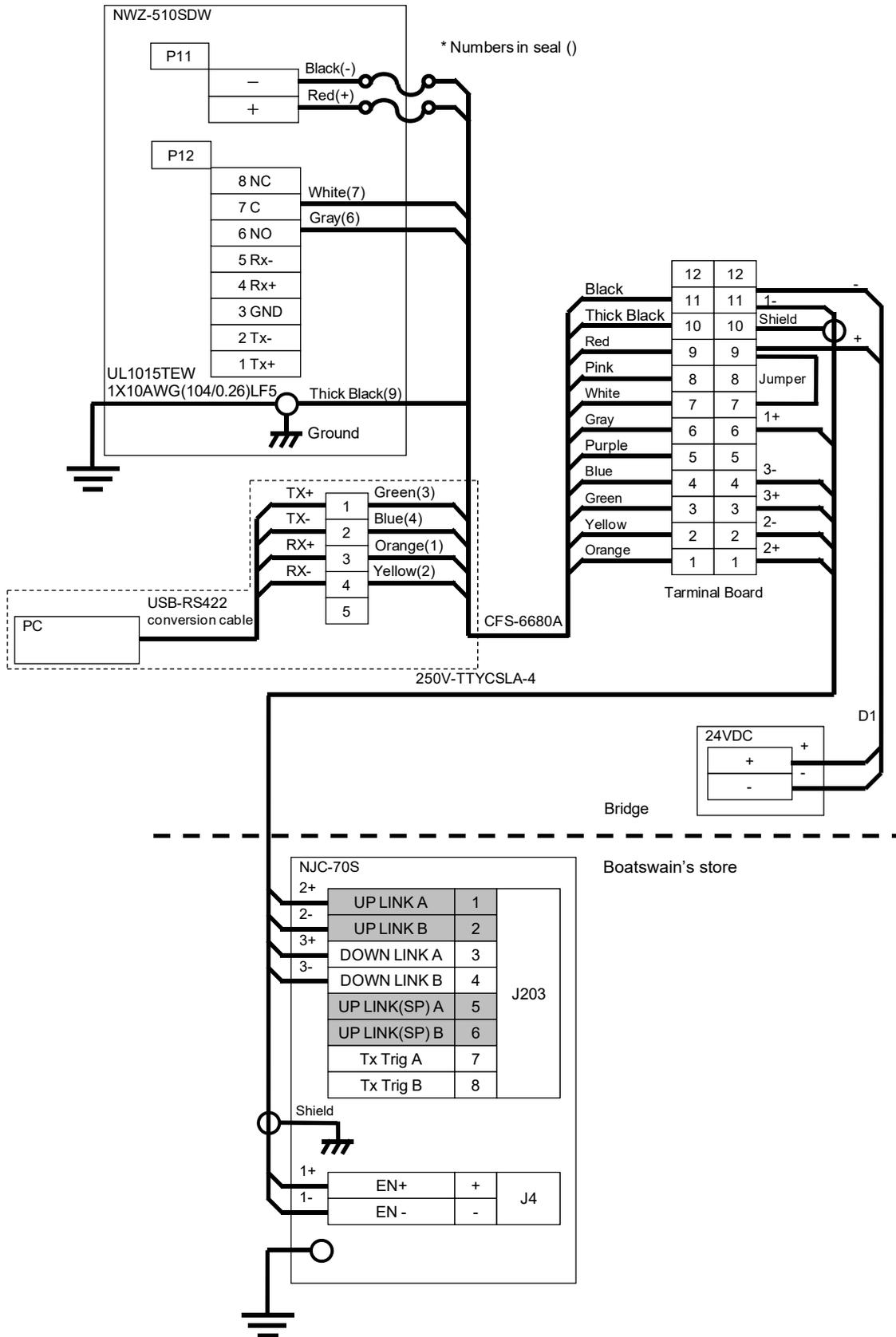
Note: This outlet, AC voltage has been output is also not have to ON the main switch.

Also, AC voltage that is input to the signal processor unit has been output.

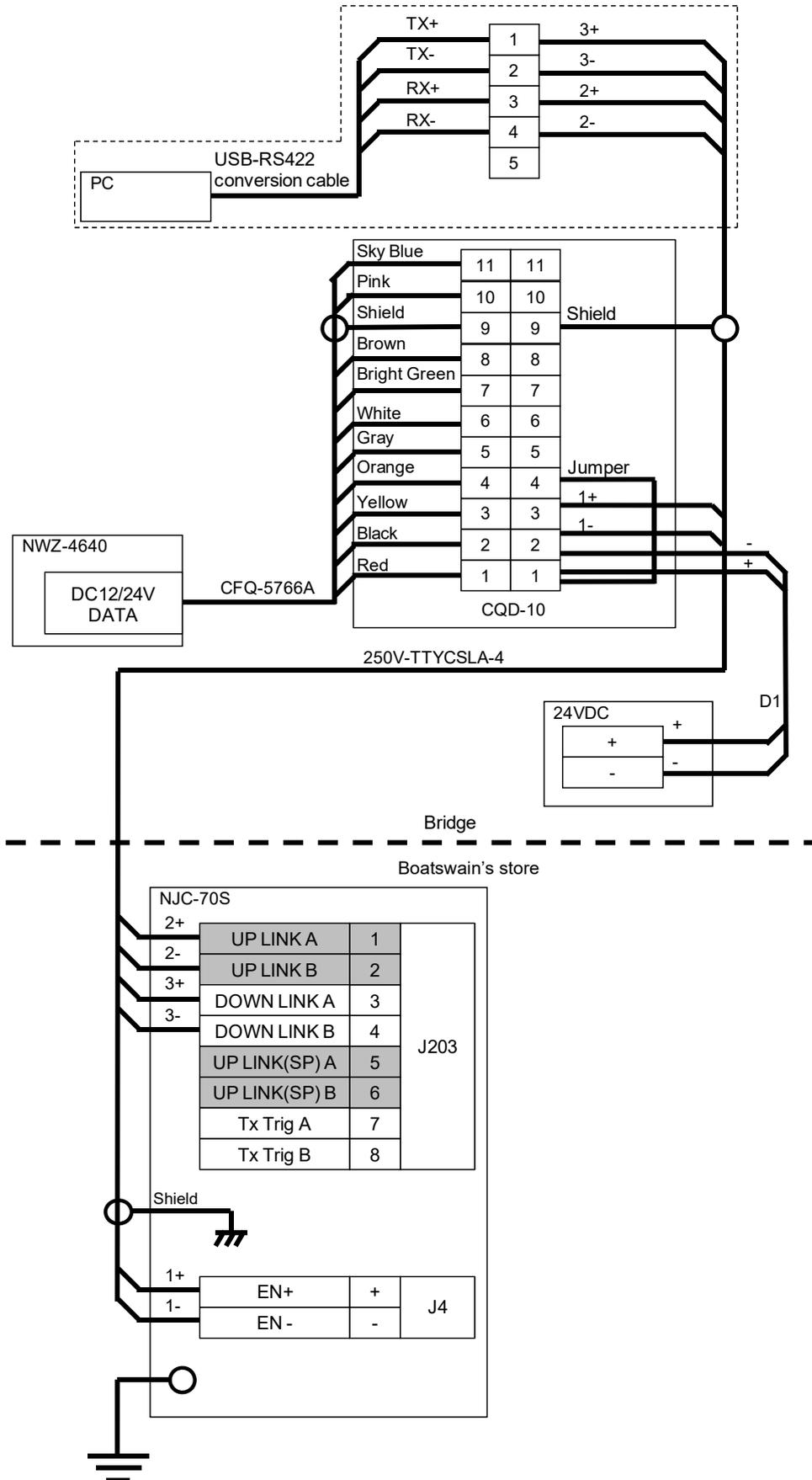


- Connect the USB-RS422 conversion cable as shown below.

JLN-741A



JLN-741N



### 20.3. Precautions

- Supported OS is Windows 7 / 8 / 10 (both English version and Japanese version supported).  
The maintenance software is written in English only.
- To use the maintenance software, .NET Framework 4.5 is required.

### 20.4. Maintenance PC tool

The maintenance PC tool that is commonly available for JLN-740A, JLN-740N, JLN-741A, and JLN-741N enables the checking and changing of the entire information of the equipment.

The common maintenance PC tool can be applied for each model.

The tool is equipped with the screen that displays only the minimum necessary items for the initialization at the installation. These items include the items to be set for the milepost test and the 18kn test.

The 18kn test is used for checking the connection at installation. For the 18kn test, the display items such as sentence (NMEA) output and LOG200 pulse output, distance meter, and analog meter at fixed 18kn navigation are used forcibly.

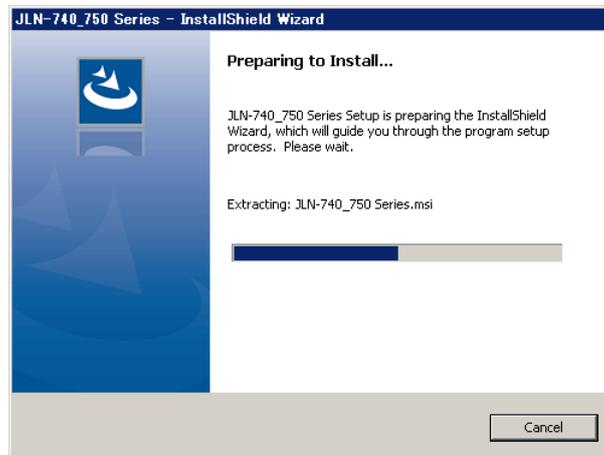
## 20.5. Installation Procedure

- 1) Execute the installation file.



- 2) Check that the installer is activated.

In this case, if .NET Framework 4.5 or a later version has not been installed in the PC, installation of .NET Framework 4.5 starts.



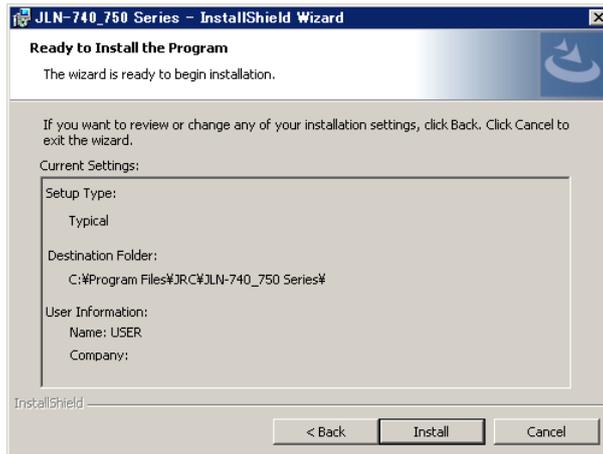
Click the [Next >] button.



Check the folder of the installation destination and click on the [Next>] button.

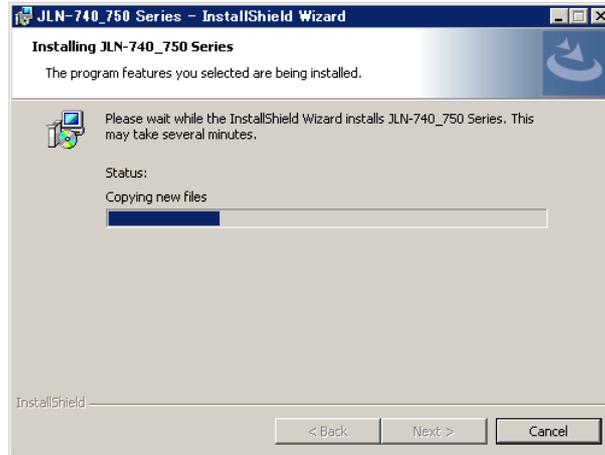


- 3) Make sure that the installation conditions are as expected.  
Confirm the installation settings and click on the [Install] button.



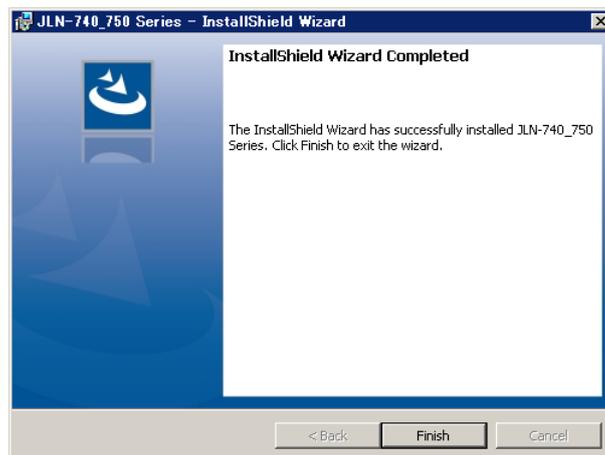
4) Installation starts.

Wait for a while.



5) Make sure that installation has been completed.

Click on the [Finish] button.



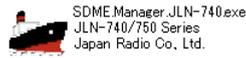
20.5.1. Initial setting value required for each piece of equipment

No.	Item	JLN-741A/ JLN-741N	JLN-740A/ JLN-740N	Remarks
1	Speed calibration	○	○	Inputs the result of the milepost test.
2	Vessel size	×	×	Only the equipment that displays the port/starboard ship speed
3	System test (18kn test and alert test)	×	○	For checking the connection after installation
4	System date and time	×	○	For JLN-740A and JLN-740N only
5	Updating bubble detection reference waveform	○	○	This setting is necessary for the ship that uses a bubble detection function. If not implemented, an alert is issued. * Please contact your sales representative / agency or Marine service department, sales department, branch / branch office, sales office of our company.
6	Remote display unit selection	×	○	For JLN-740A and JLN-740N only
7	Analog full scale	×	○	For JLN-740A and JLN-740N only
8	LOG pulse type	×	○	For JLN-740A and JLN-740N only
9	Brightness control mode	×	○	For JLN-740A and JLN-740N only
10	Serial alert type	×	○	For JLN-740A and JLN-740N only

## 20.6. Network setting

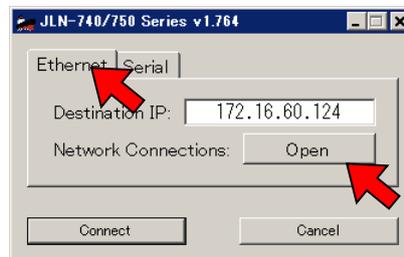
The PC and JLN-740A/740N are connected by LAN cable for maintenance setting. So, network setting is need. This section explain about network settings.

### 20.6.1. Start the maintenance PC tool.



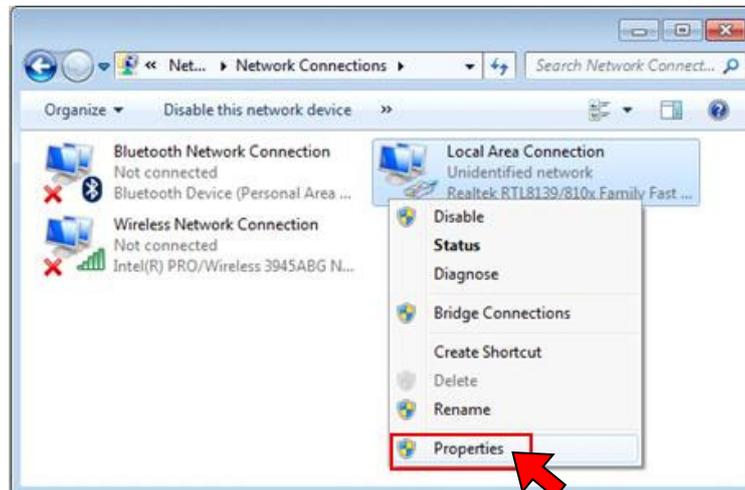
### 20.6.2. Open the Network Connections setting.

To set the Network Connections, select the [Ethernet] tab and click on the [Open] button for Network Connection menu.



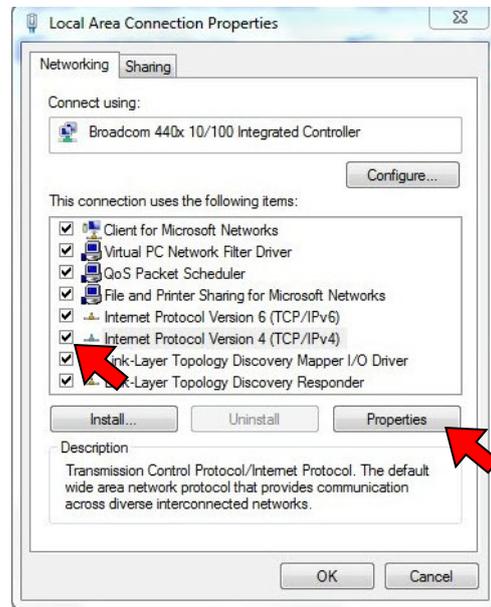
### 20.6.3. Open the property of network adaptor.

On Network Connection screen, right click the connected network adaptor and click the properties.



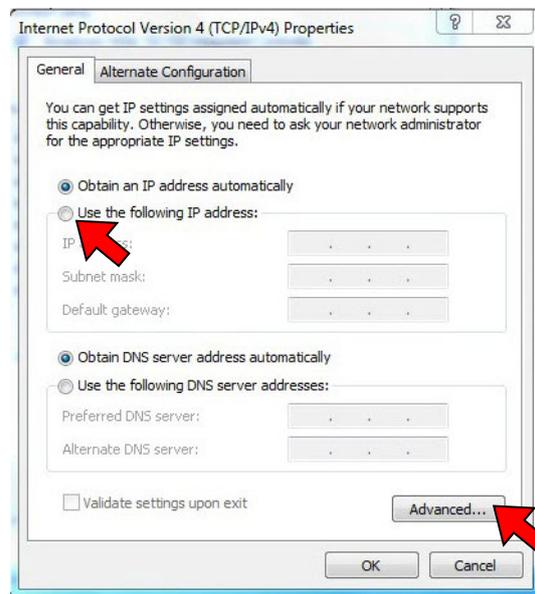
20.6.4. Open the properties of Internet Protocol Version 4 (TCP/IPv4).

Check the Internet Protocol Version 4 (TCP/IPv4) and select it. Then click the Properties button.



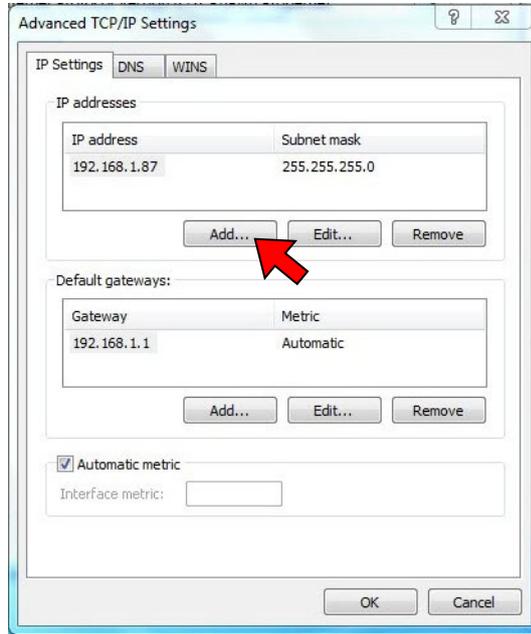
20.6.5. Open the Advanced settings.

Select Use the following IP address and click the Advanced button.



20.6.6. Add the IP address.

Select IP Settings tab and click Add button of IP address.

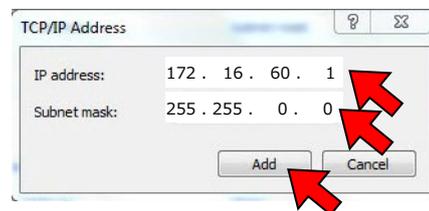


Set IP address and Subnet mask as follows.

IP address "from 172.16.60.1 to 172.16.60.254"

Subnet mask "255.255.0.0"

After setting the value, click the Add button



JLN-740/741 system IP address is 172.16.60.124.

Do not make collision between JLN-740/741 system IP address and PC.

Do not make collision between other equipment IP address and PC in the same network.

After adding the address, click OK button to close all windows.

Then finish the network settings.

If JLN-740/741 system IP address has been changed from 172.16.60.124, maintenance PC tool IP address is free.

## 20.7. Initializing the Equipment (JLN-740A/740N)

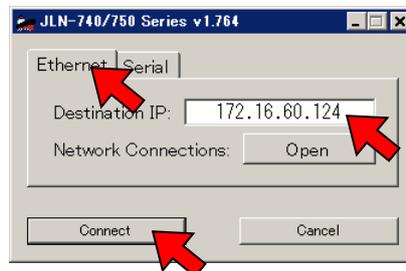
By checking all the items on the "First Settings" screen, you can cover the minimum required settings.

### 20.7.1. Start the maintenance PC tool.



### 20.7.2. Connect the equipment.

To connect JLN-740A/740N, select the [Ethernet] tab and click on the [Connect] button after entering the IP address (Default: 172.16.60.124) of the equipment.



### 20.7.3. Click on the [First Settings] button.

To check and set the minimum necessary setting values on the First Setting screen, click on the [First Settings] button.

For other menus, refer to section 20.8, "Changing the Detailed Settings".

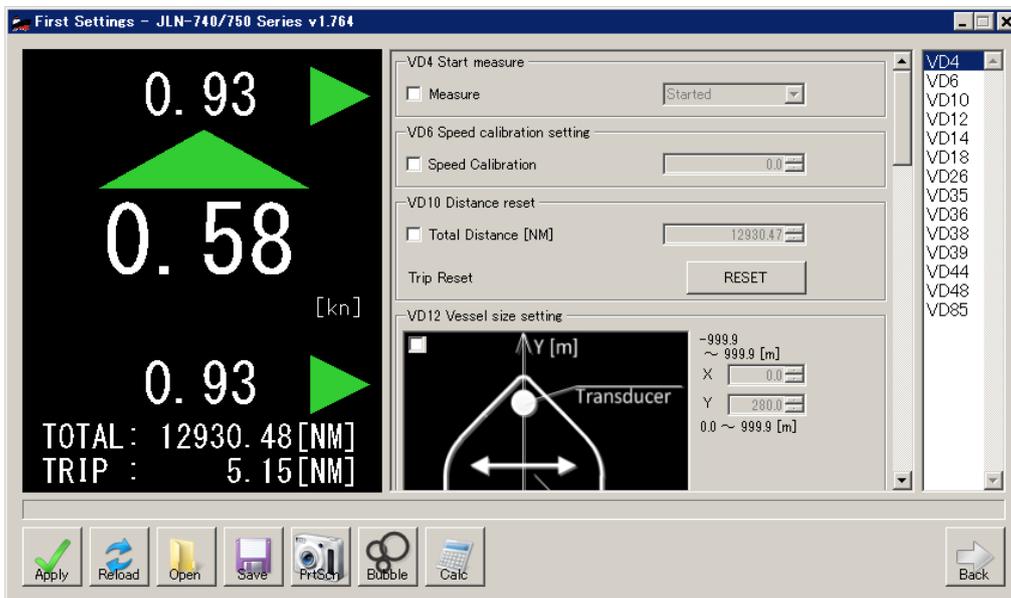


#### 20.7.4. Checking and changing the initial settings

After the installation, check the minimum necessary setting values to be checked.

The setting values that are stored in the equipment can be saved in the PC as the configuration file or the configuration file can be written to the equipment by loading it.

Please be sure to send the saved configuration file to our sales representative.



-  : Writes the setting values on the screen in the equipment collectively.
-  : Loads the information of the equipment and displays it on the screen.
-  : Loads the information of the configuration file and displays it on the screen.
-  : Saves the setting values on the screen in the configuration file collectively.
-  : Saves the screen capture of the tool as an image file.
-  : Starts the bubble detection reference waveform screen (20.7.5).
-  : Starts the milepost calculator (20.7.7).
-  : Returns to the menu screen (20.6.3).

To write the setting values to JLN-740/741 press  button. Then the  checked items are written to JLN-740/741. After finish writing, the dialog window would popup.



Confirm the PC setting values.

#### 20.7.4.1. Measurement start status

Set start/stop of transmission of the transducer (Started)/(Stopped).

<b>⚠ CAUTION</b>	If a ship is not no water due to docking, do not start transmission. Starting transmission causes the transducer to become faulty.
------------------	--

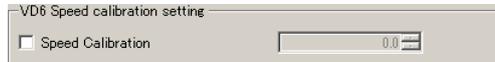


No.	Item	Setting value	Remarks
1	Start of transmission	Started (Transmission start)/Stopped (stop) Default: Stopped	Editable

#### 20.7.4.2. Setting relating to the vessel speed calculation

Specify calibration of ship speed calculation.

This calibration value should calculate by milepost test. See 20.7.6



No.	Item	Setting value	Remarks
1	Speed calibration	-50.0 to +50.0 [%] Default: 0.0	Editable

#### 20.7.4.3. Distance reset

Specify the total distance.

When the [Trip Reset] button is pressed, the distance is reset.

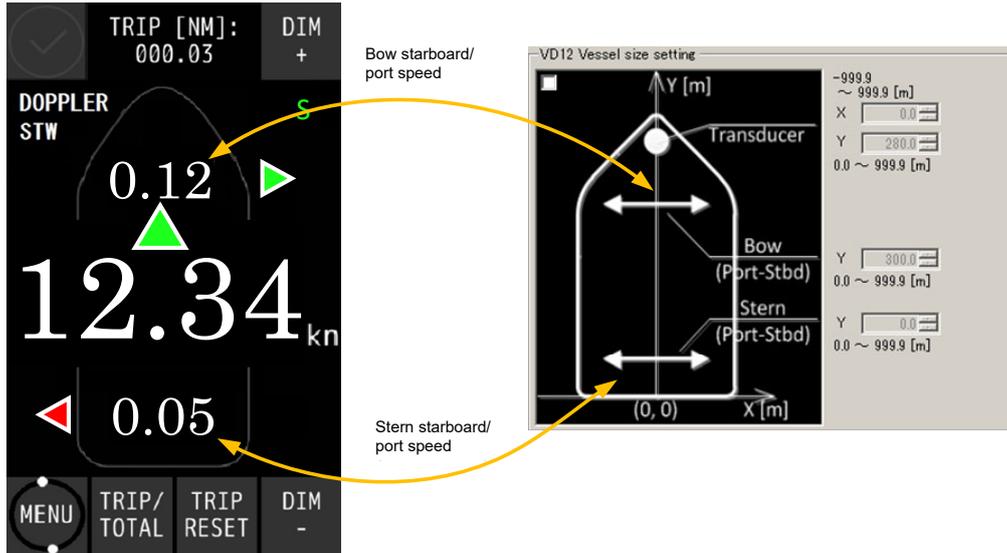


No.	Item	Setting value	Remarks
1	Set total distance	0 to 999999.99 [NM] Default: 0	Editable
2	Reset distance	Reset/not reset	Reset by pressing the button

#### 20.7.4.4. Setting relating to the hull

For JLN-740A/740N/741A/741N, the setting related to the hull is not made.

In JLN-750 only, enter the coordinates that should display the right and left head speed and the right and left stern speed of the ship and the coordinates that are equipped with the transducer (NKF-547/531E).

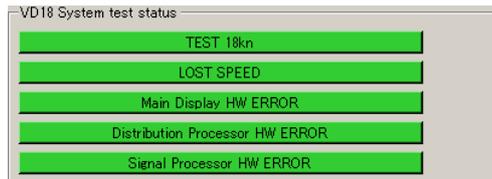


No.	Item	Setting value	Remarks
1	Transducer installation position (port/starboard) *JLN-750 only	-999.9 to 999.9 [m] Default: 0.0	Editable. Distance from the keel
2	Transducer installation position (bow/stern) *JLN-750 only	0.0 to 999.9 [m] Default: 0.0	Editable. Distance from the stern
3	Vessel's fore speed position *JLN-750 only	0.0 to 999.9 [m] Default: 0.0	Editable. Distance from the stern
4	Vessel's after speed position *JLN-750 only	0.0 to 999.9 [m] Default: 0.0	Editable. Distance from the stern

#### 20.7.4.5. System test status

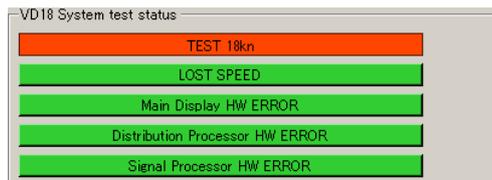
Use the system test to check whether the distribution processor (NQA-7040) is connected correctly.

For 18kn test, check the connection of LOG pulse contact and distance counter (NWW-7). For other alert, check the connection of system alert contact.



No.	Item	Setting value	Remarks
1	System test (18kn test)	Red(Test Enable)/ Green(Disable)	Changeable with the toggle button
2	System test (lost speed alert)	Red(Test Enable)/ Green(Disable)	Changeable with the toggle button
3	System test (main display hardware error)	Red(Test Enable)/ Green(Disable)	Changeable with the toggle button
4	System test (distribution processor hardware error)	Red(Test Enable)/ Green(Disable)	Changeable with the toggle button
5	System test (signal processor hardware error)	Red(Test Enable)/ Green(Disable)	Changeable with the toggle button

As an example, when only the 18 kn test is enabled, the display changes to “red” in the following way.



Screen example when the 18kn test is enabled

#### 20.7.4.6. Setting relating to system time

Set the UTC time. The UTC time set here is used for the time stamp of alert message.

No.	Item	Setting value	Remarks
1	System time and date (year)	2000 to 2037 Default: 2016	Editable
2	System time and date (month)	1 to 12 Default: 1	Editable
3	System time and date (day)	1 to 31 Default: 1	Editable
4	System time and date (hour)	0 to 23 Default: 0	Editable
5	System time and date (minute)	0 to 59 Default: 0	Editable
6	System time and date (second)	0 to 59 Default: 0	Editable

#### 20.7.4.7. Transducer (NKF-547/531E) management information

During installation, be sure to enter transducer (NKF-547/531E) management information. This information is managed by the remote maintenance system (RMS) during operation.

No.	Item	Setting value	Remarks
1	Model name (NKF-547/531E)	Up to 9 ASCII characters	Editable
2	Serial number (NKF-547/531E)	Up to 10 ASCII characters	Editable
3	Bar code number (NKF-547/531E)	Up to 13 ASCII characters	Editable

#### 20.7.4.8. Signal processor (NJC-70) error

If bubble detection reference error is indicated as “red”, be sure to perform update (overwrite and then read: ) operation on the bubble detection reference waveform screen (20.7.5). When update processing of bubble detection reference waveform is completed, “green” is indicated.

No.	Item	Display	Remarks
1	Bubble detection reference abnormality	Green (Normal)/Red (abnormal)	Display only

#### 20.7.4.9. Setting remote displays

Be sure to specify whether the remote display NWZ-650SDR, NWZ-840SDR, or NWZ-4610 has been connected to the two remote display ports located in the terminal block (CQD-7040) of the distribution processor (NQA-7040), respectively (if it is not connected, the default value may be used as is.)

Specify the remote display connected to TB2 pin 9 to pin14 (Remote 1) of the distribution processor (NQA-7040) to select remote display (1).

Specify the remote display connected to TB2 pin15 to pin 20 (Remote 2) of the distribution processor (NQA-7040) to select remote display (2).

When the setting value does not match the installation status, the ship speed is not indicated on the remote display.



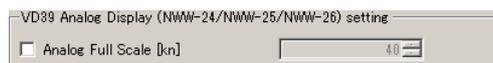
No.	Item	Setting value	Remarks
1	Select remote display (1)	NWZ-650SDR/840SDR / NWZ-4610 Default: NWZ-650SDR/840SDR	Selectable by using the pull-down menu
2	Select remote display (2)	NWZ-650SDR/840SDR / NWZ-4610 Default: NWZ-650SDR/840SDR	Selectable by using the pull-down menu

#### 20.7.4.10. Setting analog displays (NWW-24/25/26)

Be sure to specify the full scale of the analog display connected to the analog display port located in the terminal block (CQD-7040) of the distribution processor (NQA-7040) (if it is not connected, the default value may be used as is).

Specify the full scale of the analog display connected to TB2 pin 1 to pin 4 (Analog Display 1) and pin 5 to pin 8 (Analog Display 2) of the distribution processor (NQA-7040).

When the setting value does not match the installation condition, accurate ship speed cannot be indicated on the analog display.



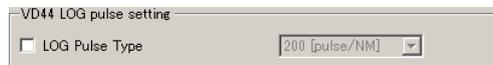
No.	Item	Setting value	Remarks
1	Analog full scale	20 to 40 [kn] Default: 30	Editable

#### 20.7.4.11. Setting LOG pulse

Be sure to specify the pulse number of the LOG pulse device connected to the LOG pulse port located in the terminal block (CQD-7040) of the distribution processor (NQA-7040) (if it is not connected, the default value may be used as is).

Specify the pulse number of LOG pulse connected to TB2 pin 21 to pin 24 (Log Pulse) of the distribution processor (NQA-7040).

When the setting value does not match the installation status, accurate distance cannot be indicated in LOG pulse.



No.	Item	Setting value	Remarks
1	Log pulse type	100 / 200 / 400 [pulse/NM] Default: 200	Selectable by using the pull-down menu

#### 20.7.4.12. Setting relating to the brightness control

Be sure to specify distribution processor (NQA-7040) port whose brightness data is to be linked with. To link with brightness data input by DDC sentence in particular, also specify the DDC sentence to be received. If the default value is used as is, brightness is not linked with.



No.	Item	Setting value	Description
1	Brightness control mode	Not Use	Brightness is not controlled. The dimmer unit that is connected to the TB1 5 pin and TB1 6 pin (Dimmer analog) of the distribution processor (NQA-7040) is used.
		Dimmer Unit(NCM-227)	The serial dimmer port of TB1 1 pin to TB1 4 pin of the distribution processor (NQA-7040) is used.
		Main Display	The brightness control of main display is used.
		Serial Dimmer(DDC)	The serial dimmer port of TB1 1 pin to TB1 4 pin (Dimmer Serial) of the distribution processor (NQA-7040) is used.
		Serial ROT(DDC)	The serial ROT port of TB4 3 pin and TB4 4 pin (RX1 (ROT)) of the distribution processor (NQA-7040) is used.
		Serial GPS(DDC)	The serial GPS port of TB4 5 pin and TB4 6 pin (RX2 (GPS)) of the distribution processor (NQA-7040) is used.
		Serial Spare(DDC)	The serial spare port of TB4 7 pin and TB4 8 pin (RX3 (Spare)) of the distribution processor (NQA-7040) is used.
		Ethernet(DDC)	The Ethernet port of J11 (Maintenance) of the distribution processor (NQA-7040) is used.
		Initial value: Not Use	

### 20.7.4.13. Setting serial alert

Be sure to specify alert communication supported by the equipment connected with the serial alert port of the distribution processor (NQA-7040) (if it is not connected, the default value may be used as is).

When the setting value does not match the installation status, serial alert communication cannot be performed.



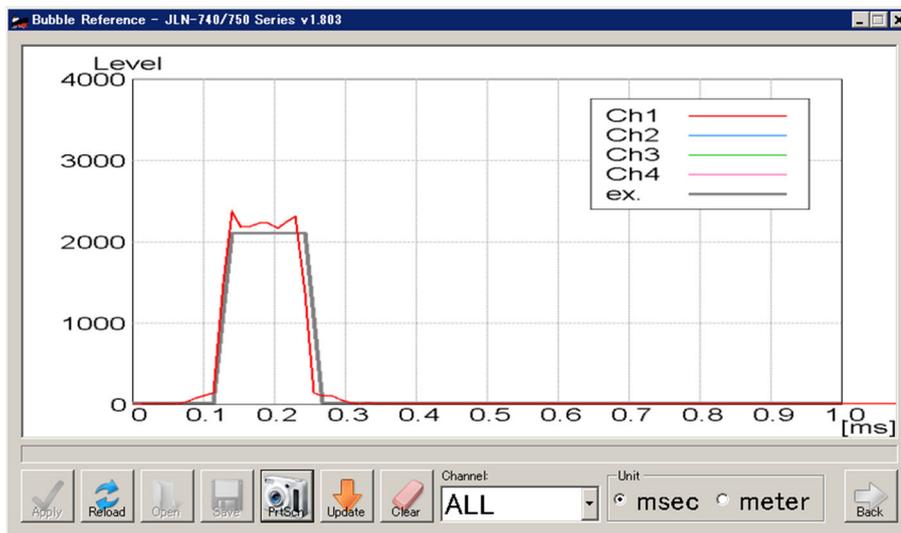
No.	Item	Setting value	Remarks
1	Serial alert type	Use ALF/ACN/ALC/ARC/HBT (ALR communication)/Use ALR/ACK (ALF communication) Initial value: Use ALF/ACN/ALC/ARC/HBT	Selectable by using the pull-down menu
2	Whether "rectified – unacknowledged" state is used by ALR or not	Not Use /Use "Rectified-unacknowledged" (Use) Initial value: Use "Rectified-unacknowledged"	Selectable by using the pull-down menu

### 20.7.5. Acquiring a bubble detection reference waveform

A bubble detection reference waveform is a reference (comparison target) waveform for the bubble detection function.

On this screen, acquire (load: ) or update (overwrite and load: ) the bubble detection reference waveform that is stored in the equipment.

The waveform that is acquired is displayed on the screen and is automatically saved as a binary file also. The file name is assigned in the format of “yyyymmdd-hhmmss\_Ch<channel number>\_BubbleRef.dat”.



 **CAUTION**

When the UPDATE button is pressed, transmission is done once to acquire the waveform regardless of whether current transmission is done.

When a ship is not on water due to its docking or for other reasons, do not press this button. Pressing this button may cause the transducer to fail.



: Displays the bubble reference waveform that is stored in the equipment for the specified channel.



: Saves the screen capture of the tool as an image file.



: Updates and displays the bubble reference waveform that is stored in the equipment for the specified channel



: Clears (hides) the waveform on this screen. The log file is not deleted.



: Specify the channel for which bubble reference waveform is to be acquired.



: Select the horizontal axis of graph display.



: Returns to the previous screen.

#### 20.7.6. Speed calibration

To effectively use the excellent feature of the Doppler Log, the actual speed and the specified speed should be compared to perform necessary calibration after installation ends. To perform speed calibration, normally make sailing forward and back between mileposts and then obtain the calibrated value. The calibrated value at this point should be accurately recorded on the speed test form and stored.

If the device fails and the units are replaced at a later date, the speed can be set again according to this record.

During sailing between mileposts, it is necessary to make sufficient preliminary sailing, exercise care to prevent the speed from changing during sailing and sail correctly to the specified milepost directions.

It is recommended to sail forward and back once when the impact from the tidal current and wind can be regarded as constant for the time, and twice when the impact changes with time. When the difference in the measured value in the same direction is 0.5kn or more, repetitive measurement is necessary.

- 1) Sailing test is conducted according to customer's commissioning plan. In the absence of a plan, the test between milepost is generally sailing forward and back four times: 1/4, 2/4, 3/4, and 4/4 of main engine rating.
- 2) Ensure that the number of rotations of the propeller and the course are made constant one nautical mile before entering the milepost and remain unchanged until the test ends.
- 3) When passing point A in the following figure, press stop watch 1 and the reset button on the distance counter.
- 4) When the distance counter indicates 0.01 nm, press stop watch 2.
- 5) Upon passing point B, stop stop watch 1 and obtain the required time between mileposts (t1).
- 6) When the distance counter indicates 1.01 nm, stop stop watch 2 and obtain the required time for 1.00 nm sailing (t2) on the Doppler Log.  
\*Steps 5) and 6) may be reverse in time.
- 7) Obtain the calculated speed from the measured required time.

$$\text{Actual speed} = a \times \frac{3600}{t_1} \text{ [kn]}$$

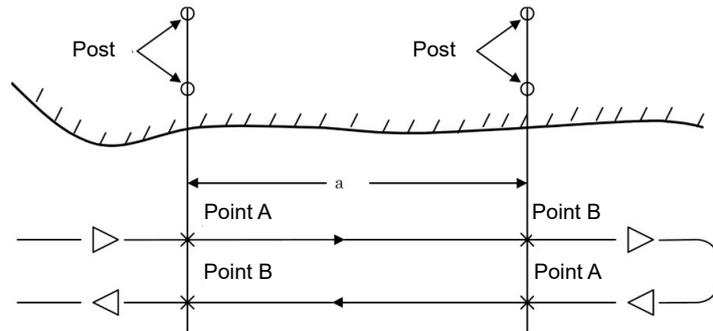
a: Distance between mileposts [nm]

t<sub>1</sub>: Required time between mileposts [S]

$$\text{Logged speed} = 1 \times \frac{3600}{t_2} \text{ [kn]}$$

t<sub>2</sub>: Logged required time for 1 nm sailing [S]

- 8) Avoid the same sea and sail forward and back. When entering the back route from the forward route, sail on greatly roundabout route and keep constant speed and course between mileposts. Perform the same measurement as on the forward route.



From the results of the sailing test between mileposts, the average values of actual speed and logged speed for sailing forward and back are calculated, respectively. From the following expression, calculate the calibrated value to be set in maintenance PC tool “setting for ship speed calculation.”

$$\text{Actual speed} = \frac{\text{Average actual speed} - \text{average logged speed}}{\text{Average actual speed}} \times 100 [\%]$$

Normally, sailing test between mileposts is performed during four sailings forward and back. Since the Doppler log provides excellent linearity of speed, the speed is calibrated after first sailing forward and back and is checked during remaining three sailings forward and back.

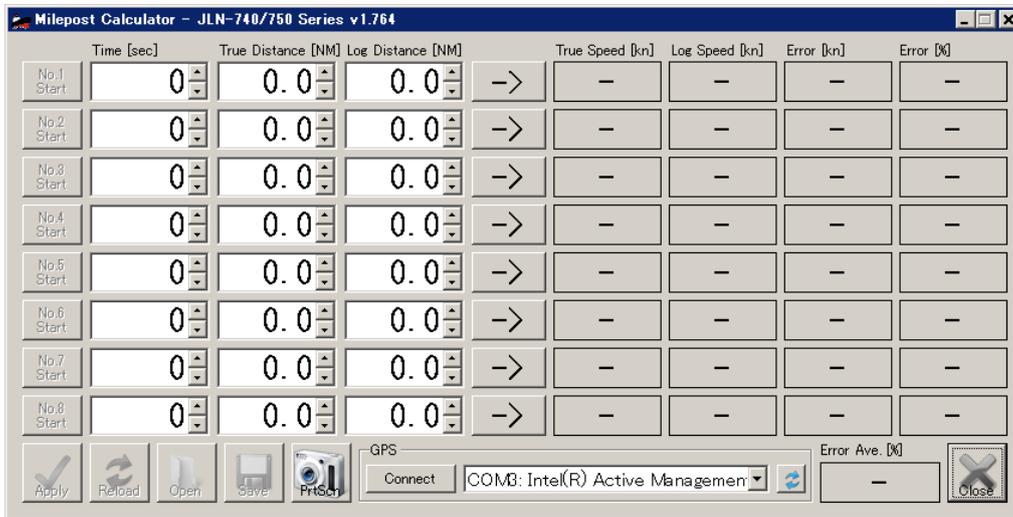
From the next pages, milepost test calculation using the maintenance PC tool function is described.

### 20.7.7. Calculating milepost test results

By entering a distance of a section (trip) and an elapsed time for a milepost test, the speed calibration values of the outward journey and the return journey can be calculated. In this case, only when GPS sensor communication can be received by the PC that is executing the maintenance PC tool, the function that allows automatic input of the ground distance is available (20.7.7.2).

However, a function for setting the calculation result in the equipment with a single button operaton for prevention of operation errors is not available.

This screen can be started by clicking on the  button on the “First Settings” screen.



: Saves the captured screen of the tool as an image file.



: Closes this screen.

The format is described in "Appendix B MilePost Test Result".

### 20.7.7.1. Entering a ground distance (True Distance) manually.

The milepost calculator can produce results of up to 8 tests (4 return journeys).

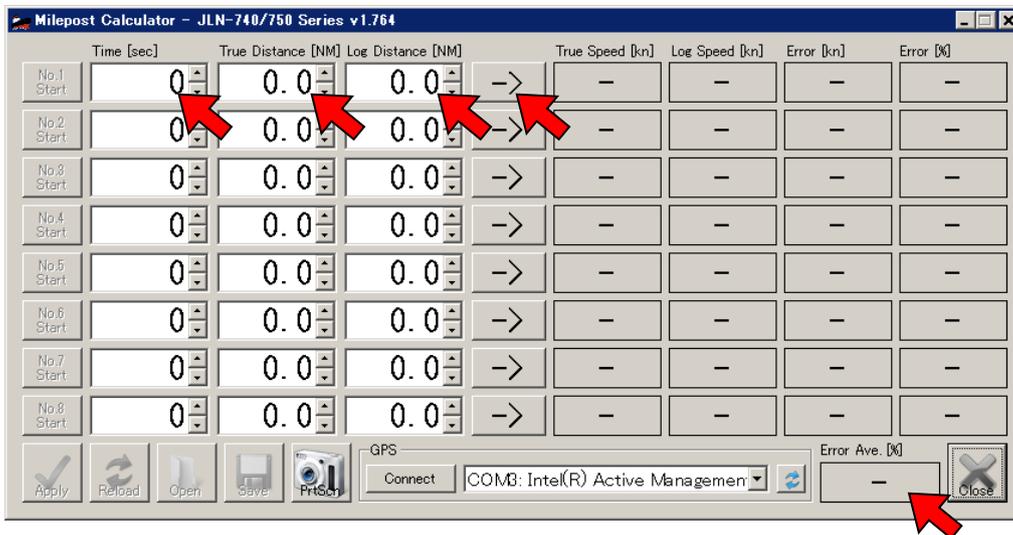
Enter an elapsed time (Time [sec]), a ground distance (True Distance [NM]) and a water distance (Log Distance [NM]).

To enter the values, click on the numerical value input field and then use one of the following methods:

- Use the scroll button of the mouse
- Click on the up and down arrow buttons at the right side of the numerical value input field
- Use the up and down key of the keyboard
- Use the numerical keys of the keyboard

When the  button is pressed, the speed calibration value as a result of the milepost test is displayed in the line on the right side.

After calculation of the speed calibration value as a result of each milepost test, the average of the speed calibration values is displayed at the bottom right corner.



20.7.7.2. Entering a ground distance (True Distance) through serial communication of GPS

Start reception of data from the GPS sensor by using the GPS sensor at the bottom left of the window and the communication setting.

Data from the GPS sensor can be received through serial communication only.



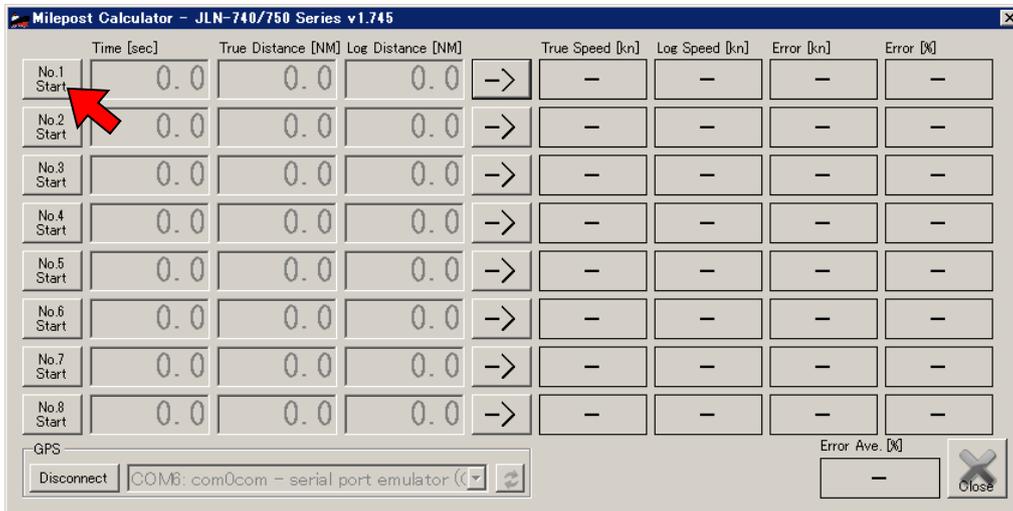
**Connect** : Starts serial reception from the GPS sensor.

**COM3: Intel(R) Active Management** : Select the serial port that is connected to the GPS sensor.

 : Updates the pull-down menu when the serial port of the GPS sensor is not displayed on the pull-down menu.

When a correct RMC sentence can be received from the GPS sensor, the screen display changes as follows.

On this screen, use the Start/Stop buttons on the left side to test and calculate the result of the milepost test.



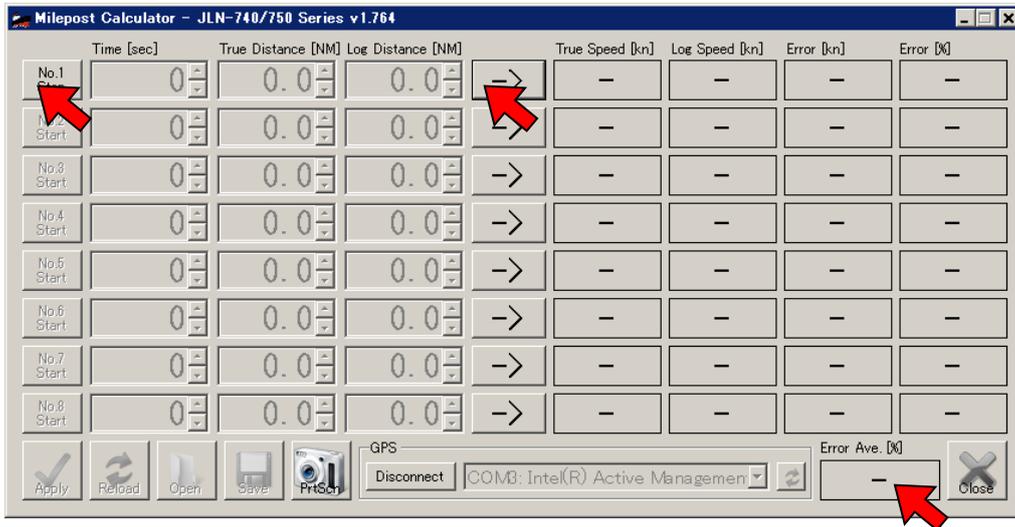
**No.1 Start** : Starts the milepost test.

**No.1 Stop** : Stops the milepost test. This button is displayed only while a milepost test is in progress.

**->** : Calculates the result of the milepost test.

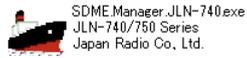
When a milepost test is in progress, the Stop button for the milepost test is displayed.

After calculation of the speed calibration value by each milepost test, the average of the speed calibration values is displayed at the bottom right corner of the screen.



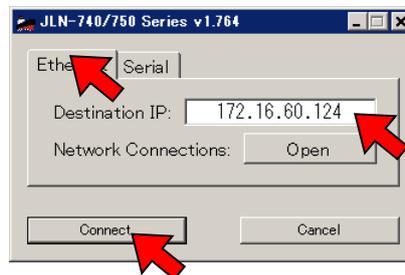
## 20.8. Changing the Detailed Settings (JLN-740A/740N)

### 20.8.1. Start the maintenance PC tool.



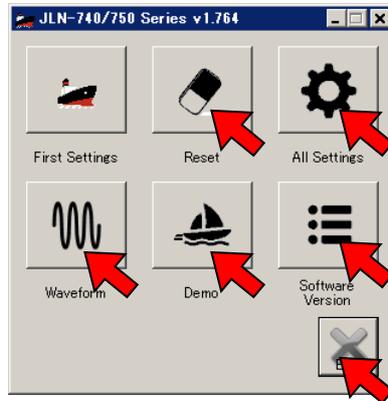
### 20.8.2. Connect the equipment.

To connect JLN-740A/740N, select the [Ethernet] tab and click on the [Connect] button after entering the IP address (Default: 172.16.60.124) of the equipment.



### 20.8.3. Select a menu.

Click on a menu button according to the purpose.



Specifies initial settings.  
Refer to section 20.7 "Initializing the Equipment (JLN-740A/740N)".



Resets the setting values that are stored in the equipment to those at the factory shipment.  
Refer to section 20.8.4 "Resetting all the settings to those of the factory shipment".



Enables checking and changing of all the settings and the statuses of the equipment.  
Refer to section 20.8.5 "Checking and changing all the settings and statuses".



Acquires waveform log.  
Refer to section 20.8.6 "Acquiring waveform log".



Performs demonstration.  
Refer to section 20.8.7 "Performing demonstration for presentation".



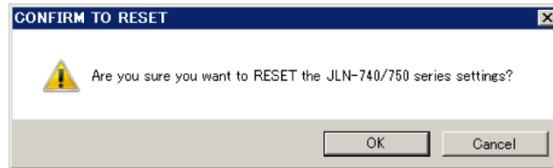
Displays maintenance information.  
Refer to section 20.8.8 "Displaying maintenance information".



Exits from the tool.

#### 20.8.4. Resetting all the settings to those of the factory shipment

Use this function to reset all the setting values to those of the factory shipment.



: Executes resetting.

: Returns to the menu screen (20.8.3).

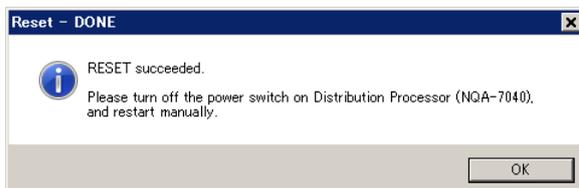
When press  button to reset, at first saving the current setting dialog would popup. After saving, the JLN-740/741 settings will reset.

On resetting, menu screen would change below and cannot operate.



After finish the reset, RESET succeeded or Reset failed window would popup.

If RESET is failed, some menu items cannot reset. Check the menu items by maintenance PC tool.



RESET succeeded

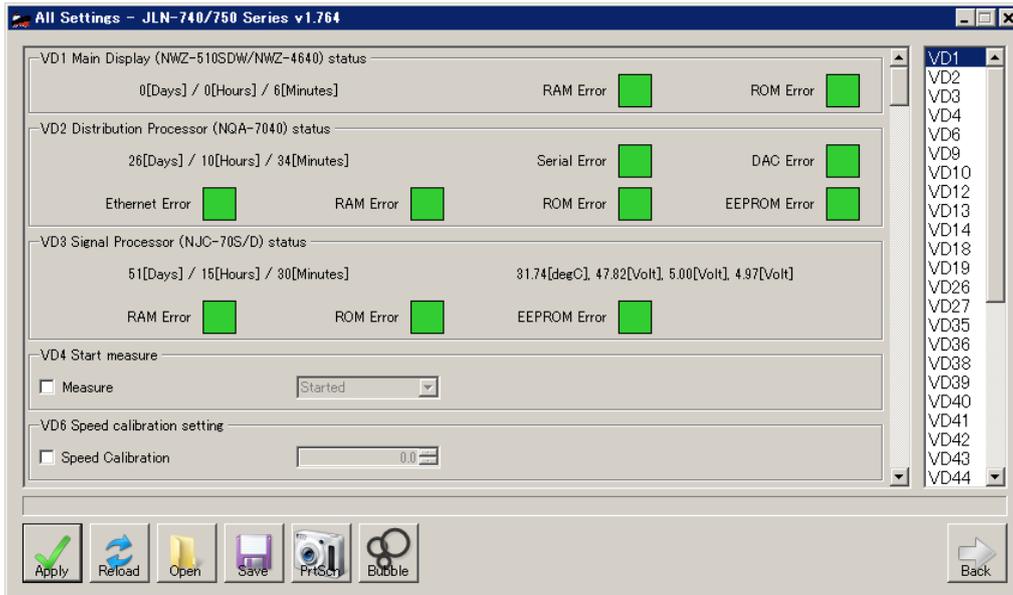


Reset failed

### 20.8.5. Checking and changing all the settings and statuses

This function enables the changing and checking of all the settings and statuses of JLN-740A/740N.

Please be sure to send the saved configuration file to our sales representative.



-  : Writes the settings on the screen to the equipment collectively.
-  : Loads the information in the equipment and displays it on the screen.
-  : Loads the information in the configuration file and displays it on the screen.
-  : Saves the setting values on the screen in a configuration file collectively.
-  : Saves the screen capture of the tool as an image file.
-  : Starts the bubble detection reference waveform screen (20.7.5).
-  : Returns to the menu screen (20.8.3).

To write the setting values to JLN-740/741 press  button. Then the  checked items are written to JLN-740/741. After finish writing, the dialog window would popup.



Confirm the PC setting values.

### 20.8.5.1. Status of the main display (NWZ-510SDW)

Make sure that all error indications are “green”. If “red” is indicated, replace the main display.

<Error contents>

RAM Error: An error occurred in the RAM.

ROM Error: An error occurred in the ROM.



No.	Item	Setting value/Display	Remarks
1	Total operating time (Main display – Day)	0 to 9999 [day] Default: 0	Display only
2	Total operating time (Main display – Hour)	0 to 23 [hour] Default: 0	Display only
3	Total operating time (Main display – Minute)	0 to 59 [minute] Default: 0	Display only
4	RAM Error (Main display)	Green (Normal)/Red(abnormal)	Display only
5	ROM Error (Main display)	Green (Normal)/Red(abnormal)	Display only

### 20.8.5.2. Status of the distribution processor (NQA-7040)

Check that all the errors are displayed in “green”. If any of the errors is displayed “red”, replace CQD-7040.

<Error contents>

Serial Error: An error occurred in the serial IC.

DAC Error: An error occurred in the DAC.

Ethernet Error: An error occurred in the Ethernet IC.

RAM Error: An error occurred in the RAM.

ROM Error: An error occurred in the ROM.

EEPROM Error: An error occurred in the EEPROM.



No.	Item	Setting value/Display	Remarks
1	Total operating time (Distribution processor – Day)	0 to 9999 [day] Default: 0	Display only
2	Total operating time (Distribution processor – Hour)	0 to 23 [hour] Default: 0	Display only
3	Total operating time (Distribution processor – Minute)	0 to 59 [minute] Default: 0	Display only
4	Serial IC abnormality (Distribution processor)	Green (Normal)/Red(abnormal)	Display only
5	DAC abnormality (Distribution processor)	Green (Normal)/Red(abnormal)	Display only
6	Ethernet IC abnormality (Distribution processor)	Green (Normal)/Red(abnormal)	Display only
7	RAM Error (Distribution processor)	Green (Normal)/Red(abnormal)	Display only
8	ROM Error (Distribution processor)	Green (Normal)/Red(abnormal)	Display only
9	EEPROM Error (Distribution processor)	Green (Normal)/Red(abnormal)	Display only

### 20.8.5.3. Status of the signal processor (NJC-70)

Make sure that all error indications are “green.” If “red” is indicated, replace CDF-7400.

<Error contents>

RAM Error: An error occurred in the RAM.

ROM Error: An error occurred in the ROM.

EEPROM Error: An error occurred in the EEPROM.



No.	Item	Setting value/Display	Remarks
1	Total operating time (signal processor - day)	0 to 9999 [day] Default: 0	Display only
2	Total operating time (signal processor - hour)	0 to 23 [hour] Default: 0	Display only
3	Total operating time (signal processor - minute)	0 to 59 [minute] Default: 0	Display only
4	Frame internal temperature (signal processor)	[°C]	Display only
5	Power voltage (48V)	[V]	Display only
6	Power voltage (5V - Ch1)	[V]	Display only
7	Power voltage (5V - Ch2)	[V]	Display only
8	RAM Error (Control CPU)	Green (Normal)/Red(abnormal)	Display only
9	ROM Error (Control CPU)	Green (Normal)/Red(abnormal)	Display only
10	EEPROM Error (Control CPU)	Green (Normal)/Red(abnormal)	Display only

20.8.5.4. Measurement start status

Set start/stop of transmission of the transducer (Started)/(Stopped).

 <b>CAUTION</b>	If a ship is not no water due to docking, do not start transmission. Starting transmission causes the transducer to become faulty.
--	---



No.	Item	Setting value	Remarks
1	Start of transmission	Started (Transmission start)/Stopped (stop) Default: Stopped	Editable

20.8.5.5. Setting relating to the vessel speed calculation

Specify calibration of ship speed calculation.

This calibration value should calculate by milepost test. See 20.7.6



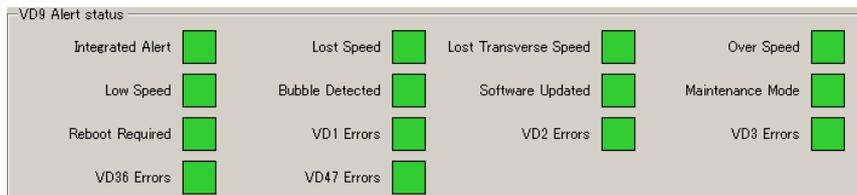
No.	Item	Setting value	Remarks
1	Speed calibration	-50.0 to +50.0 [%] Default: 0.0	Editable

### 20.8.5.6. Error status

Check that all the errors are displayed in “green”. When any of the errors is displayed in “red”, take the necessary measures by referencing the following error contents so that all the errors are displayed in “green”.

<Error contents>

- Integrated Alert:                   Displayed in “red” when any of the errors from No. 2 to No.14 occurred. When all the errors are rectified, the errors are displayed in “green”.
- Lost Speed:                        Ahead/astern ship speeds are not measured.
- Lost Transverse Speed:       Starboard/port ship speeds are not measured.
- Over Speed:                        The ship speed exceeded the ahead/astern ship speed notice range (upper limit).
- Low Speed:                         The ship speed is slower than the ahead/astern ship speed notice range (lower limit).
- Bubble Detected:                Bubbles are detected.
- Software Updated:               Software update has not been completed.
- Maintenance Mode:             The maintenance mode has not been terminated.
- Reboot Required:                Reboot is being requested.
- VD1 Alert:                         The main display is not stable.
- VD2 Alert:                         The distribution processor is not stable.
- VD3 Alert:                         The signal processor is not stable.
- VD36 Alert:                       The error of the signal processor has not been rectified.
- VD47 Alert:                       The error flag of the distribution processor is set to On.

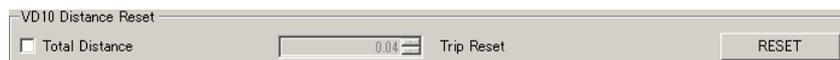


No.	Item	Display	Remarks
1	Integrated alert flag	Green (Normal)/Red(abnormal)	Display only
2	Lost speed alert (fore/after)	Green (Normal)/Red(abnormal)	Display only
3	Lost speed alert (port/starboard)	Green (Normal)/Red(abnormal)	Display only
4	Fore/after vessel speed notice (upper limit)	Green (Normal)/Red(abnormal)	Display only
5	Fore/after vessel speed notice (lower limit)	Green (Normal)/Red(abnormal)	Display only
6	Bubble detection	Green (Normal)/Red(abnormal)	Display only
7	Software updated	Green (Normal)/Red(abnormal)	Display only
8	Maintenance mode	Green (Normal)/Red(abnormal)	Display only
9	Restart request	Green (Normal)/Red(abnormal)	Display only
10	PJRCM,VD,1 integrated alarm	Green (Normal)/Red(abnormal)	Display only
11	PJRCM,VD,2 integrated alarm	Green (Normal)/Red(abnormal)	Display only
12	PJRCM,VD,3 integrated alarm	Green (Normal)/Red(abnormal)	Display only
13	PJRCM,VD,36 integrated alarm	Green (Normal)/Red(abnormal)	Display only
14	PJRCM,VD,47 integrated alarm	Green (Normal)/Red(abnormal)	Display only

#### 20.8.5.7. Distance reset

Specify the total distance.

When the [Trip Reset] button is pressed, the distance is reset.

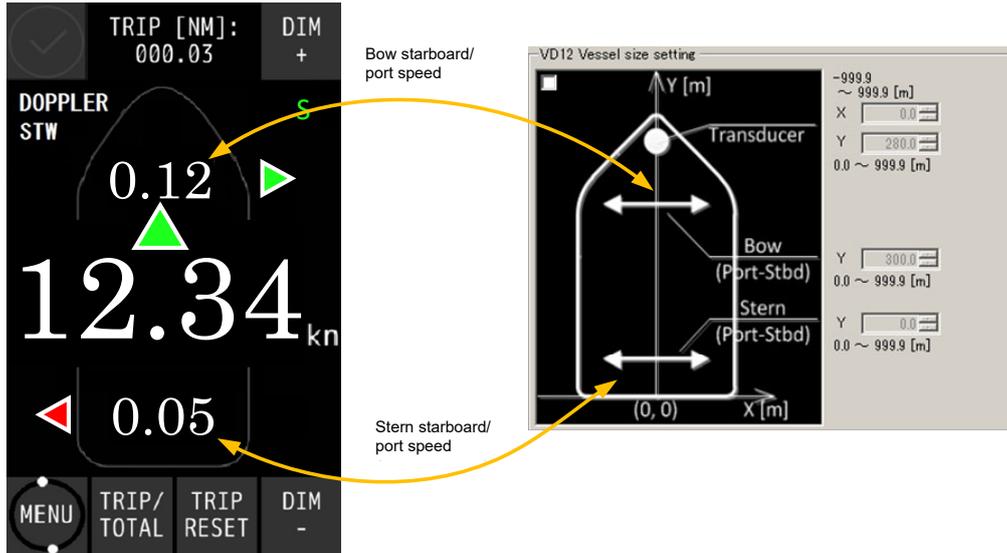


No.	Item	Setting value	Remarks
1	Set total distance	0 to 999999.99 [NM] Default: 0	Editable
2	Reset distance	Reset/not reset	Reset by pressing the button

### 20.8.5.8. Setting relating to the hull

For JLN-740A/740N/741A/741N, the setting related to the hull is not made.

In JLN-750, enter the coordinates that should display the right and left head speed and the right and left stern speed of the ship and the coordinates that are equipped with the transducer (NKF-547/531E).

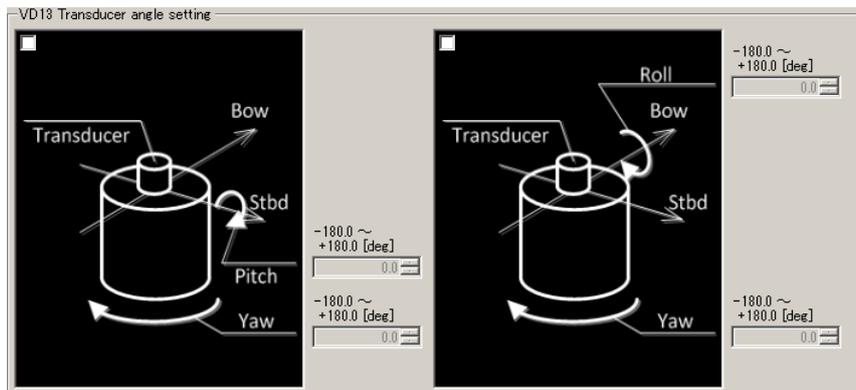


No.	Item	Setting value	Remarks
1	Transducer installation position (port/starboard) *JLN-750 only	-999.9 to 999.9 [m] Default: 0.0	Editable. Distance from the keel
2	Transducer installation position (bow/stern) *JLN-750 only	0.0 to 999.9 [m] Default: 0.0	Editable. Distance from the stern
3	Vessel's fore speed position *JLN-750 only	0.0 to 999.9 [m] Default: 0.0	Editable. Distance from the stern
4	Vessel's after speed position *JLN-750 only	0.0 to 999.9 [m] Default: 0.0	Editable. Distance from the stern

### 20.8.5.9. Setting relating to the transducer mounting angle

If there is a difference in the installation angle of oscillator (CFT-022/023) when the transducer (NKF-547/531E) is installed at the bottom of a vessel, correct it. If there is no difference, the default value can be used as is.

 <b>CAUTION</b>	If an incorrect installation angle correction is set, the ship speed cannot be measured correctly.
--	--

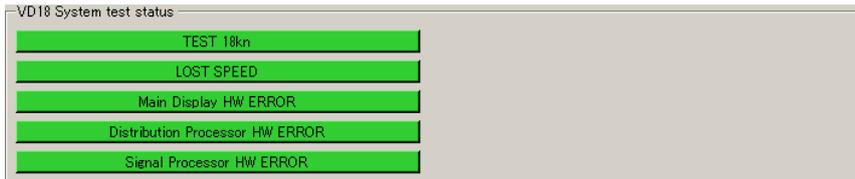


No.	Item	Setting value	Remarks
1	Transducer angle correction (bow/stern: Yaw)	-180.0 to 180.0 [°] Default: 0.0	Editable
2	Transducer angle correction (bow/stern: pitch)	-180.0 to 180.0 [°] Default: 0.0	Editable
3	Transducer angle correction (Port/starboard: Yaw)	-180.0 to 180.0 [°] Default: 0.0	Editable
4	Transducer angle correction (Port/starboard: Roll)	-180.0 to 180.0 [°] Default: 0.0	Editable

### 20.8.5.10. System test status

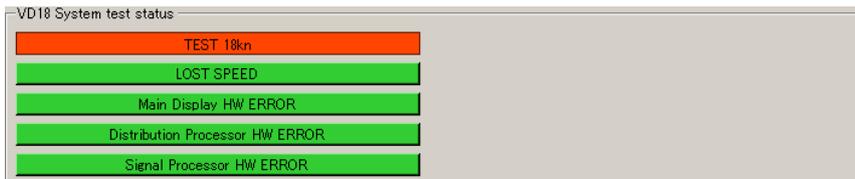
Use the system test to check whether the distribution processor (NQA-7040) is connected correctly.

For 18kn test, check the connection of LOG pulse contact and distance counter (NWW-7). For other alerts, check the connection of system alert contact.



No.	Item	Setting value	Remarks
1	System test (18kn test)	Test Enable/Disable	Changeable with the toggle button
2	System test (lost speed alert)	Test Enable/Disable	Changeable with the toggle button
3	System test (main display hardware error)	Test Enable/Disable	Changeable with the toggle button
4	System test (distribution processor hardware error)	Test Enable/Disable	Changeable with the toggle button
5	System test (signal processor hardware error)	Test Enable/Disable	Changeable with the toggle button

As an example, when only the 18 kn test is enabled, the display changes to “red” in the following way.



Screen example when the 18kn test is enabled

### 20.8.5.11. Power detection value

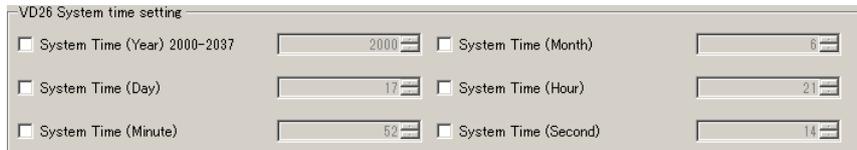
The strength of travelling wave output from the transducer can be checked.



No.	Item	Setting value	Remarks
1	Travelling wave (Ch1: Fore)	0 to 4096	Display only
2	Travelling wave (Ch2: After)	0 to 4096	Display only
3	Travelling wave (Ch3: Starboard direction)	0 to 4096	Display only
4	Travelling wave (Ch4: Port direction)	0 to 4096	Display only

### 20.8.5.12. Setting relating to system time

Set the UTC time. The UTC time set here is used for the time stamp of alert message.



No.	Item	Setting value	Remarks
1	System date and time (Year)	2000 to 2037 Default: 2016	Editable
2	System time and date (month)	1 to 12 Default: 1	Editable
3	System time and date (day)	1 to 31 Default: 1	Editable
4	System time and date (hour)	0 to 23 Default: 0	Editable
5	System time and date (minute)	0 to 59 Default: 0	Editable
6	System time and date (second)	0 to 59 Default: 0	Editable

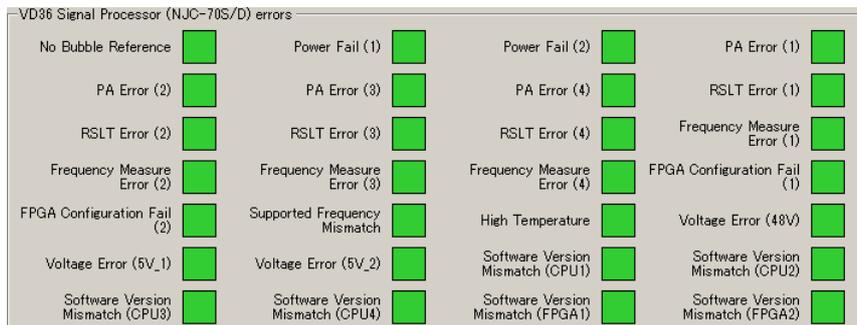


20.8.5.15. Signal processor (NJC-70) error

Check that all the errors are displayed in “green”. When any of the errors is displayed in “red”, take the necessary measures by referencing the following error contents so that all the errors are displayed in “green”.

<Error contents>

- No Bubble Reference: A bubble reference is not set.
- Power Fail (1): A transmission power (1 axis) fail occurred.
- Power Fail (2): A transmission power (2 axes) fail occurred.
- PA Error: An error occurred in PA1 to PA4.
- RSLT Error: An error occurred in RSLT1 to RSLT4.
- Frequency Measure Error: A frequency detection error (ch1 to ch4) occurred.
- FPGA Configuration Fail (1): A FPGA setting error (1 axis) occurred.
- FPGA Configuration Fail (2): A FPGA setting error (2 axes) occurred.
- Supported Frequency: An error occurred in the supported frequency.
- High Temperature: A temperature error occurred in the signal processor.
- Voltage Error (48 V): A voltage error (48 V) occurred in the signal processor.
- Voltage Error (5 V-1): A voltage error (5 V-ch1) occurred in the signal processor.
- Voltage Error (5 V-2): A voltage error (5 V-ch2) occurred in the signal processor.
- Software Version (CPU): A software version error (arithmetic operation CPU1 to CPU4) occurred.
- Software Version (FPGA): A software version error (FPGA1 to FPGA2) occurred.



No.	Item	Display	Remarks
1	Bubble detection reference abnormality	Green (Normal)/Red(abnormal)	Display only
2	Transmission power fail (1 axis)	Green (Normal)/Red(abnormal)	Display only
3	Transmission power fail (2 axes)	Green (Normal)/Red(abnormal)	Display only
4	PA1 error	Green (Normal)/Red(abnormal)	Display only
5	PA2 error	Green (Normal)/Red(abnormal)	Display only
6	PA3 error	Green (Normal)/Red(abnormal)	Display only
7	PA4 error	Green (Normal)/Red(abnormal)	Display only
8	RSLT1 error	Green (Normal)/Red(abnormal)	Display only
9	RSLT2 error	Green (Normal)/Red(abnormal)	Display only
10	RSLT3 error	Green (Normal)/Red(abnormal)	Display only
11	RSLT4 error	Green (Normal)/Red(abnormal)	Display only
12	Frequency detection abnormality (Ch1)	Green (Normal)/Red(abnormal)	Display only
13	Frequency detection abnormality (Ch2)	Green (Normal)/Red(abnormal)	Display only
14	Frequency detection abnormality (Ch3)	Green (Normal)/Red(abnormal)	Display only
15	Frequency detection abnormality (Ch4)	Green (Normal)/Red(abnormal)	Display only
16	FPGA configuration abnormality (1 axis)	Green (Normal)/Red(abnormal)	Display only
17	FPGA configuration abnormality (2 axes)	Green (Normal)/Red(abnormal)	Display only
18	Supported frequency abnormality	Green (Normal)/Red(abnormal)	Display only
19	Signal processor temperature abnormality	Green (Normal)/Red(abnormal)	Display only
20	Voltage abnormality (signal processor 48V)	Green (Normal)/Red(abnormal)	Display only
21	Voltage abnormality (signal processor 5V - Ch1)	Green (Normal)/Red(abnormal)	Display only

No.	Item	Display	Remarks
22	Voltage abnormality (signal processor5V - Ch2)	Green (Normal)/Red(abnormal)	Display only
23	Software version abnormality (operation CPU1)	Green (Normal)/Red(abnormal)	Display only
24	Software version abnormality (operation CPU2)	Green (Normal)/Red(abnormal)	Display only
25	Software version abnormality (operation CPU3)	Green (Normal)/Red(abnormal)	Display only
26	Software version abnormality (operation CPU4)	Green (Normal)/Red(abnormal)	Display only
27	Software version abnormality (FPGA1)	Green (Normal)/Red(abnormal)	Display only
28	Software version abnormality (FPGA2)	Green (Normal)/Red(abnormal)	Display only

#### 20.8.5.16. Setting remote displays

Be sure to specify whether the remote display NWZ-650SDR, NWZ-840SDR, or NWZ-4610 has been connected to the two remote display ports located in the terminal block (CQD-7040) of the distribution processor (NQA-7040), respectively (if it is not connected, the default value may be used as is.)

Specify the remote display connected to TB2 pin 9 to pin 14 (Remote 1) of the distribution processor (NQA-7040) to select remote display (1).

Specify the remote display connected to TB2 pin 15 to pin 20 (Remote 2) of the distribution processor (NQA-7040) to select remote display (2).

When the setting value does not match the installation status, the ship speed is not indicated on the remote display.

No.	Item	Setting value	Remarks
1	Select remote display (1)	NWZ-650SDR/840SDR / NWZ-4610 Default: NWZ-650SDR/840SDR	Selectable by using the pull-down menu
2	Select remote display (2)	NWZ-650SDR/840SDR / NWZ-4610 Default: NWZ-650SDR/840SDR	Selectable by using the pull-down menu

### 20.8.5.17. Setting analog displays (NWW-24/25/26)

Be sure to specify the full scale of the analog display connected to the analog display port located in the terminal block (CQD-7040) of the distribution processor (NQA-7040) (if it is not connected, the default value may be used as is).

Specify the full scale of the analog display connected to TB2 pin 1 to pin 4 (Analog Display 1) and pin 5 to pin 8 (Analog Display 2) of the distribution processor (NQA-7040).

When the setting value does not match the installation status, accurate ship speed cannot be indicated on the analog display.



No.	Item	Setting value	Remarks
1	Analog full scale	20 to 40 [kn] Default: 40	Selectable by using the pull-down menu

### 20.8.5.18. Setting the NMEA version

Specify the NMEA version of WBW sentence and VLW sentence output by serial communication and Ethernet communication of two systems (x 4 branches each = 8 outputs) according to the connection partner.

When the setting value does not match the installation status, serial communication and Ethernet communication cannot be performed.

No.	Item	Setting value	Remarks
1	NMEA VERSION1 (serial)	1.5(NMEA Version 1.5)/2.1(NMEA Version 2.1)/2.3(NMEA Version 2.3)/4.0(NMEA Version 4.0)/IEC 61162 Default: IEC	Selectable by using the pull-down menu
2	NMEA VERSION2 (serial)	1.5(NMEA Version 1.5)/2.1(NMEA Version 2.1)/2.3(NMEA Version 2.3)/4.0(NMEA Version 4.0)/IEC 61162 Default: IEC	Selectable by using the pull-down menu
3	NMEA VERSION3 (LAN)	1.5(NMEA Version 1.5)/2.1(NMEA Version 2.1)/2.3(NMEA Version 2.3)/4.0(NMEA Version 4.0)/IEC 61162 Default: IEC	Selectable by using the pull-down menu

### 20.8.5.19. Setting JRC-RMS

Specify that data for remote maintenance system (RMS) is output if VDR (JCY-1900) is connected to each port.

When the setting value does not match the installation status, remote maintenance system cannot be used.



No.	Item	Setting value	Remarks
1	RMS Enable flag (serial)	Enable (RMS Enable)/ Disable (RMS Disable) Default: Disable	Selectable by using the pull-down menu
2	RMS Enable flag (LAN)	Enable (RMS Enable)/ Disable (RMS Disable) Default: Disable	Selectable by using the pull-down menu

### 20.8.5.20. Setting main display (NWZ - 510SDW) Ethernet

When the setting value does not match the installation status, Ethernet communication for the main display cannot be performed.



No.	Item	Setting value	Remarks
1	IP address	0.0.0.0 to 255.255.255.255 Default: 172.16.0.2	Editable
2	Subnet mask	0.0.0.0 to 255.255.255.255 Default: 255.255.0.0	Editable
3	MAC address	00:00:00:00:00:00 to FF:FF:FF:FF:FF:FF Default: 00:00:27:00:00:02	Editable

20.8.5.21. Main display (NWZ-510SDW) oriented IEC 61162-450 transmission group

Specify the IEC61162-450 transmission/reception group to be transmitted for main display (NWZ-510SDW).

The transmission/reception groups from 60001 to 600016 can be specified.

For details about each transmission/reception group, refer to the IEC61162-450 standard.



No.	Item	Setting value	Remarks
1	Main display oriented transmission group	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: MISC(239.192.0.1: 60001)	Selectable by using the pull-down menu
2	Main display oriented reception group	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: NAVD(239.192.0.4: 60004)	Selectable by using the pull-down menu

### 20.8.5.22. Setting LOG pulse

Be sure to specify the pulse number of the LOG pulse device connected to the LOG pulse port located in the terminal block (CQD-7040) of the distribution processor (NQA-7040) (if it is not connected, the default value may be used as is).

Specify the pulse number of LOG pulse connected to TB2 pin 21 to pin 24 (Log Pulse) of the distribution processor (NQA-7040).

When the setting value does not match the installation status, accurate distance cannot be indicated in LOG pulse.



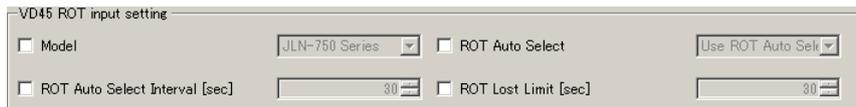
No.	Item	Setting value	Remarks
1	LOG pulse type	100 / 200 / 400 [pulse/NM] Default: 200	Selectable by using the pull-down menu

### 20.8.5.23. Setting reception of ROT

For JLN-740A/740N/741A/741N, specify only model selection (Model).

For JLN-740A/740N/741A/741N, select JLN-740 Series.

For JLN-750, specify that ROT (rate of turn) data is received for calculating the starboard/port speed. Unless this setting is entered, the starboard/port speed is not displayed even if 2-axis oscillator is installed.



No.	Item	Setting value	Remarks
1	Model selection	JLN-740 Series/JLN-750 Series Default: JLN-740 Series	Selectable by using the pull-down menu
2	ROT sentence priority switchover *JLN-750 only	Use ROT Auto Select/Static ROT Input Default: Use ROT Auto Select	Selectable by using the pull-down menu
3	ROT sentence priority switchover time *JLN-750 only	10 to 1800 [seconds] Default: 30	Editable
4	Allowable ROT sentence non-entry time *JLN-750 only	10 to 1800 [seconds] Default: 30	Editable

The pull-down menu is shown below.

ROT sentence input enable flag selection screen

ROT sentence priority selection screen

#### 20.8.5.24. SFI number of IEC 61162-450

Be sure to specify the range from 0000 to 9998 according to the design of the network to be Ethernet-connected. Do not make Ethernet connection using the default value (9999) as is.

If Ethernet connection is not made, the default value can be used as is.

No.	Item	Setting value	Remarks
1	61162-450 transmission source ID	0000 to 9999 Default: 9999	Editable

20.8.5.25. Distribution processor (NQA-7040) error

On JLN-740A/740N, ROT does not use. So, confirm “Lost ROT Input” is “green”.

On JLN-740A/740N, when optional GPS data input to NQA-7040, confirm “RTC Initialized” and “Lost Date-Time Input” is “green”.

Check that all the errors are displayed in “green”. When any of the errors is displayed in “red”, take the necessary measures by referencing the following error contents so that all the errors are displayed in “green”.

<Error contents>

Lost ROT Input: A ROT sentence has not been input.

RTC Initialized: RTC has not been initialized.

Lost Date-Time Input: A time sentence has not been input.



No.	Item	Display	Remarks
1	ROT sentence not input	Green (Normal)/Red(abnormal)	Display only
2	RTC initialization	Green (Normal)/Red(abnormal)	Display only
3	Time sentence not input	Green (Normal)/Red(abnormal)	Display only

20.8.5.26. Setting relating to brightness control

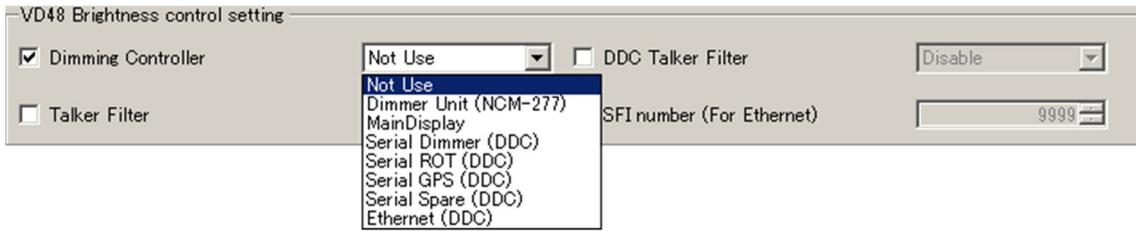
Be sure to specify distribution processor (NQA-7040) port whose brightness data is to be linked with. To link with brightness data input by DDC sentence in particular, also specify the DDC sentence to be received. If the default value is used as is, brightness is not linked with.



No.	Item	Setting value	Description/remarks
1	Brightness control mode	Not Use	Brightness is not controlled. The dimmer unit that is connected to the TB1 5 pin and TB1 6(Dimmer analog) pin of the distribution processor is used.
		Dimmer Unit(NCM-227)	The serial dimmer port of TB1 1 pin to TB1 4 pin (Dimmer Serial) of the distribution processor (NQA-7040) is used.
		Main Display	Brightness control of the main display is used.
		Serial Dimmer(DDC)	The serial dimmer port of TB1 1 pin to TB1 4 pin (Dimmer Serial) of the distribution processor (NQA-7040) is used.

		Serial ROT(DDC)	The serial ROT of TB4 3 pin to TB4 4 pin (RX1 ROT) of the distribution processor (NQA-7040) is used.
		Serial GPS(DDC)	The serial GPS of TB4 5 pin and TB4 6 pin (RX2 GPS) of the distribution processor (NQA-7040) is used.
		Serial Spare(DDC)	The serial spare port of TB4 7 pin and TB4 8 pin (RX3 (Spare)) of the distribution processor (NQA-7040) is used.
		Ethernet(DDC)	The Ethernet port of J11 (Maintenance) of the distribution processor (NQA-7040) is used.
		Initial value: Not Use	
2	Talker filter Enable/Disable flag	Enable/Disable	Can be selected on the pull-down mneu.
3	Talker	AA to ZZ Default: VD	Editable
4	SFI number	0000 to 9999 Default: 9999	Editable

The pull-down menu is shown below.

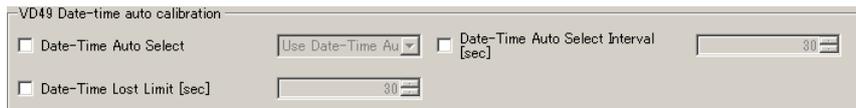


Brightness control mode selection screen

#### 20.8.5.27. Setting relating to reception of day/time information

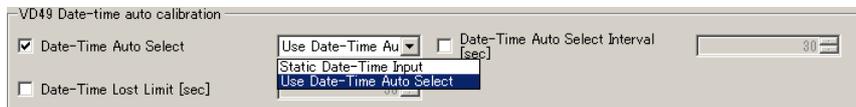
Be sure to specify date information that is received by the distribution processor (NQA-7040) and used for alert message.

Unless it is specified correctly, unintentional date information is likely to be used for alert message.



No.	Item	Setting value	Remarks
1	Time sentence priority switching	Use Date-Time Auto Select/Static Date-Time Input Default: Use Date-Time Auto Select	Selectable by using the pull-down menu
2	Time sentence priority switching time	10 to 1800 [second] Default: 30	Editable
3	Time sentence non-input permissible time	10 to 1800 [second] Default: 30	Editable

The pull-down menu is shown below.



Time sentence priority selection screen

20.8.5.28. Power control status

Indicate power control status.

Shutdown Requested: Shutting down

Reboot Requested: Rebooting

During shutdown or during reboot, do not perform other operation.



No.	Item	Display	Remarks
1	Shutdown request	Red (During a shutdown)/Green (Not during a shutdown)	Display only
2	Reboot request	Red (Rebooting)/Green (Not rebooting)	Display only

20.8.5.29. Transmission channel enable flag

If oscillator (CFT-022/023) channel is damaged and correct ship speed cannot be measured during operation, only the relevant channel is forcibly disabled and measurement using normal channel is continued.

In normal operation, do not change this menu from default.



No.	Item	Setting value	Remarks
1	Channel 1 enable flag	Enabled (Enabled)/ Disabled (Disabled) Default: Enabled	Selectable by using the pull-down menu
2	Channel 2 enable flag	Enabled (Enabled)/ Disabled (Disabled) Default: Enabled	Selectable by using the pull-down menu
3	Channel 3 enable flag	Enabled (Enabled)/ Disabled (Disabled) Default: Enabled	Selectable by using the pull-down menu
4	Channel 4 enable flag	Enabled (Enabled)/ Disabled (Disabled) Default: Enabled	Selectable by using the pull-down menu

### 20.8.5.30. Setting maintenance Ethernet

Specify Ethernet for maintenance.

When the setting value does not match the installation status, Ethernet communication for maintenance cannot be performed.

No.	Item	Setting value	Remarks
1	IP address preset	EC 61162-450 Conformity/JRC Standard/Enable Any Address Default: EC 61162-450 Conformity	Selectable by using the pull-down menu
2	IP address	0.0.0.0 to 255.255.255.255 Default: 172.16.60.124	Editable
3	Subnet mask	0.0.0.0 to 255.255.255.255 Default: 255.255.0.0	Editable
4	MAC address	00:00:00:00:00:00 to FF:FF:FF:FF:FF:FF Default: 00:00:27:00:00:01	Editable

The pull-down menu is shown below.

IP address preset selection screen

20.8.5.31. Setting a transmission group addressed to JRC-RMS

Specify an IEC61162-450 transmission group to be transmitted to JRC-RMS.

Transmission groups 60001 to 600016 can be specified.

For details about each transmission group, refer to the IEC61162-450 standard.



No.	Item	Setting value	Remarks
1	RMS oriented transmission group	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: NAVD(239.192.0.4: 60004)	Selectable by using the pull-down menu

20.8.5.32. Setting a transmission group of the IEC 61162-450 standard

Specify a transmission group of IEC61162-450.

Transmission groups 60001 to 600016 can be specified.

For details about each transmission group, refer to the IEC61162-450 standard.



No.	Item	Setting value	Remarks
1	IEC 61162-450 oriented transmission group	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: NAVD(239.192.0.4: 60004)	Selectable by using the pull-down menu

20.8.5.33. Setting a reception group of the IEC 61162-450 standard

Specify the transmission group for each received data according to the design of network to be Ethernet connected.

If data is not received from Ethernet, the default value can remain unchanged.

No.	Item	Setting value	Remarks
1	MULTICAST GROUP FOR IEC 61162-450 RECEPTION (HBT)	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: NAVD(239.192.0.4: 60004)	Selectable by using the pull-down menu
2	MULTICAST GROUP FOR IEC 61162-450 RECEPTION (ACN)	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: NAVD(239.192.0.4: 60004)	Selectable by using the pull-down menu

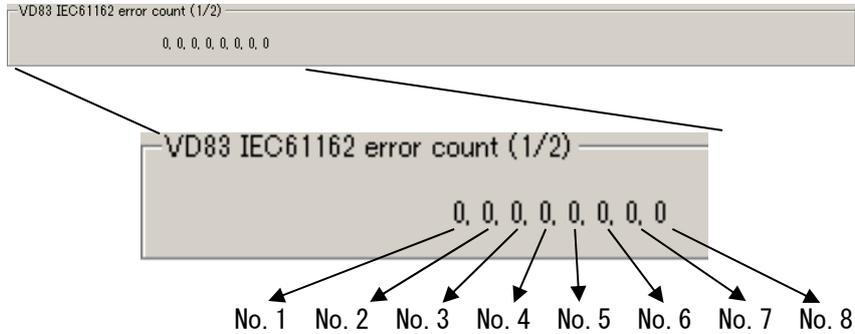
No.	Item	Setting value	Remarks
3	MULTICAST GROUP FOR IEC 61162-450 RECEPTION (RMC)	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: NAVD(239.192.0.4: 60004)	Selectable by using the pull-down menu
4	MULTICAST GROUP FOR IEC 61162-450 RECEPTION (ZDA)	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: NAVD(239.192.0.4: 60004)	Selectable by using the pull-down menu
5	MULTICAST GROUP FOR IEC 61162-450 RECEPTION (ROT)	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: NAVD(239.192.0.4: 60004)	Selectable by using the pull-down menu

No.	Item	Setting value	Remarks
6	MULTICAST GROUP FOR IEC 61162-450 RECEPTION (DDC)	MISC(239.192.0.1: 60001)/ TGTD(239.192.0.2: 60002)/ SATD(239.192.0.3: 60003)/ NAVD(239.192.0.4: 60004)/ VDRD(239.192.0.5: 60005)/ RCOM(239.192.0.6: 60006)/ TIME(239.192.0.7: 60007)/ PROP(239.192.0.8: 60008)/ USR1(239.192.0.9: 60009)/ USR2(239.192.0.10: 600010)/ USR3(239.192.0.11: 600011)/ USR4(239.192.0.12: 600012)/ USR5(239.192.0.13: 600013)/ USR6(239.192.0.14: 600014)/ USR7(239.192.0.15: 600015)/ USR8(239.192.0.16: 600016) Default: NAVD(239.192.0.4: 60004)	Selectable by using the pull-down menu

20.8.5.34. IEC 61162 error counter (1/2)

Indicate the IEC61162-450 error counter.

No.1 is the left end and No.8 is right end.

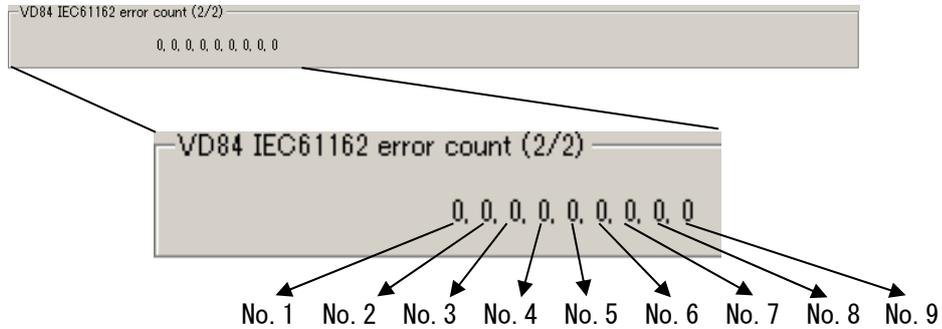


No.	Item	Setting value	Remarks
1	IEC 61162-450 header error count (maintenance)	0 to 128 Default: 0	Display only
2	IEC 61162-450 tag block syntax error count (maintenance)	0 to 128 Default: 0	Display only
3	IEC 61162-450 tag block framing error count (maintenance)	0 to 128 Default: 0	Display only
4	IEC 61162-450 tag block check sum error count (maintenance)	0 to 128 Default: 0	Display only
5	IEC 61162-450 sentence syntax error count (maintenance)	0 to 128 Default: 0	Display only
6	IEC 61162-450 sentence framing error count (maintenance)	0 to 128 Default: 0	Display only
7	IEC 61162-450 sentence check sum error count (maintenance)	0 to 128 Default: 0	Display only
8	IEC 61162-450 header error count (main display)	0 to 128 Default: 0	Display only
9	IEC 61162-450 tag block error count (main display)	0 to 128 Default: 0	Display only

20.8.5.35. IEC 61162 error counter (2/2)

Indicate the IEC61162-450 error counter.

No.1 is the left end and No.9 is right end.



No.	Item	Setting value	Remarks
1	IEC 61162-450 sentence error count (main display)	0 to 128 Default: 0	Display only
2	IEC 61162 reception error (signal processor)	0 to 128 Default: 0	Display only
3	IEC 61162 reception error (ROT)	0 to 128 Default: 0	Display only
4	IEC 61162 reception error (GPS)	0 to 128 Default: 0	Display only
5	IEC 61162 reception error (reserved)	0 to 128 Default: 0	Display only
6	IEC 61162 reception error (serial dimmer)	0 to 128 Default: 0	Display only
7	IEC 61162 reception error (serial alert)	0 to 128 Default: 0	Display only
8	IEC 61162 reception error (remote display 1)	0 to 128 Default: 0	Display only
9	IEC 61162 reception error (remote display 2)	0 to 128 Default: 0	Display only

### 20.8.5.36. Setting serial alert

Be sure to specify alert communication supported by the equipment connected with the serial alert port of the distribution processor (NQA-7040) (if it is not connected, the default value should be fine).

When the setting value does not match the installation status, serial alert communication cannot be performed.

No.	Item	Setting value	Remarks
1	Serial alert type	Use ALF/ACN/ALC/ARC/HBT(ALR communication)/Use ALR/ACK(ALF communication)	Selectable by using the pull-down menu
2	Whether "rectified – unacknowledged" state is used by ALR or not	Default: Use ALF/ACN/ALC/ARC/HBT	Selectable by using the pull-down menu

### 20.8.5.37. Mode status

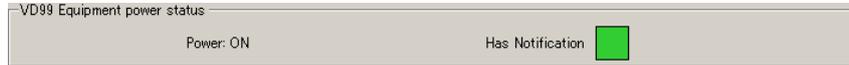
Indicate mode status.

No.	Item	Setting value	Remarks
1	Mode flag	M / B / E / U / W / L / R Default: M	Display only

### 20.8.5.38. Equipment status data

Indicate equipment status.

If OFF/STBY notification function is available, "green" is indicated.



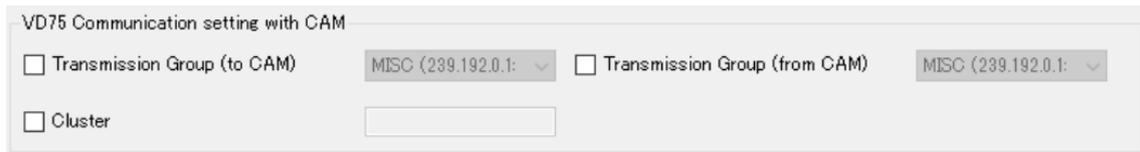
No.	Item	Setting value/Display	Remarks
1	Operating status	ON / OFF / STBY Default: ON	Display only
2	OFF/STBY notification function available/unavailable	Green (Notification function available)/Red (unavailable)	Display only

### 20.8.5.39. Cluster identifier

Set the cluster identification field in the VD75 Cluster of the maintenance PC tool. (v1.988 or later).

Use the default unless instructed by the bridge system designer.

- 1) Check the cluster
- 2) Set to "Nav"
- 3) Push apply



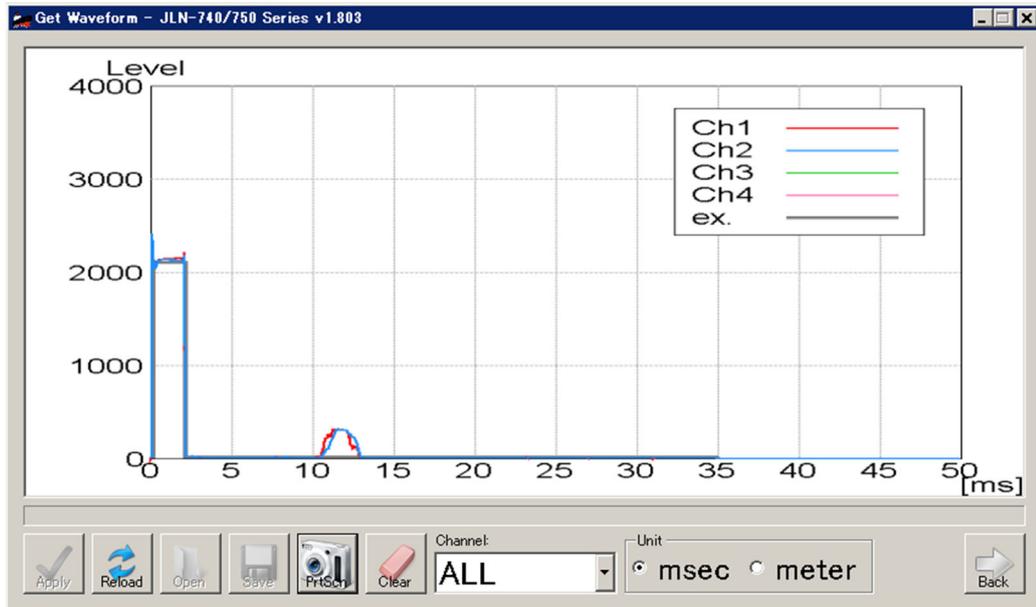
No.	Item	Setting value/Display	Remarks
1	Transmission Group(To CAM)	MISC   TGTD   SATD   NAVD   VDRD   RCOM   TIME   PROP   USR1 ~ USR8   BAM1   BAM2   CAM1   CAM2   NETA Default : NAVD	
2	Transmission Group(from CAM)	MISC   TGTD   SATD   NAVD   VDRD   RCOM   TIME   PROP   USR1 ~ USR8   BAM1   BAM2   CAM1   CAM2   NETA Default : CAM1	
3	Cluster	The cluster identification field consists of a maximum of 15 characters. Default : Nav	

### 20.8.6. Acquiring waveform log

Use this function when saving reception waveforms for each channel.

The acquired waveform is displayed on the screen and the waveform is automatically saved as a binary file as well. In this case, the format of the file name is “yyyyymmdd-hhmmss\_Ch<channel number>\_Waveform.dat”.

Waveform example that both Ch 1 and Ch 2 were successfully acquired Submarine echoes are observed at a distance of about 12 ms = 9 m.



### CAUTION

When the Reload button is pressed, transmission is done once to acquire the waveform regardless of whether current transmission is done.

When a ship is not on water due to its docking or for other reasons, do not press this button. Pressing this button may cause the transducer to fail.



: Press this button to start acquisition of waveform log.



: Saves the screen capture of the tool as an image file.



: Clears (non-display) the waveform on this screen. The log file is not deleted.



: Use this function to specify a channel number.(Ch1/Ch2/Ch3/Ch4/ALL)



: Select a horizontal axis of graph display.



: Returns to the menu screen (20.8.3).

20.8.7. Performing demonstration for presentation

Use this function when demonstration is required.

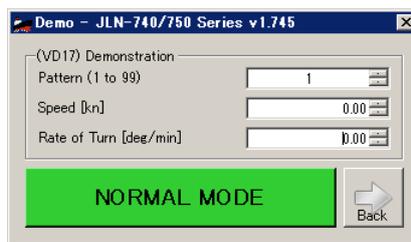
Select the pattern you want to demonstrate and press the  button.

Demonstration starts.

To stop demonstration, press the  button or restart the power.

The demonstration pattern from No.1 to 12 are fixed. The demonstration pattern from No.13 and 14 are Speed and ROT adjustable.

pattern	Water 1axis	Water 2axis	Water 3axis	ground 1axis	ground 2axis	ground 3axis	Remarks
1	+20kn	0kn	-	-	-	-	
2	0kn	5kn	-	-	-	-	
3	0kn	0kn	5kn/-	-	-	-	JLN-741 Three-axis null of water
4	-20kn	0kn	0kn/-	-	-	-	
5	0kn	-5kn	0kn/-	-	-	-	
6	0kn	0kn	-5kn/-	-	-	-	
7	-	-	-	+20kn	0kn	0kn/-	JLN-741 ground Three-axis null
8	-	-	-	0kn	5kn	0kn/-	
9	-	-	-	0kn	0kn	5kn/-	
10	-	-	-	-20kn	0kn	0kn/-	
11	-	-	-	0kn	-5kn	0kn/-	
12	-	-	-	0kn	0kn	-5kn/-	



: Normal mode. When this button is pressed, demonstration starts.



: Demonstration is in progress. When this button is pressed, demonstration stops.



: Returns to the menu screen (20.8.3).

No.	Item	Setting value	Remarks
1	Demonstration pattern	1 to 99 Default: 1	Editable
2	Demonstration vessel speed	-100.00 to 100.00 Default: 0.00	Editable
3	Demonstration ROT	-360.00 to 360.00 Default: 0.00	Editable

### 20.8.8. Displaying maintenance information

Use this function for checking maintenance information.

Name	Model	Software Version	Serial No.	Barcode No.	Management No.
Main Display		V1.001.021			10009601
Distribution Processor	NQA-7040				
Signal Processor	NJC-70D		HE00123		
Transducer Mounting	NKF-547		HE00123	G0H999999999	
I/F Circuit	CDF-7400	R01.00.027	HE00123		10010201
Processor Circuit (1)	CDC-7400	R01.00.013	HE00123		10010401
Processor Circuit FPGA (1)	CDC-7400	R01.00.001	HE00123		10010501
Tx/Rx Circuit (1)	CMN-7400		HE00123	G0HE16B0002	
Processor Circuit (2)	CDC-7400	R01.00.013	HE00123		10010401
Processor Circuit FPGA (2)	CDC-7400	R01.00.001	HE00123		10010501
Tx/Rx Circuit (2)	CMN-7400		HE00123		
Power Circuit	CBD-7400		HE00123		
Terminal Board	CQD-7040	R01.01.046			10010001
Remote Display (MFM-1)	NWZ-650	V1.026.022			10010701
Remote Display (MFM-2)	NWZ-650				10010901
Remote Display (MFL-1)	NWZ-840	V1.026.022			10011701
Remote Display (MFL-2)	NWZ-840				10011901



: Loads only the device information and displays it on the screen.



: Saves software information in a CSV file.



: Saves the screen capture of the tool as an image file.



: Returns to the menu screen (20.8.3).

No.	Model name	Software version number	Serial number	Bar code number	Software management number
1	NWZ-510 or NWZ-4640	○ (*1)	-	-	100096 01
2	NQA-7040	-	○	○	-
3	NJC-70S or NJC-70D	-	○	○	-
4	NKF-547	-	○	○	-
5	CDF-7400	○	○	○	100102 01
6	CDC-7400 (1, CPU)	○	○	○	100104 01
7	CDC-7400 (1, FPGA)	○	○	○	100105 01
8	CMN-7400 (1)	-	○	○	-
9	CDC-7400 (2, CPU)	○ (*2)	○ (*2)	○ (*2)	100104 01
10	CDC-7400 (2, FPGA)	○ (*2)	○ (*2)	○ (*2)	100105 01
11	CMN-7400 (2)	○ (*2)	○ (*2)	○ (*2)	-
12	CBD-7400	-	○	○	-
13	CQD-7040	○	○	○	100100 01
14	NWZ-650 (1)	○ (*2)	○	-	100107 01
15	NWZ-650 (2)	○ (*2)	○	-	100109 01
16	NWZ-840 (1)	○ (*2)	○	-	100117 01
17	NWZ-840 (2)	○ (*2)	○	-	100119 01

\*1: Information of the main display (NWZ-510SDW or NWZ-4640) that is connected at the activation is output.

\*2: Will be output if connected. In particular, in JLN-740, null is output for circuit board information for 2 axes.

Please be sure to send the saved configuration file to our sales representative.

## 20.9. Initializing the Equipment (JLN-741A/741N)

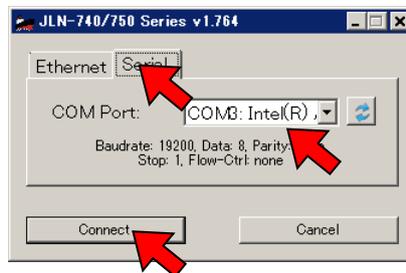
By checking all the items on the "First Settings" screen, you can cover the minimum required settings.

### 20.9.1. Start the maintenance PC tool.



### 20.9.2. Connect the equipment.

To connect JLN-741A/741N, select the [Serial] tab and click on the [Connect] button after the COM port that is connected to the equipment is selected.



### 20.9.3. Click on the [First Settings] button.

To check and set the minimum necessary setting values on the First Setting screen, click on the [First Settings] button.

For other menus, refer to section 20.10, "Changing the Detailed Settings".

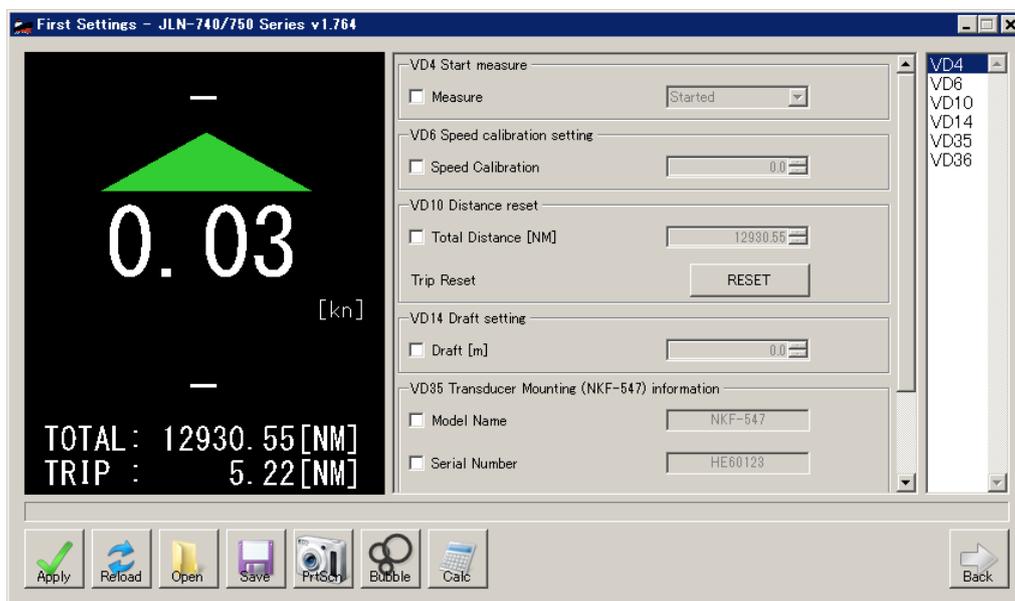


#### 20.9.4. Checking and changing the initial settings

After the installation, check the minimum necessary setting values to be checked.

The setting values that are stored in the equipment can be saved in the PC as the configuration file or the configuration file can be written to the equipment by loading it.

Please be sure to send the saved configuration file to our sales representative.



-  : Writes the setting values on the tool to the equipment collectively.
-  : Loads the information of the equipment and displays it on the screen.
-  : Loads the information of the configuration file and displays it on the screen.
-  : Saves the setting values on the screen in the configuration file collectively.
-  : Saves the screen capture of the tool as an image file.
-  : Starts the bubble detection reference waveform screen (20.9.5).
-  : Starts the milepost calculator (20.9.7).
-  : Returns to the menu screen (20.9.320.9.3)

To write the setting values to JLN-740/741 press  button. Then the  checked items are written to JLN-740/741. After finish writing, the dialog window would popup.

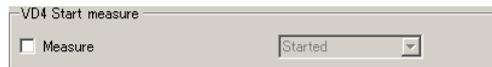


Confirm the PC setting values.

20.9.4.1. Measurement start status

Set start/stop of transmission of the transducer (Started)/(Stopped).

<b>⚠ CAUTION</b>	If a ship is not no water due to docking, do not start transmission. Starting transmission causes the transducer to become faulty.
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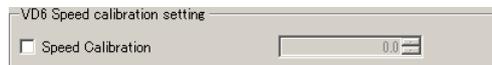


No.	Item	Setting value	Remarks
1	Start of transmission	Started (Transmission start)/Stopped (stop) Default: Stopped	Editable

20.9.4.2. Setting relating to the vessel speed calculation

Specify calibration of ship speed calculation.

I This calibration value should calculate by milepost test. See 20.9.6



No.	Item	Setting value	Remarks
1	Speed calibration	-50.0 to +50.0 [%] Default: 0.0	Editable

20.9.4.3. Distance reset

Specify the total distance.

When the [Trip Reset] button is pressed, the distance is reset.



No.	Item	Setting value	Remarks
1	Set total distance	0 to 999999.99 [NM] Default: 0	Editable
2	Reset distance	Reset/not reset	Reset by pressing the button

#### 20.9.4.4. Transducer (NKF-547/531E) management information

During installation, be sure to enter transducer (NKF-547/531E) management information. This information is managed by the remote maintenance system (RMS) during operation.

No.	Item	Setting value	Remarks
1	Model name (NKF-547/531E)	Up to 9 ASCII characters	Editable
2	Serial number (NKF-547/531E)	Up to 10 ASCII characters	Editable
3	Bar code number (NKF-547/531E)	Up to 13 ASCII characters	Editable

#### 20.9.4.5. Signal processor (NJC-70) error

If bubble detection reference error is indicated as “red”, be sure to perform update (overwrite and then read: ) operation on the bubble detection reference waveform screen (20.7.5). When update processing of bubble detection reference waveform is completed, “green” is indicated.

No.	Item	Display	Remarks
1	Bubble detection reference abnormality	Green (Normal)/Red(abnormal)	Display only

### 20.9.5. Acquiring a bubble detection reference waveform

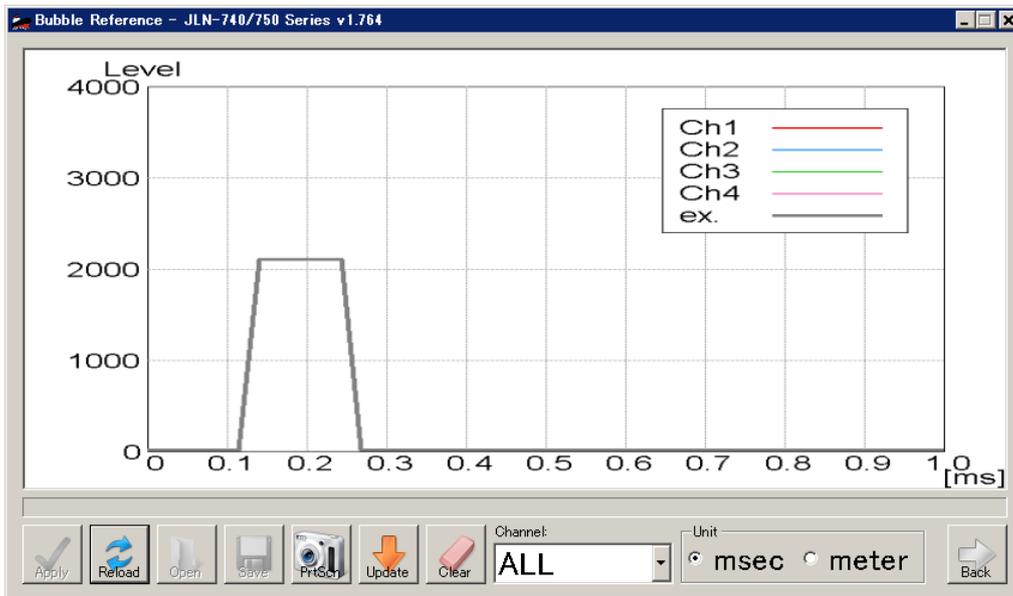
A bubble detection reference waveform is a reference (comparison target) waveform for the bubble detection function.

On this screen, acquire (load: ) or update (overwrite and load: ) the bubble detection reference waveform that is stored in the equipment.

The waveform that is acquired is displayed on the screen and is automatically saved as a binary file also. The file name is assigned in the format of “yyyymmdd-hhmmss\_Ch<channel number>\_BubbleRef.dat”.

The wave form correspond with the reference is normal.

If the measured waveform is not correspond with the reference, it is abnormal.



 **CAUTION**

When the UPDATE button is pressed, transmission is done once to acquire the waveform regardless of whether current transmission is done.

When a ship is not on water due to its docking or for other reasons, do not press this button. Pressing this button may cause the transducer to fail.



: Displays the bubble reference waveform that is stored in the equipment for the specified channel.



: Saves the screen capture of the tool as the image file.



: Updates and displays the bubble reference waveform that is stored in the equipment for the specified channel



: Clears (non-display) the waveform on this screen. The log file is not deleted.



: Specify the channel for which bubble reference waveform is to be acquired.



: Select the horizontal axis of graph display.



: Returns to the previous screen.

#### 20.9.6. Speed calibration

To effectively use the excellent feature of the Doppler Log, the actual speed and the specified speed should be compared to perform necessary calibration after installation ends. To perform speed calibration, normally make sailing forward and back between mileposts and then obtain the calibrated value. The calibrated value at this point should be accurately recorded on the speed test form and stored.

If the device fails and the units are replaced at a later date, the speed can be set again according to this record.

During sailing between mileposts, it is necessary to make sufficient preliminary sailing, exercise care to prevent the speed from changing during sailing and sail correctly to the specified milepost directions.

It is recommended to sail forward and back once when the impact from the tidal current and wind can be regarded as constant for the time, and twice when the impact changes with time. When the difference in the measured value in the same direction is 0.5kn or more, repetitive measurement is necessary.

- 1) Sailing test is conducted according to customer's commissioning plan. In the absence of a plan, the test between milepost is generally sailing forward and back four times: 1/4, 2/4, 3/4, and 4/4 of main engine rating.
- 2) Ensure that the number of rotations of the propeller and the course are made constant one nautical mile before entering the milepost and remain unchanged until the test ends.
- 3) When passing point A in the following figure, press stop watch 1 and the reset button on the distance counter.
- 4) When the distance counter indicates 0.01 nm, press stop watch 2.
- 5) Upon passing point B, stop stop watch 1 and obtain the required time between mileposts (t1).
- 6) When the distance counter indicates 1.01 nm, stop stop watch 2 and obtain the required time for 1.00 nm sailing (t2) on the Doppler Log.

\*Steps 5) and 6) may be reverse in time.

7) Obtain the calculated speed from the measured required time.

$$\text{Actual speed} = a \times \frac{3600}{t_1} \text{ [kn]}$$

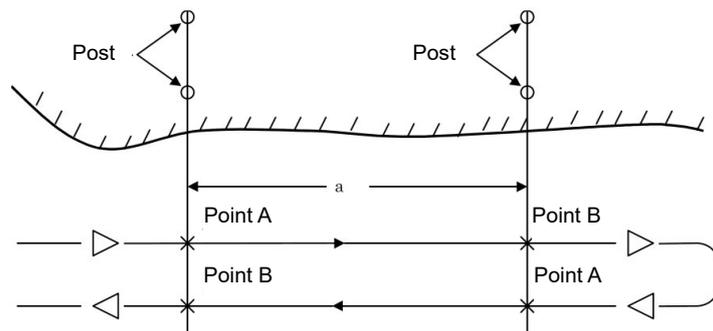
a: Distance between mileposts [nm]

t<sub>1</sub>: Required time between mileposts [S]

$$\text{Logged speed} = 1 \times \frac{3600}{t_2} \text{ [kn]}$$

t<sub>2</sub>: Logged required time for 1 nm sailing [S]

Avoid the same sea and sail forward and back. When entering the back route from the forward route, sail on greatly roundabout route and keep constant speed and course between mileposts. Perform the same measurement as on the forward route.



From the results of the sailing test between mileposts, the average values of actual speed and logged speed for sailing forward and back are calculated, respectively.

From the following expression, calculate the calibrated value to be set in maintenance PC tool “setting for ship speed calculation.”

$$\text{Actual speed} = \frac{\text{Average actual speed} - \text{average logged speed}}{\text{Average actual speed}} \times 100 \text{ [%]}$$

Normally, sailing test between mileposts is performed during four sailings forward and back. Since the Doppler log provides excellent linearity of speed, the speed is calibrated after first sailing forward and back and is checked during remaining three sailings forward and back.

From the next pages, milepost test calculation using the maintenance PC tool function is described.

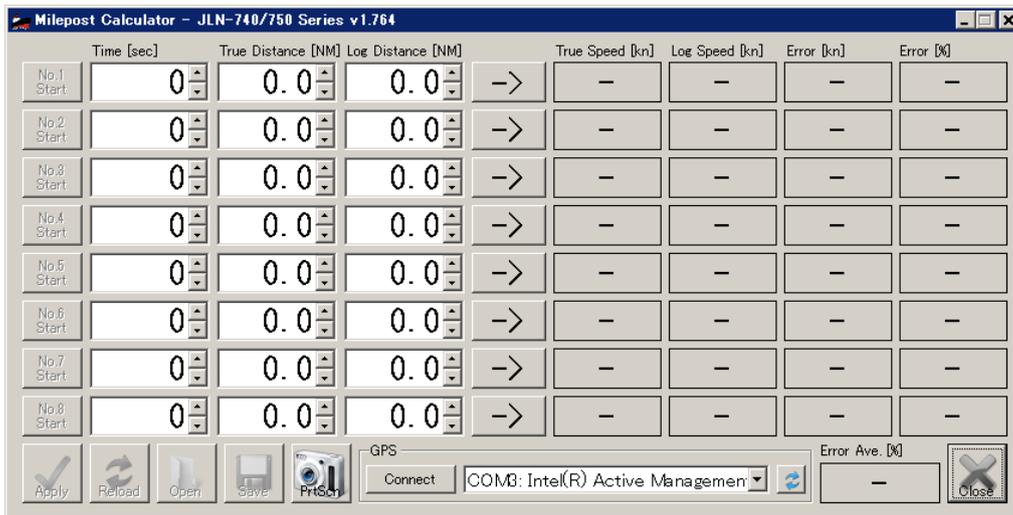
### 20.9.7. Calculating milepost test results

By entering a distance of a section (trip) and an elapsed time for a milepost test, the speed calibration values of the outward journey and the return journey can be calculated. In this case, only when GPS sensor communication can be received by the PC that is executing the maintenance PC tool, the function that allows automatic input of the ground distance is available (20.9.7.2).

However, a function for setting the calculation result in the equipment with a single button operator for prevention of operation errors is not available.

This screen can be started by clicking on the  button on the "First Settings" screen.

\*For the details of the usage, refer to 20.6.7.



: Saves the captured screen of the tool as an image file.



: Closes this screen.

The format is described in "Appendix B MilePost Test Result".

### 20.9.7.1. Entering a ground distance (True Distance) manually.

The milepost calculator can produce results of up to 8 tests (4 return journeys).

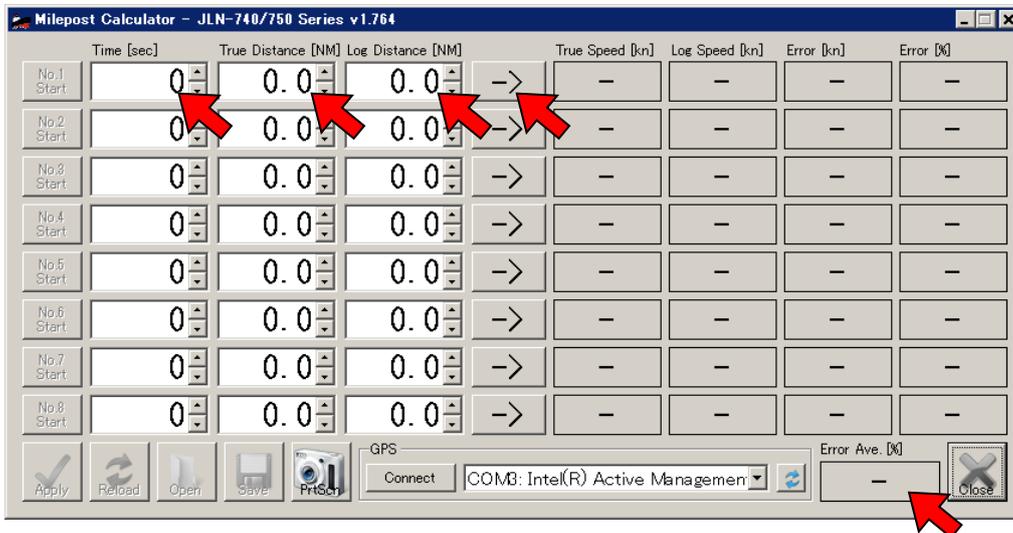
Enter an elapsed time (Time [sec]), a ground distance (True Distance [NM]) and a water distance (Log Distance [NM]).

To enter the values, click on the numerical value input field and then use one of the following methods:

- Use the scroll button of the mouse
- Click on the up and down arrow buttons at the right side of the numerical value input field
- Use the up and down key of the keyboard
- Use the numerical keys of the keyboard

When the  button is pressed, the speed calibration value as a result of the milepost test is displayed in the line on the right side.

After calculation of the speed calibration value as a result of each milepost test, the average of the speed calibration values is displayed at the bottom right corner.



20.9.7.2. Entering a ground distance (True Distance) through serial communication of GPS

Start reception of data from the GPS sensor by using the GPS sensor at the bottom left of the window and the communication setting.

Data from the GPS sensor can be received through serial communication only.



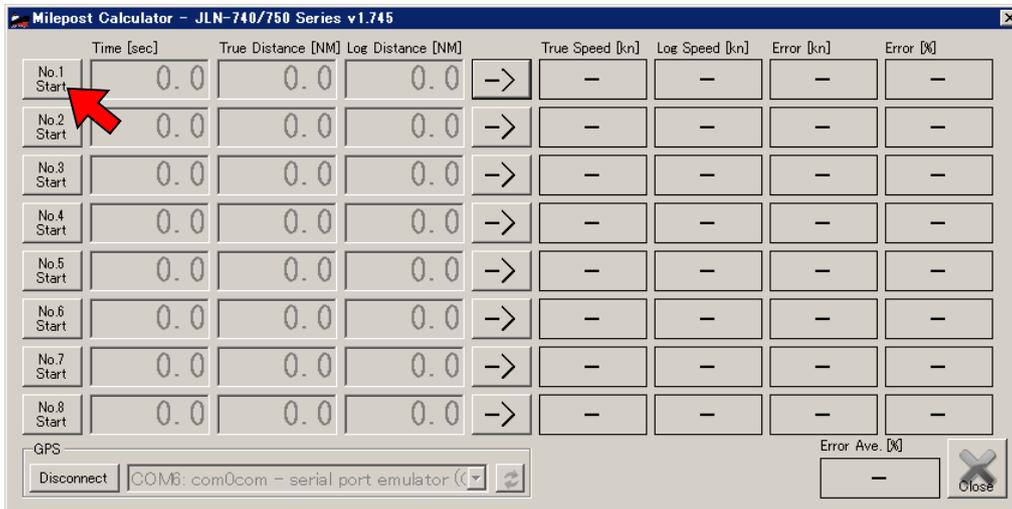
**Connect** : Starts serial reception from the GPS sensor.

**COM3: Intel(R) Active Management** : Select the serial port that is connected to the GPS sensor.

 : Updates the pull-down menu when the serial port of the GPS sensor is not displayed on the pull-down menu.

When a correct RMC sentence can be received from the GPS sensor, the screen display changes as follows.

On this screen, use the Start/Stop buttons on the left side to test and calculate the result of the milepost test.



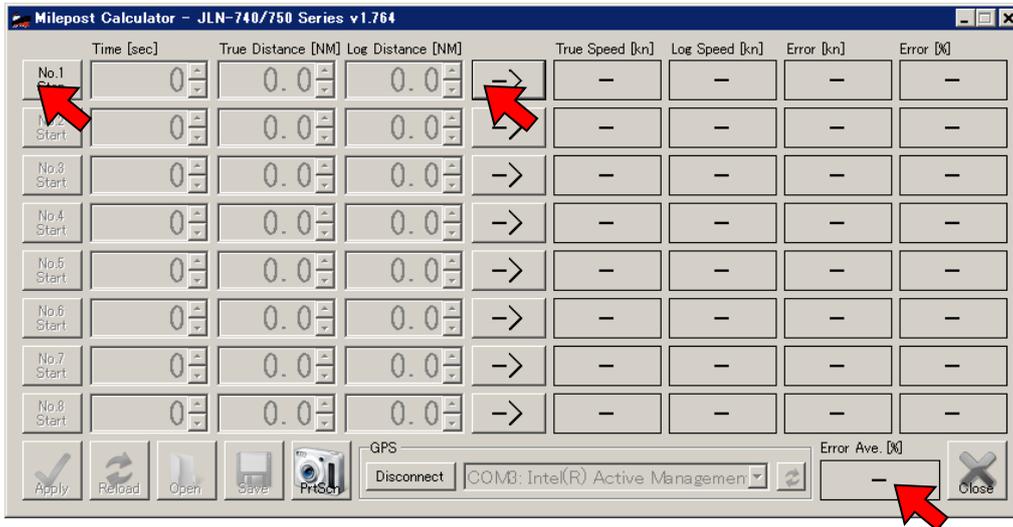
**No.1 Start** : Starts the milepost test.

**No.1 Stop** : Stops the milepost test. This button is displayed only while a milepost test is in progress.

**->** : Calculates the result of the milepost test.

When a milepost test is in progress, the Stop button for the milepost test is displayed.

After calculation of the speed calibration value by each milepost test, the average of the speed calibration values is displayed at the bottom right corner of the screen.



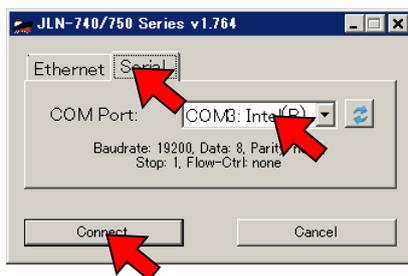
## 20.10. Changing the Detailed Settings (JLN-741A/741N)

### 20.10.1. Start the maintenance PC tool.



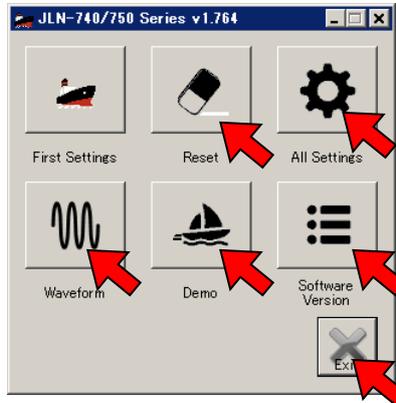
### 20.10.2. Connect the equipment.

To connect JLN-741A/741N, select the [Serial] tab and click on the [Connect] button after selecting the COM port that is connected to the equipment.



### 20.10.3. Select a menu.

Click on a menu button according to the purpose.



Specifies initial settings.  
Refer to section 20.9 "Initializing the Equipment (JLN-741A/741N)".



Resets the setting values that are stored in the equipment to those at the factory shipment.  
Refer to section 20.10.4 "Resetting all the settings to those of the factory shipment".



Enables checking and changing of all the settings and the statuses of the equipment.  
Refer to section 20.10.5 "Checking and changing all the settings and statuses".



Acquires waveform log.  
Refer to section 20.10.6 "Acquiring waveform log".



Performs demonstration.  
Refer to section 20.10.7 "Performing demonstration for presentation".



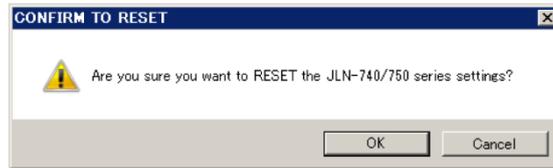
Displays maintenance information.  
Refer to section 20.10.8 "Displaying software information".



Exits from the tool.

#### 20.10.4. Resetting all the settings to those of the factory shipment

Use this function to reset all the setting values to those of the factory shipment.



: Executes resetting.

: Returns to the menu screen (20.10.3).

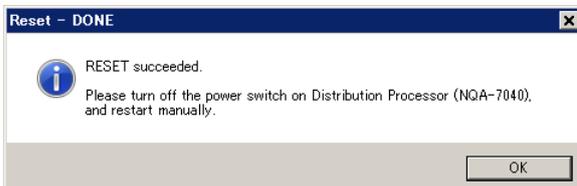
When press  button to reset, at first saving the current setting dialog would popup. After saving, the JLN-740/741 settings will reset.

On resetting, menu screen would change below and cannot operate.



After finish the reset, RESET succeeded or Reset failed window would popup.

If RESET is failed, some menu items cannot reset. Check the menu items by maintenance PC tool.



RESET succeeded

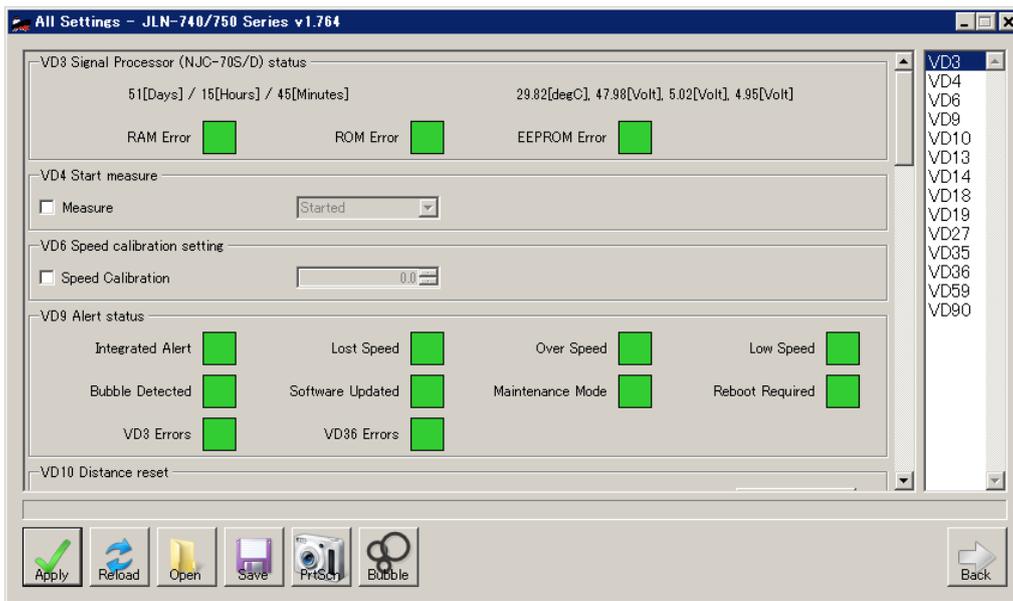


Reset failed

### 20.10.5. Checking and changing all the settings and statuses

This function enables the changing and checking of all the settings and statuses of JLN-741A/741N.

Please be sure to send the saved configuration file to our sales representative.



Writes the settings on the screen to the equipment collectively.



Loads the information in the equipment and displays it on the screen.



Loads the information in the configuration file and displays it on the screen.



Saves the setting values on the screen in a configuration file collectively.



Saves the screen capture of the tool as an image file.



Starts the bubble detection reference waveform screen (20.9.5).



Returns to the menu screen (20.10.3).

20.10.5.1. Status of the signal processor (NJC-70)

Check that all the errors are displayed in “green”. When any of the errors is displayed in “red”, take the necessary measures by referencing the following error contents so that all the errors are displayed in “green”.

<Error contents>

RAM Error: An error occurred in the RAM.

ROM Error: An error occurred in the ROM.

EEPROM Error: An error occurred in the EEPROM.



No.	Item	Setting value/Display	Remarks
1	Total operating time (signal processor - day)	0 to 9999 [day] Default: 0	Display only
2	Total operating time (signal processor - hour)	0 to 23 [hour] Default: 0	Display only
3	Total operating time (signal processor - minute)	0 to 59 [minute] Default: 0	Display only
4	Frame internal temperature (signal processor)	[°C]	Display only
5	Power voltage (48V)	[V]	Display only
6	Power voltage (5V - Ch1)	[V]	Display only
7	Power voltage (5V - Ch2)	[V]	Display only
8	RAM Error (Control CPU)	Green (Normal)/ Red (abnormal)	Display only
9	ROM Error (Control CPU)	Green (Normal)/ Red (abnormal)	Display only
10	EEPROM Error (Control CPU)	Green (Normal)/ Red (abnormal)	Display only

20.10.5.2. Measurement start status

Set start/stop of transmission of the transducer (Started)/(Stopped).

 <b>CAUTION</b>	<p>If a ship is not no water due to docking, do not start transmission. Starting transmission causes the transducer to become faulty.</p>
--	---



No.	Item	Setting value	Remarks
1	Start of transmission	Started (Transmission start)/Stopped (stop) Default: Stopped	Editable

20.10.5.3. Setting relating to the vessel speed calculation

Specify calibration of ship speed calculation.

This calibration value should calculate by milepost test. See 20.9.6



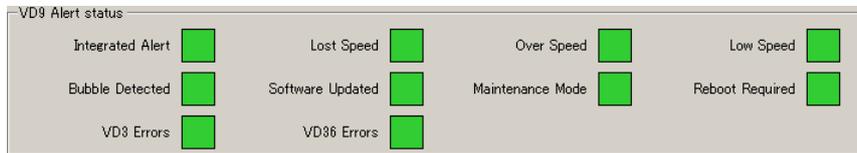
No.	Item	Setting value	Remarks
1	Speed calibration	-50.0 to +50.0 [%] Default: 0.0	Editable

20.10.5.4. Error status

Check that all the errors are displayed in “green”. When any of the errors is displayed in “red”, take the necessary measures by referencing the following error contents so that all the errors are displayed in “green”.

<Error contents>

- Integrated Alert: Displayed in “red” when any of the errors from No.2 to No.10 occurred. When all the errors are rectified, the errors are displayed in “green”.
- Lost Speed: Ahead/astern ship speeds are not measured.
- Over Speed: The ship speed exceeded the ahead/astern ship speed notice range (upper limit).
- Low Speed: The ship speed is slower than the ahead/astern ship speed notice range (lower limit).
- Bubble Detected: Bubbles are detected.
- Software Updated: Software update has not been completed.
- Maintenance Mode: The maintenance mode has not been terminated.
- Reboot Required: Reboot is being requested.
- VD3 Alert: The signal processor is not stable.
- VD36 Alert: The error of the signal processor has not been rectified.



No.	Item	Display	Remarks
1	Integrated alert flag	Green (Normal)/Red(abnormal)	Display only
2	Lost speed alert (fore/after)	Green (Normal)/Red(abnormal)	Display only
3	Fore/after vessel speed notice (upper limit)	Green (Normal)/Red(abnormal)	Display only
4	Fore/after vessel speed notice (lower limit)	Green (Normal)/Red(abnormal)	Display only
5	Bubble detection	Green (Normal)/Red(abnormal)	Display only
6	Software updated	Green (Normal)/Red(abnormal)	Display only
7	Maintenance mode	Green (Normal)/Red(abnormal)	Display only
8	Restart request	Green (Normal)/Red(abnormal)	Display only
9	PJRCM,VD,3 integrated alarm	Green (Normal)/Red(abnormal)	Display only
10	PJRCM,VD,36 integrated alarm	Green (Normal)/Red(abnormal)	Display only

20.10.5.5. Distance reset

Specify the total distance.

When the [Trip Reset] button is pressed, the distance is reset.

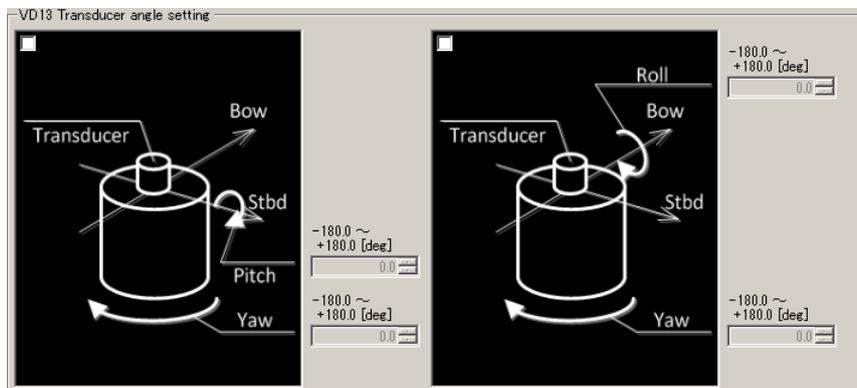


No.	Item	Setting value	Remarks
1	Set total distance	0 to 999999.99 [NM] Default: 0	Editable
2	Reset distance	Reset/not reset	Reset by pressing the button

20.10.5.6. Setting relating to the transducer mounting angle

If there is a difference in the installation angle of oscillator (CFT-022/023) when the transducer (NKF-547/531E) is installed at the bottom of a vessel, correct it. If there is no difference, the default value can be used as is.

When wrong transducer mounting angle is set, wrong water speed and distance would indicate.



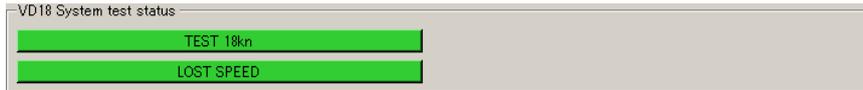
No.	Item	Setting value	Remarks
1	Transducer angle correction (bow/stern: Yaw)	-180.0 to 180.0 [°] Default: 0.0	Editable
2	Transducer angle correction (bow/stern: pitch)	-180.0 to 180.0 [°] Default: 0.0	Editable
3	Transducer angle correction (Port/starboard: Yaw)	-180.0 to 180.0 [°] Default: 0.0	Editable
4	Transducer angle correction (Port/starboard: Roll)	-180.0 to 180.0 [°] Default: 0.0	Editable

### 20.10.5.7. System test status

Use the system test to check whether the main display (NWZ-510SDW) is displayed and serial communication line is connected correctly.

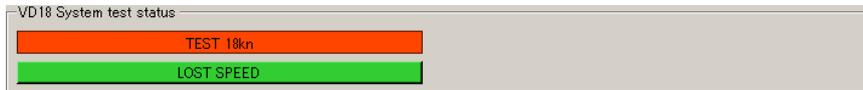
When the system test item is set to enable, the selected status would change to “red”.

When the system test item is set to disable, the selected status would change to “green”.



No.	Item	Setting value	Remarks
1	System test (18kn test)	Red (Test Enable)/Green (Disable)	Changeable with the toggle button
2	System test (lost speed alert)	Red (Test Enable)/Green (Disable)	Changeable with the toggle button

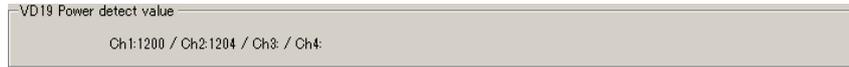
As an example, when only the 18 kn test is enabled, the display changes to “red” in the following way.



Screen example when the 18kn test is enabled

20.10.5.8. Power detection value

The strength of travelling wave output from the transducer can be checked.



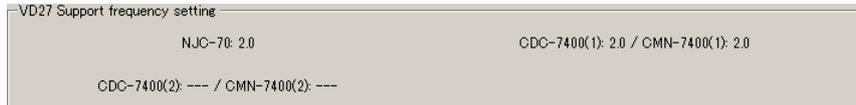
No.	Item	Setting value	Remarks
1	Travelling wave (Ch1: Fore)	0 to 4096	Display only
2	Travelling wave (Ch2: After)	0 to 4096	Display only
3	Travelling wave (Ch3: Starboard direction)	0 to 4096	Display only
4	Travelling wave (Ch4: Port direction)	0 to 4096	Display only

20.10.5.9. Status of supported frequency

The status of frequency supported for each piece of equipment can be checked.

If "2.0" is indicated, the supported frequency is received.

If "---" is indicated, the supported frequency is not received.



No.	Item	Display	Setting value	Remarks
1	Supported frequency (NJC-70S/D)	2.0 / ---	Received/Not received	Display only
2	Supported frequency (CDC-7400 (1))	2.0 / ---	Received/Not received	Display only
3	Supported frequency (CDC-7400 (2))	2.0 / ---	Received/Not received	Display only
4	Supported frequency (CMN-7400 (1))	2.0 / ---	Received/Not received	Display only
5	Supported frequency (CMN-7400 (2))	2.0 / ---	Received/Not received	Display only

20.10.5.10. Transducer (NKF-547/531E) management information

During installation, be sure to enter transducer (NKF-547/531E) management information. This information is managed by the remote maintenance system (RMS) during operation.

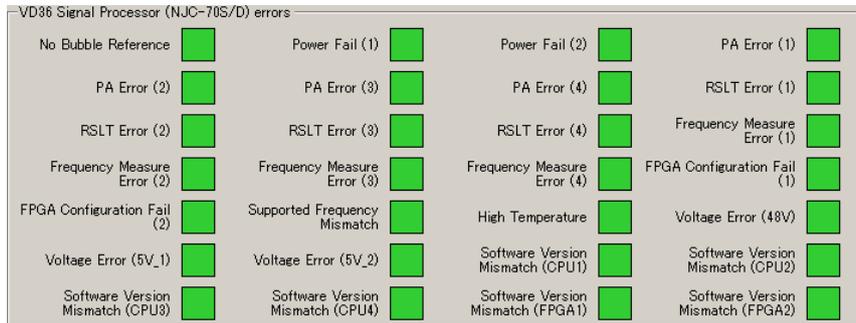
No.	Item	Setting value	Remarks
1	Model name (NKF-547/531E)	Up to 9 ASCII characters	Editable
2	Serial number (NKF-547/531E)	Up to 10 ASCII characters	Editable
3	Bar code number (NKF-547/531E)	Up to 13 ASCII characters	Editable

20.10.5.11. Signal processor (NJC-70) errors

Check that all the errors are displayed in “green”. When any of the errors is displayed in “red”, take the necessary measures by referencing the following error contents so that all the errors are displayed in “green”.

<Error contents>

- No Bubble Reference: A bubble reference is not set.
- Power Fail (1): A transmission power (1 axis) fail occurred.
- Power Fail (2): A transmission power (2 axes) fail occurred.
- PA Error: An error occurred in PA1 to PA4.
- RSLT Error: An error occurred in RSLT1 to RSLT4.
- Frequency Measure Error: A frequency detection error (ch1 to ch4) occurred.
- FPGA Configuration Fail (1): A FPGA setting error (1 axis) occurred.
- FPGA Configuration Fail (2): A FPGA setting error (2 axes) occurred.
- Supported Frequency: An error occurred in the supported frequency.
- High Temperature: A temperature error occurred in the signal processor.
- Voltage Error (48 V): A voltage error (48 V) occurred in the signal processor.
- Voltage Error (5 V-1): A voltage error (5 V-ch1) occurred in the signal processor.
- Voltage Error (5 V-2): A voltage error (5 V-ch2) occurred in the signal processor.
- Software Version (CPU): A software version error (arithmetic operation CPU1 to CPU4) occurred.
- Software Version (FPGA): A software version error (FPGA1 to FPGA2) occurred.



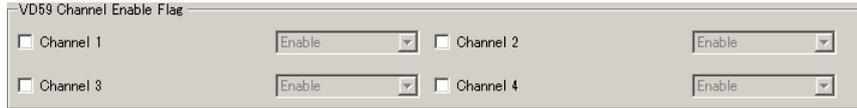
No.	Item	Display	Remarks
1	Bubble detection reference abnormality	Green (Normal)/Red(abnormal)	Display only
2	Transmission power fail (1 axis)	Green (Normal)/Red(abnormal)	Display only
3	Transmission power fail (2 axes)	Green (Normal)/Red(abnormal)	Display only
4	PA1 error	Green (Normal)/Red(abnormal)	Display only
5	PA2 error	Green (Normal)/Red(abnormal)	Display only
6	PA3 error	Green (Normal)/Red(abnormal)	Display only
7	PA4 error	Green (Normal)/Red(abnormal)	Display only
8	RSLT1 error	Green (Normal)/Red(abnormal)	Display only
9	RSLT2 error	Green (Normal)/Red(abnormal)	Display only
10	RSLT3 error	Green (Normal)/Red(abnormal)	Display only
11	RSLT4 error	Green (Normal)/Red(abnormal)	Display only
12	Frequency detection abnormality (Ch1)	Green (Normal)/Red(abnormal)	Display only
13	Frequency detection abnormality (Ch2)	Green (Normal)/Red(abnormal)	Display only
14	Frequency detection abnormality (Ch3)	Green (Normal)/Red(abnormal)	Display only
15	Frequency detection abnormality (Ch4)	Green (Normal)/Red(abnormal)	Display only
16	FPGA configuration abnormality (1 axis)	Green (Normal)/Red(abnormal)	Display only

No.	Item	Display	Remarks
17	FPGA configuration abnormality (2 axes)	Green (Normal)/Red(abnormal)	Display only
18	Supported frequency abnormality	Green (Normal)/Red(abnormal)	Display only
19	Signal processor temperature abnormality	Green (Normal)/Red(abnormal)	Display only
20	Voltage abnormality (signal processor 48V)	Green (Normal)/Red(abnormal)	Display only
21	Voltage abnormality (signal processor5V - Ch1)	Green (Normal)/Red(abnormal)	Display only
22	Voltage abnormality (signal processor5V - Ch2)	Green (Normal)/Red(abnormal)	Display only
23	Software version abnormality (operation CPU1)	Green (Normal)/Red(abnormal)	Display only
24	Software version abnormality (operation CPU2)	Green (Normal)/Red(abnormal)	Display only
25	Software version abnormality (operation CPU3)	Green (Normal)/Red(abnormal)	Display only
26	Software version abnormality (operation CPU4)	Green (Normal)/Red(abnormal)	Display only
27	Software version abnormality (FPGA1)	Green (Normal)/Red(abnormal)	Display only
28	Software version abnormality (FPGA2)	Green (Normal)/Red(abnormal)	Display only

20.10.5.12. Transmission channel enable flags

If oscillator (CFT-022/023) channel is damaged and correct ship speed cannot be measured during operation, only the relevant channel is forcibly disabled and measurement using normal channel is continued.

In normal operation, do not change this menu from default.



No.	Item	Setting value	Remarks
1	Channel 1 enable flag	Enabled (Enabled)/Disabled (Disabled) Default: Enabled	Selectable by using the pull-down menu
2	Channel 2 enable flag	Enabled (Enabled)/Disabled (Disabled) Default: Enabled	Selectable by using the pull-down menu
3	Channel 3 enable flag	Enabled (Enabled)/Disabled (Disabled) Default: Enabled	Selectable by using the pull-down menu
4	Channel 4 enable flag	Enabled (Enabled)/Disabled (Disabled) Default: Enabled	Selectable by using the pull-down menu

20.10.5.13. Mode status

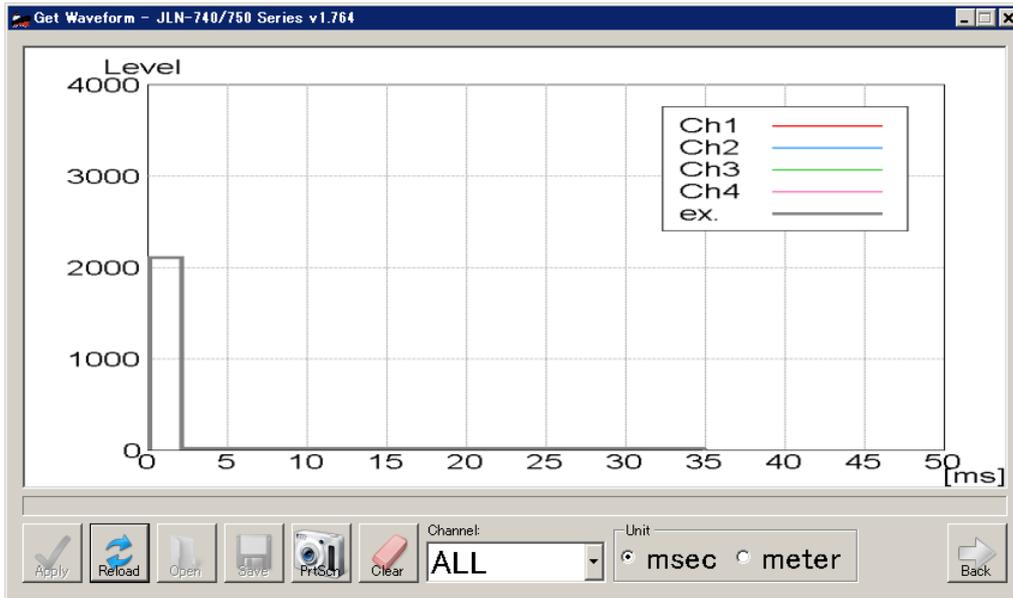
Indicate mode status.



No.	Item	Display	Remarks
1	Mode flag	M/B/E/U/W/L/R Default: M	Display only

### 20.10.6. Acquiring waveform log

Use this function when it is necessary to save reception waveforms for each channel. The acquired waveform is displayed on the screen and the waveform is automatically saved as a binary file as well. In this case, the format of the file name is “yyyymmdd-hhmmss\_Ch<channel number>\_Waveform.dat”.



: Press this button to start acquisition of waveform log.



: Saves the screen capture of the tool as an image file.



: Clears (hides) the waveform on this screen. The log file is not deleted.



: Use this function to specify a channel number.(Ch1/Ch2/Ch3/Ch4/ALL)



: Select a horizontal axis of graph display.

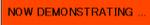


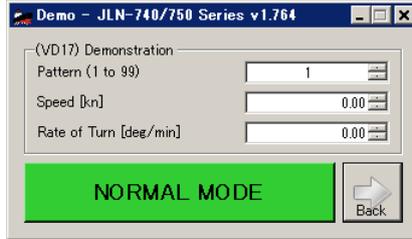
: Returns to the menu screen (20.10.3).

20.10.7. Performing demonstration for presentation

Use this function when demonstration is required.

Select the pattern you want to demonstrate and press the  button. Demonstration starts.

To stop demonstration, press the  button or restart the power.



: Normal mode. When this button is pressed, demonstration starts.



: Demonstration is in progress. When this button is pressed, demonstration stops.

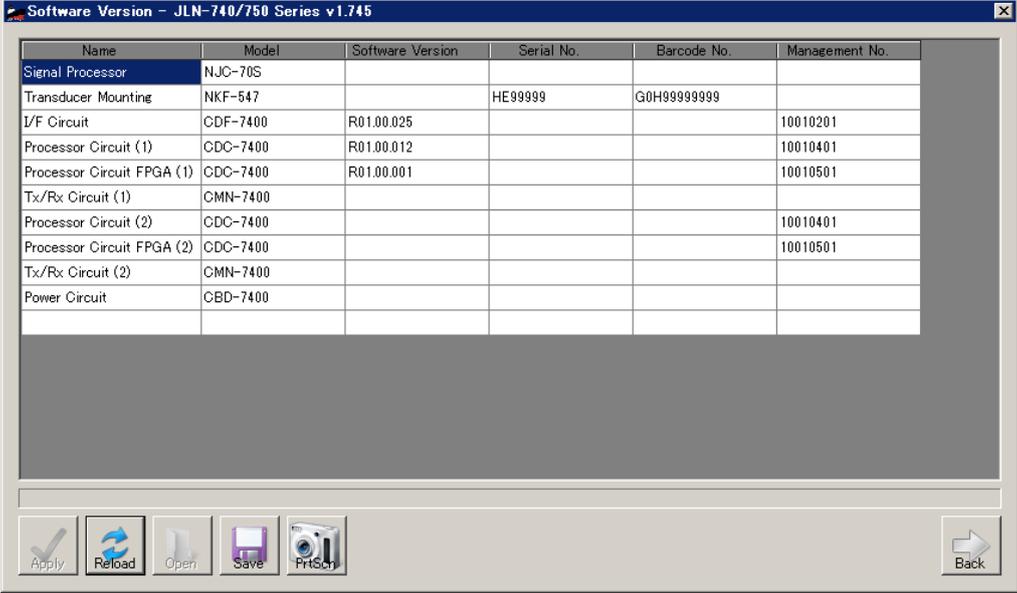


: Returns to the menu screen (20.10.3).

No.	Item	Setting value	Remarks
1	Demonstration pattern	1 to 99 Default: 1	Editable
2	Demonstration vessel speed	-100.00 to 100.00 Default: 0.00	Editable
3	Demonstration ROT	-360.00 to 360.00 Default: 0.00	Editable

## 20.10.8. Displaying software information

Use this function for checking software information.



Name	Model	Software Version	Serial No.	Barcode No.	Management No.
Signal Processor	NJC-70S				
Transducer Mounting	NKF-547		HE99999	G0H99999999	
I/F Circuit	CDF-7400	R01.00.025			10010201
Processor Circuit (1)	CDC-7400	R01.00.012			10010401
Processor Circuit FPGA (1)	CDC-7400	R01.00.001			10010501
Tx/Rx Circuit (1)	CMN-7400				
Processor Circuit (2)	CDC-7400				10010401
Processor Circuit FPGA (2)	CDC-7400				10010501
Tx/Rx Circuit (2)	CMN-7400				
Power Circuit	CBD-7400				



: Loads the device information and displays it on the screen.



: Saves software information in a CSV file.



: Saves the screen capture of the tool as an image file.



: Returns to the menu screen (20.10.3).

No.	Model name	Software version number	Serial number	Bar code number	Software management number
1	NJC-70S or NJC-70D	-	○	○	-
2	NKF-547	-	○	○	-
3	CDF-7400	○	○	○	100102 01
4	CDC-7400 (1, CPU)	○	○	○	100104 01
5	CDC-7400 (1, FPGA)	○	○	○	100105 01
6	CMN-7400 (1)	-	○	○	-
7	CBD-7400	-	○	○	-
8	CQD-7040	○	○	○	100100 01

Please be sure to send the saved configuration file to our sales representative.

# 21. Trouble Shooting

Symptom of fault	JLN-740A	JLN-740N	JLN-741A	JLN-741N	Possible cause	Corrective action
Missing data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	The water depth is too low.	Since a ship speed cannot be measured when the water depth is lower than 3 m, check the water depth.
The ship speed that is displayed is obviously slow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	The ship speed correction setting is incorrect.	Check whether the milepost test result has been entered correctly (see Sections 20.6.6, 20.6.7 and 20.7.6).
There is a large difference with the ship speed relative to land meter.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Impact from the tidal current and wind	Check if there is any impact of tidal current and wind by using a current meter and an anemometer.
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	The ship speed correction setting is incorrect.	Check whether the milepost test result has been entered correctly (see Sections 20.6.6, 20.6.7 and 20.7.6).
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	“UNIT” is set to m/s ⇔ kn unintentionally.	Check the “UNIT” setting. (Refer to Sections 4.1.3.7, 5.2.1, and 8.1.2.7 in Instruction Manual.)
The power supply cannot be turned off.	<input type="radio"/>	<input type="radio"/>			Main display and distribution processor NQA-7040 cannot communicate correctly.	Turn off the power supply of the distribution processing by pressing switch “S1” and check the communication between the main display and the distribution processor.
Alert “LOST SPEED” is displayed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Disconnected with the signal processor.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.

Symptom of fault	JLN-740A	JLN-740N	JLN-741A	JLN-741N	Possible cause	Corrective action
The date and time that are displayed on alert are incorrect.	○	○	○		The data is not corrected from the input from the GPS sensor.	Check the communication line with the GPS sensor.
Although an alert is displayed in the alert list, the alert icon remains in the normal state.	○		○		The NWZ-510SDW alert is set to OFF.	Check that the MENU→ADV SET→ALERT ON/OFF setting is ENABLED.
The ship speed that is displayed by the analog display seems to be incorrect.	○	○			The analog full scale setting is incorrect.	Check the analog full scale setting (see Sections 20.6.4.11 and 20.8.5.18).
Not transmit/signal processor is not recognized.	○	○	○	○	Transmission channel control is enabled.	Check the transmission channel Enable flag (see Sections 20.8.5.30 and 20.9.5.13).

## 22. Maintenance information

Symptom of fault	JLN-740A	JLN-740N	JLN-741A	JLN-741N	Possible cause	Corrective action
“OVER SPEED STW”, is displayed.	○	○			Ship speed through water exceeded the speed limit setting range.	Check the speed limit setting. (Refer to 4.1.3.8 and 6.1.3.4 in instruction manual.)
“BUBBLE DETECTED” is displayed.	○	○			The bubble detected on the surface of the transducer.	Check the bubble detect setting. (Refer to 4.1.3.9.2 and 6.9 in instruction manual)
“MAINTENANCE MODE” is displayed.	○	○			Maintenance mode is running.	Please wait until the maintenance is completed.
“HW ERROR. NWZ-510” is displayed.	○				NWZ-510SDW is faulty.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“HW ERR. NWZ-4640” is displayed.		○			NWZ-4640 is faulty.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“HW ERROR .NQA-7040” is displayed.	○	○			CQD-7040 in NQA-7040 is faulty.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“HW ERROR . NJC-70.” is displayed.	○	○			CDF-7400 in NJC-70 is faulty.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“NO BUBBLE REFERENCE” is displayed.	○	○			Bubble detection reference data is not set.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.

Symptom of fault	JLN-740A	JLN-740N	JLN-741A	JLN-741N	Possible cause	Corrective action
“TX/RX STOP” is displayed.	○	○			Transmission power error in NJC-70	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“PA STOP” is displayed.	○	○			CMN-7400 in NJC-70 is faulty.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“CPU STOP .CDC-7400” is displayed.	○	○			CDC-7400 in NJC-70 is faulty.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“HW ERROR .CDC-7400” is displayed.	○	○			CDC-7400 in NJC-70 is faulty.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“ROT DATA RECV FAIL” is displayed.	○	○			The distribution processor is not receiving the ROT sentence.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“PLEASE SET DATE-TIME” is displayed.	○	○			The date-time is not setting.	Please set date-time. (Refer to 4.1.3.4 and 6.6 in instruction manual)
“DISPLAY COMM. FAIL” is displayed.	○	○			Display is faulty.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“SENSOR COMM. FAIL” is displayed.	○	○			NJC-70 is faulty.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.

Symptom of fault	JLN-740A	JLN-740N	JLN-741A	JLN-741N	Possible cause	Corrective action
"COMM. FAIL" is displayed.		○		○	Display is faulty.	Turn off the power using the circuit breaker. If that doesn't solve the problem, contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
"CPU1 MISMATCH .1MIN REMAINS." is displayed.	○	○			The software version of CDC-7400 in NJC-70 does not match.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
"CPU2 MISMATCH .1MIN REMAINS." is displayed.	○	○			The software version of CDC-7400 in NJC-70 does not match.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
"CPU3 MISMATCH .1MIN REMAINS." is displayed.	○	○			The software version of CDC-7400 in NJC-70 does not match.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
"CPU4 MISMATCH .1MIN REMAINS." is displayed.	○	○			The software version of CDC-7400 in NJC-70 does not match.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
"FPGA1 MISMATCH .10MIN REMAINS." is displayed.	○	○			The software version of CDC-7400 in NJC-70 does not match.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
"FPGA2 MISMATCH .10MIN REMAINS." is displayed.	○	○			The software version of CDC-7400 in NJC-70 does not match.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
"PARSING OF NMEA FAILED" is displayed.	○	○			The display has detected a communication error.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.

Symptom of fault	JLN-740A	JLN-740N	JLN-741A	JLN-741N	Possible cause	Corrective action
“INVALID CHECHSUM OF NMEA” is displayed.	○				The display has detected a communication error.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“VBW TIME OUT” is displayed.	○	○			The display has detected a communication error.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“VLW TIME OUT” is displayed.	○	○			The display has detected a communication error.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“DISTRIBUTOR COM. FAIL” is displayed.	○				The display has detected a communication error.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“MODBUS TIME OUT” is displayed.	○				The display has detected a communication error.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“MODBUS CANNOT CONNECT TO DP” is displayed.	○				The display has detected a communication error.	Contact JRC Sales Department, or your nearest branch, sales office, or our distributor.
“UPDATE MODE” is displayed.	○				Software update is running.	Please wait until the maintenance is completed.

# Appendix(A) Menu list

## A.1 Display menu list (NWZ-510SDW, NWZ-650SDR/NWZ-840SDR)

The menus for the main display (NWZ-510SDW) and remote display (NWZ-650SDR and NWZ-840SDR) are listed below.

Main display	Remote display	Menu item	Setting name	Setting value	User settings		Connected equipment	Description
					Current	Change		
<input type="radio"/>	<input type="radio"/>	TOUCH CAL (TOUCH SCREEN CALIBRATION)	TOUCH SCREEN CALIBRATION					adjustment of the touch position
<input type="radio"/>		MAINT INFO	MAINT INFO	Display only				Maintenance Information JLN-740A only
<input type="radio"/>	<input type="radio"/>	THEME	ILLUMINATION	<u>DAY</u> ,DUSK,NIGHT				Rough adjustment of brightness
<input type="radio"/>	<input type="radio"/>	DATE TIME (DATE/TIME[1/2])	YEAR	2000 to 2037				Year
			MONTH	JAN,FEB,MAR,APR, MAY,JUN,JUL,AUG, SEP,OCT,NOV,DEC				Month
			DAY	1 to last day of a month				Day
		(DATE/TIME[2/2])	HOUR	0 to 23				Hour
			MINUTE	0 to 59				Minute
<input type="radio"/>		ABOUT Main display	Display ver.:	Display only			NWZ-510SDW	Version of main display
			DP Proc .ver.:				NQA-7040	Version of distribution processor (JLN-740A only)
			SP Ctrl ver.:				NJC-70S	Signal processor control version
			SP Calc ver.:				NJC-70S	Signal processor computation version
			SP FPGA ver.:				NJC-70S	Signal processor FPGA version
			Display ser.:				NWZ-510SDW	Serial number of main display Note: 0000000 is displayed
			DP ser.:				NQA-7040	Serial number of main display (JLN-740A only) Note: 0000000 is displayed
			SP ser.:				NJC-70S	Serial number of main display Note: 0000000 is displayed
Transducer ser.:			NKF-547	Serial number of main display Note: 0000000 is displayed				
<input type="radio"/>	<input type="radio"/>	ABOUT Remote display	MF ver.:	Display only			NWZ-650SDR· NWZ-840SDR	Version of remote display
			MF ser.:					Serial number of main display Note: 0000000 is displayed

Main display	Remote display	Menu item	Setting name	Setting value	User settings		Connected equipment	Description		
					Current	Change				
○	○	ADV SET (ADVANCED SETTINGS) Common <sup>1</sup>	CENTRL DIM (CENTRAL DIMMER)	INPUT	ETHERNET, UART 0, UART 1, UART 2, UART 3, ANY, NONE					
			ETH CONFIG (ETHERNET)	IP ADDRESS	Each device					Setting of IP address
				SUBNET MASK						Setting of subnet mask
				GATEWAY						Setting of gateway
			UART CONFIG (UART [1/2])	UART	UART 0, UART 1, UART 2, UART 3					Setting of port
				PARITY	NONE, ODD, EVEN, FORCED 1, FORCED 0					Setting of parity bit
				STOP BITS	1, 2					Setting of stop bit
			(UART [2/2])	DATA BITS	5, 6, 7, 8					Setting of data bit length
				BAUD RATE	4800, 9600, 19200, 38400, 57600, 115200					Setting of baud rate
			SERIAL MON (SERIAL MONITOR)	UART 0	Display only					Monitor of UART 0
				UART 1						Monitor of UART 1
				UART 2						Monitor of UART 2
				UART 3						Monitor of UART 3
			RESET (EXECUTE FACTORY RESET)	RESET					Reset of display	
			LOG	LOG	Display only				Display of log	
			NMEA TALKER (VBW)	TALKER	VD				Doppler	Setting of talker
				USED/UNUSED	USED, UNUSED					Setting of used / unused
			NMEA TALKER (VLW)	TALKER	VD				Doppler	Setting of talker
				USED/UNUSED	USED, UNUSED					Setting of used / unused
			NMEA TALKER (HBT)	TALKER	**				Doppler	Setting of talker
				USED/UNUSED	USED, UNUSED					Setting of used / unused
			NMEA TALKER (DDC)	TALKER	VD				Doppler	Setting of talker
				USED/UNUSED	USED, UNUSED					Setting of used / unused
			NMEA TALKER (JRCM)	TALKER	VD				Doppler	Setting of talker
				USED/UNUSED	USED, UNUSED					Setting of used / unused
			NMEA TALKER (JRC)	TALKER	VD				Doppler	Setting of talker
				USED/UNUSED	USED, UNUSED					Setting of used / unused
			ALERT ON/OFF	ALART	ENABLED, DISABLED					Setting of Enabled/Disabled
			NMEA SET	SENTENCE	DDC, NONE, VBW					Setting of sentence
				INTERVAL[ms]	BY CHANGE, 100, 250, 500, 1000, 2000					Setting of interval
				PORT	MULTI, UART 0, UART 1, UART 2, UART 3, TCP, OFF					Setting of port
			○	ADV SET (ADVANCED SETTINGS) Main display	(ACK)	TALKER	**			Doppler
USED/UNUSED	USED, UNUSED						Setting of used / unused			
(ALF)	TALKER	VD						Doppler	Setting of talker	
	USED/UNUSED	USED, UNUSED							Setting of used / unused	
(ACM)	TALKER	VD						Doppler	Setting of talker	
	USED/UNUSED	USED, UNUSED							Setting of used / unused	

Main display	Remote display	Menu item	Setting name	Setting value	User settings		Connected equipment	Description		
					Current	Change				
	○	DISP MODE (DISPLAY MODE SETTINGS)	ANALOG/DIGITAL	ANALOG, <u>DIGITAL</u>				Setting the analog display / digital display		
	○	DIGITS	Number of digits	1. <u>2</u>				Setting of the number of decimal digits		
	○	UNITS	SPEED	<u>kn</u> ,m/s				Setting the speed unit		
	○	SPEED LIMIT	UPPER	-40 to <u>40</u> ,OFF				Setting of vessel speed upper limit		
			LOWER	<u>-40</u> to 40,OFF				Setting of vessel speed lower limit		
	○	SETT BUBBLE	BUBBLE DETECT	0 to 80000 <u>Default 50000</u>				Setting of bubble detect value		
○	Main display	ADV SDME (ADVANCED SDME SETTINGS)	TOTAL DIST (TOTAL DISTANCE SETTINGS)	TOTAL DIST.	<u>0.00</u> to 999999.99			Setting of total distance		
			DEMO MODE	INT/EXT	<u>INI</u> ,EXT				Setting of demo output	
				PATTERN	<u>OFF</u> , 1 to 99				Setting of demo pattern	
			MODEL	MODEL RESET					Resetting of model	
			SYS TEST	SYSTEM TEST[1/2]	18kn TEST	<u>ON</u> ,OFF				Setting of 18kn test
			TRAN-SMIT	AUTO START	LOST ALERT	<u>ON</u> ,OFF				Setting of alert test
						<u>ON</u> ,OFF				Setting of auto start
○	Remote display	ADV SDME (ADVANCED SDME SETTINGS)	ANALOG	SPEED SCALE (DISPLAY MODE SETTINGS)	ANALOG SCALES	-2..10,-5..10, -4..20,-10..20, -5..25, <u>-6..30</u> , -8..40			Setting of analog display scale	
			MANAG NUMB (MANAGEMENT NUMBER SETTINGS)	MANAGEMENT NUMBER	NWZ-650SDR	10010701, 10010901, 10011101, 10011301, 10011501			Setting of management number	
					NWZ-840SDR	10011701, 10011901, 10012101, 10012301, 10012501			Setting of management number	
			COMM MODE (COMMUNICATION SETTINGS)	COMMUNICATION SETTINGS		<u>RX/TX</u> , RX ONLY				Setting of communication
○		ALERT LIST	ALERT LIST	Display only				List of alert		
○		ALERT HIST	ALERT HIST	Display only				History of alert (JLN-740A only)		
	○	SOG/STW (SOG/STW SETTINGS)	SOG/STW	<u>GNSS SOG</u> , DOPPLER SOG,DOPPLER STW			NNN-21· Doppler	Setting of SOG/STW		

\* The underlined value is the value that is set at the factory shipment. At the resetting, this value is set.

\*1 Factory shipment value of main display: underline Factory shipment value of remote display : wave line

Set value after the reset is set to factory shipment value.

● Display reset list

Main display(NWZ-510SDW)					
Menu item		Setting name	Setting value	ADV SET	
				RESET	
TOUCH CAL (TOUCH SCREEN CALIBRATION)		TOUCH SCREEN CALIBRATION		○	
THEME		ILLUMINATION	<u>DAY</u> ,DUSK,NIGHT		
		YEAR	2000 to 2037		
DATE TIME (DATE/TIME[1/2])		MONTH	JAN,FEB,MAR,APR, MAY,JUN,JUL,AUG, SEP,OCT,NOV,DEC		
		DAY	End of 1 to MONTH		
(DATE/TIME[2/2])		HOUR	0 to 23		
		MINUTE	0 to 59		
ADV SET (ADVANCED SETTINGS) Common	ETH CONFIG (ETHERNET)	IP ADDRESS		○	
		SUBNET MASK	Each device	○	
		GATEWAY		○	
	UART CONFIG (UART [1/2])	UART	<u>UART 0</u> ,UART 1, UART 2,UART 3	○	
		PARITY	<u>NONE</u> ,ODD,EVEN, FORCED 1,FORCED 0	○	
		STOP BITS	<u>1</u> ,2	○	
	(UART [2/2])	DATA BITS	<u>5</u> ,6,7,8	○	
		BAUD RATE	4800,9600, <u>19200</u> , 38400,57600,115200	○	
	NMEA TALKER (DDC)	USED/UNUSED	<u>USED</u> ,UNUSED	○	
	(JRCM)	USED/UNUSED	<u>USED</u> ,UNUSED	○	
ALERT ON/OFF (ALERT ON/OFF)	ALERT	<u>ENABLED</u> ,DISABLED	○		
ADV SET (ADVANCED SETTINGS) Main display	CENTRL DIM (CENTRAL DIMMER)	INPUT	<u>ETHERNET</u> ,UART 0,UART 1, UART 2,UART 3,ANY,NONE	○	
	UART CONFIG (UART [2/2])	PROTOCOL	<u>NMEA</u> ,XMODEM,MODBUS MASTER, PHONE,NONE	○	
	NMEA TALKER (VBW)	USED/UNUSED	<u>USED</u> ,UNUSED	○	
	(VLW)	USED/UNUSED	<u>USED</u> ,UNUSED	○	
	(ACK)	USED/UNUSED	<u>USED</u> ,UNUSED	○	
	(ALF)	USED/UNUSED	<u>USED</u> ,UNUSED	○	
	(ACM)	USED/UNUSED	<u>USED</u> ,UNUSED	○	
	(HBT)	USED/UNUSED	<u>USED</u> ,UNUSED	○	
	(JRC)	USED/UNUSED	<u>USED</u> ,UNUSED	○	
	NMEA SET	SENTENCE	<u>DDC</u> ,NONE,VBW	○	
INTERVAL[ms]		<u>BY CHANGE</u> ,100,250,500, 1000,2000	○		
PORT		<u>MULTI</u> ,UART 0,UART 1,UART 2, UART 3,TCP,OFF	○		
DIGITS		Number of digits	<u>1</u> ,2	○	
UNITS		SPEED	<u>kn</u> ,m/s	○	
SPEED LIMIT		UPPER	-40 to <u>40</u> ,OFF		
		LOWER	-40 to 40,OFF		
ADV SDME (ADVANCED SDME SETTINGS) Main display	TOTAL DIST (TOTAL DISTANCE SETTINGS)		TOTAL DIST.	<u>0.00</u> to 999999.99	
	DEMO MODE		INT/EXT	<u>INT</u> ,EXT	○
			PATTERN	OFF,1 to 99	○
	SYS TEST	SYSTEM TEST[1/2]	18kn TEST	<u>ON</u> ,OFF	○
	TRAN-SMIT		AUTO START	<u>ON</u> ,OFF	○

\* The underlined value is the value that is set at the factory shipment. At the resetting, this value is set.

\* [○] shows the items to be reset to factory shipment values when run the reset.

\* When the setting value of TOUCH CAL is reset, the position returns to the touch position at the factory shipment.

\* Even if the setting value of THEME is reset, the setting value before resetting is maintained.

Remote display (NWZ-650SDR, NWZ-840SDR)								
Menu item			Setting name	Setting value	ADV SET RESET			
TOUCH CAL (TOUCH SCREEN CALIBRATION)			TOUCH SCREEN CALIBRATION					
THEME			ILLUMINATION	<u>DAY</u> ,DUSK,NIGHT	○			
DATE TIME (DATE/TIME[1/2])			YEAR	2000 to 2099				
			MONTH	JAN,FEB,MAR,APR, MAY,JUN,JUL,AUG, SEP,OCT,NOV,DEC				
			DAY	End of 1 to MONTH				
(DATE/TIME[2/2])			HOUR	0 to 23				
			MINUTE	0 to 59				
ADV SET (ADVANCED SETTINGS) Common			ETH CONFIG (ETHERNET)		Each device	○		
			SUBNET MASK			○		
			GATEWAY			○		
			UART CONFIG (UART [1/2])		UART	<u>UART 0</u> ,UART 1, UART 2,UART 3	○	
					PARITY	<u>NONE</u> ,ODD,EVEN, FORCED 1,FORCED 0	○	
					STOP BITS	<u>1,2</u>	○	
			(UART [2/2])		DATA BITS	<u>5,6,7,8</u>	○	
			NMEA TALKER (DDC) (JRCM)		USED/UNUSED	<u>USED</u> ,UNUSED	○	
					USED/UNUSED	<u>USED</u> ,UNUSED	○	
			ALERT ON/OFF (ALERT ON/OFF)		ALERT	<u>ENABLED</u> ,DISABLED	○	
ADV SET (ADVANCED SETTINGS) Remote display			CENTRL DIM (CENTRAL DIMMER)		INPUT	<u>ON</u> ,OFF	○	
			OUTPUT		ETHERNET,NONE, <u>UART 0</u> ,UART 1, UART 2,UART 3	○		
			UART CONFIG (UART [2/2])		PROTOCOL	NMEA,XMODEM, PHONE,NONE	○	
			NMEA TALKER (VBW)	TALKER:GP	USED/UNUSED	<u>USED</u> ,UNUSED	○	
				TALKER:VD	USED/UNUSED	<u>USED</u> ,UNUSED	○	
			(VLW)	TALKER:GP	USED/UNUSED	<u>USED</u> ,UNUSED	○	
				TALKER:VD	USED/UNUSED	<u>USED</u> ,UNUSED	○	
			(HBT)	TALKER:GP	USED/UNUSED	<u>USED</u> ,UNUSED	○	
				TALKER:VD	USED/UNUSED	<u>USED</u> ,UNUSED	○	
			(DDC)		USED/UNUSED	<u>USED</u> ,UNUSED	○	
			(JRCM)		USED/UNUSED	<u>USED</u> ,UNUSED	○	
(JRC)		USED/UNUSED	<u>USED</u> ,UNUSED	○				
DISP MODE (DISPLAY MODE SETTINGS)			ANALOG/ DIGITAL	ANALOG, <u>DIGITAL</u>	○			
UNITS			SPEED	<u>kn</u> ,m/s	○			
ADV SDME (ADVANCED SDME SETTINGS) Remote display			ANALOG	SPEED SCALE (DISPLAY MODE SETTINGS)	ANALOG SCALES	-2..10,-5..10, -4..20,-10..20, -5..25, <u>-6..30</u> , -8..40	○	
			MANAG NUMB (MANAGEMENT NUMBER SETTINGS)		MANAGEMENT NUMBER	NWZ-650SDR	10010701, 10010901, 10011101, 10011301, 10011501	○
						NWZ-840SDR	10011701, 10011901, 10012101, 10012301, 10012501	
COMM MODE (COMMUNICATION SETTINGS)			COMMUNICATION SETTINGS	<u>RX/TX</u> , RX ONLY	○			
SOG/STW (SOG/STW SETTINGS)			SOG/STW	<u>GNSS SOG</u> , DOPPLER SOG,DOPPLER STW	○			

\* The underlined value is the value that is set at the factory shipment. At the resetting, this value is set.

\* [○] shows the items to be reset to factory shipment values when run the reset.

\* When the setting value of TOUCH CAL is reset, the position returns to the touch position at the factory shipment.

## A.2 Normal menu (NWZ-4640)

Main menu	Submenu	Range	Remarks
1. DISPLAY	1. LCD		
	1. CONTRAST	1,2,3,4,5,6,7, <b>8</b> ,9,10,11,12,13	
	2. DIMMER MAXIMUM	4,5,6,7,8,9,10, <b>11</b> ,12,13	
	3. DIMMER TYPICAL	3,4,5,6, <b>7</b> ,8,9,10,11,12	
	4. DIMMER MINIMUM	2, <b>3</b> ,4,5,6,7,8,9,10,11	
	2. CLICK SOUND	<b>ON</b> / OFF	
	3. DISPLAY SELECTION		
	1. DISPLAY1	OFF/SEG.1/2/3/4/ <b>SPECIAL</b> /GRA.	
	SEGMENTATION1		
	1. DISPLAY		
	DOPPLER	STW / TRIP / TOTAL	
	OFF		
	2. DISPLAY MODE	NORMAL / SPECIAL1 / SPECIAL2 / AUTO RANGE	
	3. AUTO SCREEN	ON / OFF	
	4. SOUND	SOUND1 / SOUND2 / OFF	
	5. TIME	1-10sec	
	SEGMENTATION2		
	1. DISPLAY1/2	Same as DISPLAY 1/1	
	2. DISPLAY2/2	Same as DISPLAY 1/1	
	3. AUTO SCREEN	ON / OFF	
	4. SOUND	SOUND1 / SOUND2 / OFF	
	5. TIME	1-10sec	
	SEGMENTATION3		
	1. DISPLAY1/3	Same as DISPLAY 1/1	
	2. DISPLAY2/3	Same as DISPLAY 1/1	
	3. DISPLAY3/3	Same as DISPLAY 1/1	
	4. AUTO SCREEN	ON / OFF	
	5. SOUND	SOUND1 / SOUND2 / OFF	
	6. TIME	1-10sec	
	SEGMENTATION4		
	1. DISPLAY1/4	Same as DISPLAY 1/1	
	2. DISPLAY2/4	Same as DISPLAY 1/1	
	3. DISPLAY3/4	Same as DISPLAY 1/1	
	4. DISPLAY4/4	Same as DISPLAY 1/1	
	5. AUTO SCREEN	ON / OFF	
	6. SOUND	SOUND1 / SOUND2 / OFF	
	7. TIME	1-10sec	
	SPECIAL		
	1. DISPLAY	STW1 / STW2 / <b>STW3</b>	
	2. AUTO SCREEN	ON / <b>OFF</b>	
	3. SOUND	SOUND1 / SOUND2 / <b>OFF</b>	
	4. TIME	<b>1</b> ,2,3,4,5,6,7,8,9,10sec	
	GRAPHIC		
	1. DISPLAY	STW	
	2. AUTO SCREEN	ON / OFF	
	3. SOUND	SOUND1 / SOUND2 / OFF	
	4. TIME	1-10sec	
	2. DISPLAY2	Same as DISPLAY1 <b>SPECIAL, STW2</b>	
	3. DISPLAY3	Same as DISPLAY1 <b>SPECIAL, STW1</b>	
	4. DISPLAY4	Same as DISPLAY1 <b>OFF</b>	
5. DISPLAY5	Same as DISPLAY1 <b>OFF</b>		
6. DISPLAY6	Same as DISPLAY1 <b>OFF</b>		
4. BACK LIGHT	<b>WHITE</b> / ORANGE		

2. SYSTEM	1. UNIT		
	1. SPEED	<u>kn</u> / m/s	ADMIN( MAINTENACE ) MODE
	2. SMOOTHING		
	1. STW	10-240sec	ADMIN( MAINTENACE ) MODE
	3. SPEED DEC. NUM	1, <u>2</u>	ADMIN( MAINTENACE ) MODE
3. LANG.	1. LANG.	<u>English</u> /(Japanese)	ADMIN( MAINTENACE ) MODE
4. NOTICE	1. SPEED		
	1. MAXIMUM	-40 to +40kn	
	2. MINIMUM	-40 to +40kn	
	3. CONFIRM		
5. SENSOR	1. SPEED CORR	-50 to +50%	ADMIN( MAINTENACE ) MODE
	2. NMEA	1.5/2.3/IEC	ADMIN( MAINTENACE ) MODE
	3. PULSE1	0-99 ×100P/NM	ADMIN( MAINTENACE ) MODE
	4. SCALE	10-40	ADMIN( MAINTENACE ) MODE
	5. CONFIRM		ADMIN( MAINTENACE ) MODE
6. DATE-TIME	1. DATE		JLN-740N only
	2. TIME		JLN-740N only
	3. CONFIRM		
7. ALERT HISTORY			JLN-740N only
8. ALERT LIST			
9. BUBBLE SETTINGS.	1. BUBBLE THR.	0-80000	Default 50000.
	2. CONFIRM		
10. MAINT INFO			JLN-740N only

\* Set value of the underline is the value of the factory.

Initial values other than underline setting values (other than DISPLAY, SYSTEM, and LANG.) are the initial values of the system's shipment.

Maintenance menu  : Do not change this section.

Main menu	Submenu	Range	Remarks
From 1 to 6 is same as Normal MENU			
7. INTERFACE	1. DATA I/O		
	1. DATA IN/OUT1		
	NMEA		Change prohibited
	1. DATA IN/OUT	<u>SEND</u> /RECEIVE	Change prohibited
	1. VERSION	1.5/2.1/2.3/4.0	Transmission only
	SENTENCE	Sentence list ACK VBW VLW <u>OFF</u>	Change prohibited
	2. BIT RATE	4800/9600/ <u>19200</u> /38400	Change prohibited
	IEC		
	1. DATA IN/OUT	SEND/RECEIVE	
	SENTENCE	Sentence list ACK VBW VLW	Transmission only
	2. BIT RATE	4800/9600/19200/38400	
	2. DATA IN/OUT2		
	NMEA		
	1. DATA IN/OUT	<u>SEND</u> /RECEIVE	Change prohibited
	1. VERSION	<u>1.5</u> /2.1/2.3/4.0	Transmission only
	SENTENCE	Sentence list ACK VBW VLW <u>OFF</u>	Transmission only
	2. BIT RATE	4800/9600/19200/38400	
	IEC		
	1. DATA IN/OUT	<u>SEND</u> /RECEIVE	Change prohibited
	SENTENCE	Sentence list ACK VBW VLW <u>OFF</u>	Transmission only
	2. BIT RATE	<u>4800</u> /9600/19200/38400	
	2. DATA IN/OUT3		
	NMEA		Change prohibited
	1. DATA IN/OUT	SEND/ <u>RECEIVE</u>	Change prohibited
	1. VERSION	1.5/2.1/2.3/4.0	Transmission only
	SENTENCE	Sentence list ACK VBW VLW	Transmission only
	2. BIT RATE	4800/9600/ <u>19200</u> /38400	Change prohibited
	IEC		
	1. DATA IN/OUT	SEND/RECEIVE	
	SENTENCE	Sentence list ACK VBW VLW	Transmission only
	2. BIT RATE	4800/9600/19200/38400	
	4. RS-485		
NMEA			
1. VERSION	1.5/2.1/2.3/4.0	Transmission only	
SENTENCE	Sentence list ACK VBW VLW	Transmission only	
2. BIT RATE	38400/57600/76800/115200		
IEC			
1. SENTENCE	Sentence list ACK VBW VLW <u>OFF</u>	Transmission only	
2. BIT RATE	38400/57600/76800/ <u>115200</u>		
5. CONTACT INPUT	<u>DIMMER</u> /ACK		
2. DIAGNOSIS	-		
ERROR LOG OUT	-		

8.MAINTENANCE	1. INPUT DATA		
	2. DIAGNOSIS		
	1. DISPLAY DIAG		
	2. MONITOR TEST		
	3. BUZZER TEST		
	3. ERROR LOG		
	1. ALERT		
	2. ERROR LOG		
	4. SOFT VERSION		
	1. DISPLAY VER		
	1. APP VER		
	2. SERIAL NUMBER		
	3. BARCODE		
	5. TX		<b>ON/OFF</b>
9. MASTER RESET	1. TOTAL RESET		
	1. TOTAL ADJ		
	2. DISPLAY RESET		
1. DISPLAY			
10. DEMO MODE	1. DEMO PATTERN	-5 / 0 / 18 / 36 / 40 / OFF	
11. SOFT UPDATE	1. DISPLAY		
12. DISPLAY MODEL		<b><u>JLN-740N</u></b> /JLN-741N	
13. RS-485ID		<b><u>1</u></b> -10	
14. DIMMER GROUP		<b><u>1</u></b> -10	
15. DIMMER		<b><u>KEY</u></b> /EXT DIMMER	
16. AUTO START		ON/ <b><u>OFF</u></b>	
17. SYSTEM TEST	1. 18kn TEST	ON/OFF	
	2. LOST ALERT	ON/OFF/SOG/DISPLAY	
	3. CONFIRM		

\* Set value of the underline is the value of the factory.

The initial value of the setting without underlining is the initial value of the system's shipping.

### A.3 Maintenance software menu list

- JLN-740A, JLN-740N

Set value of the underline is the value of the factory.

Menu item	Item name	Setting name	Setting value		User settings		Description	
					Current	Change		
First Settings	VD4 Start Measure	Measure	<u>Stopped</u> , Started				Start of transmission	
	VD6 Speed Calculation Configuration	Speed Correlation	-50.0 to <u>0.0</u> to 50.0				Correction of ship speed	
	VD10 Distance Reset	Total Distance	0 to <u>0.0</u> to 999999.99				Setting of total distance	
	VD12 Vessel Size Information Configuration  * Not used in JLN-740 series.	X:-999.9 to 999.9[m]	-999.9 to <u>0.0</u> to 999.9					Transducer installation position (port/starboard)
		Y:0.0 to 999.9[m]	<u>0.0</u> to 999.9					Transducer installation position (bow/stern)
		Y:0.0 to 999.9[m]	<u>0.0</u> to 999.9					Vessel's heading speed position
		Y:0.0 to 999.9[m]	<u>0.0</u> to 999.9					Stern speed position
	VD14 Depth Configuration	Draft [m]	-100.0 to <u>0.0</u> to +100.0				Draft	
	VD18 System Test Status	TEST 18kn	Enabled : Red Disabled : Green					System test (18kn test)
		LOST SPEED	Enabled : Red Disabled : Green					System test (lose speed alert)
		Main Display HW ERROR	Enabled : Red Disabled : Green					System test (Main Display hardware error)
		Distribution Processor HW ERROR	Enabled : Red Disabled : Green					System test (distribution processor hardware error)
		Signal Processor HW ERROR	Enabled : Red Disabled : Green					System test (signal processor hardware error)
	VD26 System Time Configuration	System Time(Year) 2000-2037	2000 to <u>2016</u> to 2037					System Time (Year)
		System Time(Month)	<u>1</u> to 12					System Time (Month)
		System Time(Day)	<u>1</u> to 31					System Time (Day)
		System Time(Hour)	<u>0</u> to 23					System Time (hour)
		System Time(Minute)	<u>0</u> to 59					System Time (minute)
		System Time(Second)	<u>0</u> to 59					System Time (second)
	VD35 Transducer Mounting(NKF-547) Information	Model Name	Up to 9 ASCII characters					Model name (NKF-547/531E)
		Serial Number	Up to 10 ASCII characters					Serial number (NKF-547/531E)
		Barcode Number	Up to 13 ASCII characters					Bar code number (NKF-547/531E)
	VD36 Signal Processor(NJC-70S/D) Errors	No Bubble Reference	Normal : Green Abnormal : Red	Displayed only				Bubble detection reference abnormality
	VD38 Remote Display Configuration	Remote Display(1) Type	NWZ-4610, <u>NWZ-650SDR/840SDR</u>					Select Remote display(1)
		Remote Display(2) Type	NWZ-4610, <u>NWZ-650SDR/840SDR</u>					Select Remote display(2)
	VD39 Analog Display(NWW-24/25/26) Configuration	Analog Full Scale	20 to <u>30</u> to 40					Analog full scale
VD44 LOG Pulse Configuration	LOG Pulse Type	100, <u>200</u> ,400					LOG pulse type	
VD48 Brightness Control Configuration	Dimming Controller	Not Use,Dimmer Unit(NCM-227),Main Display,Serial Dimmer(DDC),Serial ROT(DDC),Serial GPS(DDC),Serial Spare(DDC),Ethernet(DDC)					Brightness control mode	
VD85 Serial Alert Configuration	Alert On Serial	Use <u>ALF/ALC/ARC</u> ,Use ACK/ACN					Serial alert type	
	"Rectified-unacknowledged" State	Not Use,Use " <u>Rectified-unacknowledged</u> "					Whether "Rectified – Unacknowledged" state is used by ALR or not	

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
All Settings	VD1 Main Display(NWZ-510SDW/NWZ-4640) Status	[d]	0 to 9999	Display only			Total operation time (Main display-Day)
	VD1 Main Display(NWZ-510SDW/NWZ-4640) Status	[h]	0 to 23	Display only			Total operation time (Main display-Hour)
		[m]	0 to 59	Display only			Total operation time (Main display-Minute)
		RAM Error	Normal : Green Abnormal : Red	Display only			RAM abnormality (Main display)
		ROM Error	Normal : Green Abnormal : Red	Display only			ROM abnormality (Main display)
	VD2 Distribution Processor(NQA-7040) Status	[d]	0 to 9999	Display only			Total operation time (distribution processor – Day)
		[h]	0 to 23	Display only			Total operation time (distribution processor – Time)
		[m]	0 to 59	Display only			Total operation time (distribution processor – Minute)
		Serial Error	Normal : Green Abnormal : Red	Display only			Serial IC abnormality (distribution processor)
		DAC Error	Normal : Green Abnormal : Red	Display only			DAC abnormality (distribution processor)
		Ethernet Error	Normal : Green Abnormal : Red	Display only			Ethernet IC abnormality (distribution processor)
		RAM Error	Normal : Green Abnormal : Red	Display only			RAM abnormality (distribution processor)
		ROM Error	Normal : Green Abnormal : Red	Display only			ROM abnormality (distribution processor)
		EEPROM Error	Normal : Green Abnormal : Red	Display only			EEPROM abnormality (distribution processor)
	VD3 Signal Processor(NJC-70S/D) Status	[d]	0 to 9999	Display only			Total operation time (signal processor – day)
		[h]	0 to 23	Display only			Total operation time (signal processor – hour)
		[m]	0 to 59	Display only			Total operation time (signal processor – minute)
		[degC]	Display only				Frame temperature (signal processor)
		[Volt]	Display only				Power supply voltage (48V)
		[Volt]	Display only				Power supply voltage (5V-Ch1)
		[Volt]	Display only				Power supply voltage (5V-Ch2)
		RAM Error	Normal : Green Abnormal : Red	Display only			RAM abnormality (control CPU)
		ROM Error	Normal : Green Abnormal : Red	Display only			ROM abnormality (control CPU)
		EEPROM Error	Normal : Green Abnormal : Red	Display only			EEPROM abnormality (control CPU)
	VD4 Start Measure	Measure	Stopped, Started				Start of transmission
	VD6 Speed Calculation Configuration	Speed Correlation	-50.0 to 0.0 to 50.0				Correction of vessel speed
	VD9 Alert Status	Integrated Alert	Normal : Green Abnormal : Red	Display only			Integrated alert flag

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
All Settings	VD9 Alert Status	Lost Speed	Normal : Green Abnormal : Red	Display only			Lost speed alert (fore/after)
		Lost Transverse Speed	Normal : Green Abnormal : Red	Display only			Lost speed alert (port/starboard)
		Over Speed	Normal : Green Abnormal : Red	Display only			Fore/after vessel speed alert (upper limit)
		Low Speed	Normal : Green Abnormal : Red	Display only			Fore/after vessel speed alert (lower limit)
		Bubble Detected	Normal : Green Abnormal : Red	Display only			Bubble detection
		Software Updated	Normal : Green Abnormal : Red	Display only			Software updated
		Maintenance Mode	Normal : Green Abnormal : Red	Display only			Maintenance mode
		Reboot Required	Normal : Green Abnormal : Red	Display only			Reboot required
		VD1 Alert	Normal : Green Abnormal : Red	Display only			PJRCM,VD,1 integrated alert
		VD2 Alert	Normal : Green Abnormal : Red	Display only			PJRCM,VD,2 integrated alert
		VD3 Alert	Normal : Green Abnormal : Red	Display only			PJRCM,VD,3 integrated alert
		VD36 Alert	Normal : Green Abnormal : Red	Display only			PJRCM,VD,36 integrated alert
		VD47 Alert	Normal : Green Abnormal : Red	Display only			PJRCM,VD,47 integrated alert
	VD10 Distance Reset	Total Distance	0 to 999999.99				Setting of total distance
	VD12 Vessel Size Information Configuration  * Not used in JLN-740 Series.	X:-999.9 to 999.9[m]	-999.9 to 0.0 to 999.9				Transducer installation position (port/starboard)
		Y:0.0 to 999.9[m]	0.0 to 999.9				Transducer installation position (bow/stern)
		Y:0.0 to 999.9[m]	0.0 to 999.9				Fore speed position
		Y:0.0 to 999.9[m]	0.0 to 999.9				After speed position
	VD13 Transducer Angle Configuration	[deg]	-180.0 to 0.0 to 180.0				Transducer angle correction (fore/after: Yaw)
		[deg]	-180.0 to 0.0 to 180.0				Transducer angle correction (fore/after: Pitch)
		[deg]	-180.0 to 0.0 to 180.0				Transducer angle correction (Port/starboard: Yaw)
[deg]		-180.0 to 0.0 to 180.0				Transducer angle correction (Port/starboard: Roll)	
VD14 Depth Configuration	Draft [m]	-100.0 to 0.0 to +100.0				Draft	
VD18 System Test Status	TEST 18kn	Enabled : Red Disabled : Green				System test (18kn test)	

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
All Settings	VD18 System Test Status	LOST SPEED	Enabled : Red Disabled : Green				System test (Lost speed alert)
		Main Display HW ERROR	Enabled : Red Disabled : Green				System test (Main display hardware error)
		Distribution Processor HW ERROR	Enabled : Red Disabled : Green				System test (Distribution processor hardware error)
		Signal Processor HW ERROR	Enabled : Red Disabled : Green				System test (Signal processor hardware error)
	VD19 Power Detect Value	Ch1:	0 to 4096	Display only			Travelling wave (Ch1: Fore direction beam)
		Ch2:	0 to 4096	Display only			Travelling wave (Ch2: After direction beam)
		Ch3:	0 to 4096	Display only			Travelling wave (Ch3: Starboard direction beam)
		Ch4:	0 to 4096	Display only			Travelling wave (Ch4: Port direction beam)
	VD26 System Time Configuration	System Time(Year) 2000-2037	2000 to 2016 to 2037				System Time (Year)
		System Time(Month)	1 to 12				System Time (Month)
		System Time(Day)	1 to 31				System Time (Day)
		System Time(Hour)	0 to 23				System Time (Hour)
		System Time(Minute)	0 to 59				System Time (Minute)
		System Time(Second)	0 to 59				System Time (Second)
	VD27 Support Frequency Status	NJC-70:	2.0,---	Display only			Supported frequency (NJC-70S/D)
		CDC-7400(1):	2.0,---	Display only			Supported frequency (CDC-7400 (1))
		CDC-7400(2):	2.0,---	Display only			Supported frequency (CDC-7400 (2))
		CMN-7400(1):	2.0,---	Display only			Supported frequency (CMN-7400 (1))
		CMN-7400(2):	2.0,---	Display only			Supported frequency (CMN-7400 (2))
	VD35 Transducer Mounting(NKF-547) Information	Model Name	Up to 9 ASCII characters				Model name (NKF-547/531E)
		Serial Number	Up to 10 ASCII characters				Serial number (NKF-547/531E)
		Barcode Number	Up to 13 ASCII characters				Bar code number (NKF-547/531E)
	VD36 Signal Processor(NJC-70S/D) Errors	No Bubble Reference	Normal : Green Abnormal : Red	Display only			Bubble detection reference abnormality
		Power Fail(1)	Normal : Green Abnormal : Red	Display only			Transmission power alert (1 axis)
		Power Fail(2)	Normal : Green Abnormal : Red	Display only			Transmission power alert (2 axes)
		PA Error(1)	Normal : Green Abnormal : Red	Display only			PA1 error
PA Error(2)		Normal : Green Abnormal : Red	Display only			PA2 error	

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
All Settings	VD36 Signal Processor(NJC-70S/D) Errors	PA Error(3)	Normal : Green Abnormal : Red	Display only			PA3 error
		PA Error(4)	Normal : Green Abnormal : Red	Display only			PA4 error
		RSLT Error(1)	Normal : Green Abnormal : Red	Display only			RSLT1 error
		RSLT Error(2)	Normal : Green Abnormal : Red	Display only			RSLT2 error
		RSLT Error(3)	Normal : Green Abnormal : Red	Display only			RSLT3 error
		RSLT Error(4)	Normal : Green Abnormal : Red	Display only			RSLT4 error
		Frequency Measure Error	Normal : Green Abnormal : Red	Display only			Frequency detection abnormality (Ch1)
		Frequency Measure Error	Normal : Green Abnormal : Red	Display only			Frequency detection abnormality (Ch2)
		Frequency Measure Error	Normal : Green Abnormal : Red	Display only			Frequency detection abnormality (Ch3)
		Frequency Measure Error	Normal : Green Abnormal : Red	Display only			Frequency detection abnormality (Ch4)
		FPGA Configuration Fail	Normal : Green Abnormal : Red	Display only			FPGA configuration abnormality (1 axis)
		FPGA Configuration Fail	Normal : Green Abnormal : Red	Display only			FPGA configuration abnormality (2 axes)
		Supported Frequency	Normal : Green Abnormal : Red	Display only			Supported frequency abnormality
		High Temperature	Normal : Green Abnormal : Red	Display only			Signal processor temperature abnormality
		Voltage Error(48V)	Normal : Green Abnormal : Red	Display only			Voltage abnormality (signal processor 48V)
		Voltage Error(5V-1)	Normal : Green Abnormal : Red	Display only			Voltage abnormality (signal processor 5V-Ch1)
		Voltage Error(5V-2)	Normal : Green Abnormal : Red	Display only			Voltage abnormality (signal processor 5V-Ch2)

Menu item	Item name	Setting name	Setting value		User settings		Description	
					Current	Change		
All Settings	VD36 Signal Processor(NJC-70S/D) Errors	Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation CPU1)	
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation CPU2)	
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation CPU3)	
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation CPU4)	
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (FPGA1)	
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (FPGA2)	
	VD38 Remote Display Configuration	Remote Display(1) Type		NWZ-4610, <u>NWZ-650SDR/840SDR</u>				Select Remote display(1)
		Remote Display(2) Type		NWZ-4610, <u>NWZ-650SDR/840SDR</u>				Select Remote display(2)
	VD39 Analog Display(NWW-24/25/26) Configuration	Analog Full Scale		20 to <u>40</u>				Analog full scale
	VD40 NMEA Version Configuration	NMEA Version(Serial Tx1)		NMEA Version 1.5,NMEA Version 2.1,NMEA Version 2.3,NMEA Version 4.0, <u>IEC 61162</u>				NMEA version 1 (serial)
		NMEA Version(Serial Tx2)		NMEA Version 1.5,NMEA Version 2.1,NMEA Version 2.3,NMEA Version 4.0, <u>IEC 61162</u>				NMEA version 2 (serial)
		NMEA Version(Ethernet)		NMEA Version 1.5,NMEA Version 2.1,NMEA Version 2.3,NMEA Version 4.0, <u>IEC 61162</u>				NMEA version 3(LAN)
	VD41 JRC-RMS Configuration	RMS Output(Serial)		<u>Disable</u> ,Enable				RMS Enable flag (serial)
		RMS Output(Ethernet)		Disable, <u>Enable</u>				RMS Enable flag (LAN)

Menu item	Item name	Setting name	Setting value		User settings		Description	
					Current	Change		
All Settings	VD42 Ethernet Configuration For Main Display Port	IP Address	0.0.0.0 to <u>172.16.0.2</u> to 255.255.255.255				IP address	
		Subnet Mask	0.0.0.0 to <u>255.255.0.0</u> to 255.255.255.255				Subnet mask	
		MAC Address	00:00:00:00:00:00 to <u>00:00:27:00:00:02</u> to FF:FF:FF:FF:FF:FF				MAC address	
	VD43 IEC 61162-450 Tx Group For NWZ-510SDW	Transmission Group(to Main Display)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), NAVD(239.192.0.4: 60004), VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), PROP(239.192.0.8: 60008), USR1(239.192.0.9: 60009), USR2(239.192.0.10: 600010), USR3(239.192.0.11: 600011), USR4(239.192.0.12: 600012), USR5(239.192.0.13: 600013), USR6(239.192.0.14: 600014), USR7(239.192.0.15: 600015), USR8(239.192.0.16: 600016)				Main display oriented transmission group	
	VD43 IEC 61162-450 Tx Group For NWZ-510SDW	Transmission Group(from Main Display)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), NAVD(239.192.0.4: 60004), VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), PROP(239.192.0.8: 60008), USR1(239.192.0.9: 60009), USR2(239.192.0.10: 600010), USR3(239.192.0.11: 600011), USR4(239.192.0.12: 600012), USR5(239.192.0.13: 600013), USR6(239.192.0.14: 600014), USR7(239.192.0.15: 600015), USR8(239.192.0.16: 600016)				Main display oriented reception group	
	VD44 LOG Pulse Configuration	LOG Pulse Type	100, <u>200</u> ,400				LOG pulse type	
	VD45 ROT Input Configuration  * Not used in JLN-740 Series.	Model	<u>Disable:JLN-740 Series</u>				Model selection	
		ROT Auto Select	Static ROT Input, <u>Use ROT Auto Select</u>				ROT sentence priority switching	
		ROT Auto Select Interval	10 to <u>30</u> to 1800				ROT sentence priority switching time	
		ROT Lost Limit	10 to <u>30</u> to 1800				ROT sentence non-input permissible time	
	VD46 IEC 61162-450 SFI Number	Source SFI number	0000 to <u>9999</u>				61162-450 transmission source ID	
	VD47 Error Flags On Distribution Processor(NQA-7040)	Lost ROT Input	Normal : Green Abnormal : Red	Display only				ROT sentence non-input
		RTC Initialized	Normal : Green Abnormal : Red	Display only				RTC initialization
		Lost Date-Time Input	Normal : Green Abnormal : Red	Display only				Clock time sentence non-input
VD48 Brightness Control Configuration	Dimming Controller	<u>Not Use</u> ,Dimmer Unit(NCM-227),Main Display,Serial Dimmer(DDC),Serial ROT(DDC),Serial GPS(DDC), Serial Spare(DDC),Ethernet(DDC)				Brightness control mode		

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
All Settings	VD48 Brightness Control Configuration	DDC Talker Filter	Disable,Enable				Talker filter Enable flag
		Talker Filter	AA to VD to ZZ				Talker
		SFI number(For Ethernet)	0000 to 9999				SFI number
	VD49 Date-Time Auto Calibration	Date-Time Auto Select	Static Date-Time Input,Use Date-Time Auto Select				Clock Time sentence priority switching
		Date-Time Auto Select Interval	10 to 30 to 1800				Clock time sentence priority switching time
		Date-Time Lost Limit	10 to 30 to 1800				Clock time sentence non-input permissible time
	VD50 Power Control Flag	Shutdown Requested	Normal : Green Abnormal : Red	Display only			Shut-down requested
		Reboot Requested	Normal : Green Abnormal : Red	Display only			Reboot requested
	VD59 Channel Enable Flag	Channel 1	Disable,Enabled				Channel 1 valid flag
		Channel 2	Disable,Enabled				Channel 2 valid flag
		Channel 3	Disable,Enabled				Channel 3 valid flag
		Channel 4	Disable,Enabled				Channel 4 valid flag
	VD75 Cluster identifier	Transmission Group(to CAM)	MISC,TGTD,SATD,NAVD,VD RD,RCOM,TIME,PROP,USR1,USR2,USR3,USR4,USR5,USR6,USR7,USR8,AM1, BAM2, CAM1, CAM2, NETA				
		Transmission Group(from CAM)	MISC,TGTD,SATD,NAVD,VD RD,RCOM,TIME,PROP,USR1,USR2,USR3,USR4,USR5,USR6,USR7,USR8,AM1, BAM2, CAM1, CAM2, NETA				
		Cluster	Nav				The cluster identification field consists of a maximum of 15 characters.
	VD76 Ethernet Configuration For Maintenance Port	IP Address Preset	IEC 61162-450 Conformity,JRC Standard,Enable Any Address				IP address preset
		IP Address	0.0.0.0 to 172.16.60.124 to 255.255.255.255				IP address
		Subnet Mask	0.0.0.0 to 255.255.0.0 to 255.255.255.255				Subnet mask
		MAC Address	00:00:00:00:00:00 to 00:00:27:00:00:01 to FF:FF:FF:FF:FF:FF				MAC address
	VD77 Tx Group From JLN-740 Series To JRC-RMS	Transmission Group(for JRC-RMS)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), NAVD(239.192.0.4: 60004), VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), PROP(239.192.0.8: 60008), USR1(239.192.0.9: 60009), USR2(239.192.0.10: 600010), USR3(239.192.0.11: 600011), USR4(239.192.0.12: 600012), USR5(239.192.0.13: 600013), USR6(239.192.0.14: 600014), USR7(239.192.0.15: 600015), USR8(239.192.0.16: 600016)				RMS oriented transmission group
	VD78 Tx Group From JLN-740 Series	Transmission Group(for IEC 61162-450)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), NAVD(239.192.0.4: 60004), VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), PROP(239.192.0.8: 60008), USR1(239.192.0.9: 60009), USR2(239.192.0.10: 600010), USR3(239.192.0.11: 600011), USR4(239.192.0.12: 600012), USR5(239.192.0.13: 600013), USR6(239.192.0.14: 600014), USR7(239.192.0.15: 600015), USR8(239.192.0.16: 600016)				IEC 61162-450 oriented transmission group

Menu item	Item name	Setting name	Setting value	User settings		Description
				Current	Change	
All Settings	VD82 Tx Group To JLN-740 Series	Transmission Group(for HBT)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), <u>NAVD(239.192.0.4: 60004)</u> , VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), 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)			Multicast group for IEC 61162-450 reception (HBT)
		Transmission Group(for ACN)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), <u>NAVD(239.192.0.4: 60004)</u> , VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), 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)			Multicast group for IEC61162-450 reception (ACN)
		Transmission Group(for RMC)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), <u>NAVD(239.192.0.4: 60004)</u> , VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), 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)			Multicast group for IEC61162-450 reception (RMC)

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
All Settings	VD82 Tx Group To JLN-740 Series	Transmission Group(for ZDA)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), <u>NAVD(239.192.0.4: 60004)</u> , VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), PROP(239.192.0.8: 60008), USR1(239.192.0.9: 60009), USR2(239.192.0.10: 600010), USR3(239.192.0.11: 600011), USR4(239.192.0.12: 600012), USR5(239.192.0.13: 600013), USR6(239.192.0.14: 600014), USR7(239.192.0.15: 600015), USR8(239.192.0.16: 600016)				Multicast group for IEC61162-450 reception (ZDA)
		Transmission Group(for ROT)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), <u>NAVD(239.192.0.4: 60004)</u> , VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), PROP(239.192.0.8: 60008), USR1(239.192.0.9: 60009), USR2(239.192.0.10: 600010), USR3(239.192.0.11: 600011), USR4(239.192.0.12: 600012), USR5(239.192.0.13: 600013), USR6(239.192.0.14: 600014), USR7(239.192.0.15: 600015), USR8(239.192.0.16: 600016)				Multicast group for IEC61162-450 reception (ROT)
		Transmission Group(for DDC)	MISC(239.192.0.1: 60001), TGTD(239.192.0.2: 60002), SATD(239.192.0.3: 60003), <u>NAVD(239.192.0.4: 60004)</u> , VDRD(239.192.0.5: 60005), RCOM(239.192.0.6: 60006), TIME(239.192.0.7: 60007), PROP(239.192.0.8: 60008), USR1(239.192.0.9: 60009), USR2(239.192.0.10: 600010), USR3(239.192.0.11: 600011), USR4(239.192.0.12: 600012), USR5(239.192.0.13: 600013), USR6(239.192.0.14: 600014), USR7(239.192.0.15: 600015), USR8(239.192.0.16: 600016)				Multicast group for IEC61162-450 reception (DDC)
	VD83 IEC61162 error count(1/2)	First from left	<u>0</u> to 128	Display only			Number of IEC 61162-450 header errors (maintenance)
		Second from left	<u>0</u> to 128	Display only			Number of IEC 61162-450 tag block syntax errors (maintenance)
		Third from left	<u>0</u> to 128	Display only			Number of IEC 61162-450 tag block framing errors (maintenance)

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
All Settings	VD83 IEC61162 error count(1/2)	4th from left	<u>0</u> to 128	Display only			Number of IEC 61162-450 tab block check sum errors (maintenance)
		5th from left	<u>0</u> to 128	Display only			Number of IEC 61162-450 sentence syntax errors (maintenance)
		6th from left	<u>0</u> to 128	Display only			Number of IEC 61162-450 sentence framing error (maintenance)
		7th from left	<u>0</u> to 128	Display only			Number of EC 61162-450 sentence check sum errors (maintenance)
		8th from left	<u>0</u> to 128	Display only			Number of IEC 61162-450 header errors (Main display)
		9th from left	<u>0</u> to 128	Display only			Number of IEC 61162-450 tab block errors (Main display)
	VD84 IEC61162 error count(2/2)	First from left	<u>0</u> to 128	Display only			Number of IEC 61162-450 sentence errors (Main display)
		Second from left	<u>0</u> to 128	Display only			IEC 61162-450 reception error (signal processor)
		Third from left	<u>0</u> to 128	Display only			IEC 61162-450 reception error (ROT)
		4th from left	<u>0</u> to 128	Display only			IEC 61162-450 reception error (GPS)
		5th from left	<u>0</u> to 128	Display only			IEC 61162-450 reception error (Reserved)
		6th from left	<u>0</u> to 128	Display only			IEC 61162-450 reception error (Serial dimmer)
		7th from left	<u>0</u> to 128	Display only			IEC 61162-450 reception error (Serial alert)
		8th from left	<u>0</u> to 128	Display only			IEC 61162-450 reception error (Remote display1)
	VD85 Serial Alert Configuration	Alert On Serial	<u>Use ALF/LC/ARC, Use ACK/ACN</u>				Serial alert type
		"Rectified-unacknowledged" State	Not Use, <u>Use "Rectified-unacknowledged"</u>				Whether "Rectified – unacknowledged" state is used by ALR or not
	VD90 Mode Status	Mode:	M,B,E,U,W,L,R	Display only			Mode flag
	VD99 Equipment Power Status	Running:	<u>ON, OFF, STBY</u>	Display only			Running status
		Has Notification:	Disabled : Red Enabled : Green	Display only			OFF/STBY notification function available/unavailable
	Demo	(VD17) Demonstration	Pattern(1 to 99)	<u>1</u> to 99			
Speed [kn]			<u>-100.00</u> to <u>0.00</u> to 100.00				Demo vessel speed
Rate of Turn [deg/min]			<u>-360.00</u> to <u>0.00</u> to 360.00				Demo rate of turn
Software Version	NWZ-510 or NWZ-4640		Display only			Main display version information	
	NQA-7040		Display only			Distribution processor version information	
	NJC-70S or NJC-70D		Display only			Signal processor version information	
	NKF-547		Display only			Transducer version information	
	CDF-7400		Display only			Signal processor I/F circuit version information	
	CDC-7400(1,CPU)		Display only			Signal processor circuit (1, CPU) version information	
	CDC-7400(1,FPGA)		Display only			Signal processor circuit (1, FPGA) version information	
	CMN-7400(1)		Display only			Signal processor circuit (1) version information	
	CDC-7400(2,CPU)		Display only			Signal processor circuit (2, CPU) version information	
	CDC-7400(2,FPGA)		Display only			Signal processor circuit (2, FPGA) version information	
	CMN-7400(2)		Display only			Signal processor transmission/reception circuit (2) version information	
	CBD-7400		Display only			Signal processor power supply circuit version information	
	CQD-7040		Display only			Distribution processor terminal board version information	
	NWZ-650(1)		Display only			Remote displayNWZ-650SDR version information (1)	
	NWZ-650(2)		Display only			Remote displayNWZ-650SDR version information (2)	
	NWZ-840(1)		Display only			Remote displayNWZ-840SDR version information (1)	
	NWZ-840(2)		Display only			Remote displayNWZ-840SDR version information (2)	

● JLN-741A, JLN-741N

Set value of the underline is the value of the factory.

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
First Settings	VD4 Start Measure	Measure	Started, <u>Stopped</u>				Start of transmission
	VD6 Speed Calculation Configuration	Speed Correlation	-50.0 to <u>0.0</u> to 50.0				Correction of ship speed
	VD10 Distance Reset	Total Distance	<u>0</u> to 999999.99				Setting of total distance
	VD14 Depth Configuration	Draft [m]	-100.0 to <u>0.0</u> to +100.0				Draft
	VD35 Transducer Mounting(NKF-547) Information	Model Name	UP to 9 ASCII characters				Model name (NKF-547/531E)
		Serial Number	Up to 10 ASCII characters				Serial number (NKF-547/531E)
		Barcode Number	Up to 13 ASCII characters				Bar code number (NKF-547/531E)
VD36 Signal Processor(NJC-70S/D) Errors	No Bubble Reference	Normal : Green Abnormal : Red	Display only			Bubble detection reference abnormality	
All Settings	VD3 Signal Processor(NJC-70S/D) Status	[d]	<u>0</u> to 9999	Display only			Total operation time (Main display-Day)
		[h]	<u>0</u> to 23	Display only			Total operation time (Main display- hour)
		[m]	<u>0</u> to 59	Display only			Total operation time (Main display-minute)
		[degC]	Display only				Frame temperature (signal processor)
		[Volt]	Display only				Power supply voltage (48V)
		[Volt]	Display only				Power supply voltage (5V-Ch1)
		[Volt]	Display only				Power supply voltage (5V-Ch2)
		RAM Error	Normal : Green Abnormal : Red	Display only			RAM abnormality (control CPU)
		ROM Error	Normal : Green Abnormal : Red	Display only			ROM abnormality (control CPU)
		EEPROM Error	Normal : Green Abnormal : Red	Display only			EEPROM abnormality (control CPU)
	VD4 Start Measure	Measure	Started, <u>Stopped</u>				Start of transmission
	VD6 Speed Calculation Configuration	Speed Correlation	-50.0 to <u>0.0</u> to 50.0				Correction of vessel speed
	VD9 Alert Status	Integrated Alert	Normal : Green Abnormal : Red	Display only			Integrated alert flag
		Lost Speed	Normal : Green Abnormal : Red	Display only			Lost speed alert (fore/after)
		Over Speed	Normal : Green Abnormal : Red	Display only			Fore/after vessel speed alert (upper limit)
		Low Speed	Normal : Green Abnormal : Red	Display only			Fore/after vessel speed alert (lower limit)
		Bubble Detected	Normal : Green Abnormal : Red	Display only			Bubble detection
		Software Updated	Normal : Green Abnormal : Red	Display only			Software updated
		Maintenance Mode	Normal : Green Abnormal : Red	Display only			Maintenance mode
		Reboot Required	Normal : Green Abnormal : Red	Display only			Reboot required
VD3 Alert		Normal : Green Abnormal : Red	Display only			PJRCM,VD,3 integrated alert	
VD36 Alert		Normal : Green Abnormal : Red	Display only			PJRCM,VD,36 integrated alert	
VD10 Distance Reset	Total Distance	<u>0</u> to 999999.99				Setting of total distance	
VD13 Transducer Angle Configuration	[deg]	-180.0 to <u>0.0</u> to 180.0				Transducer angle correction (fore/after: Yaw)	
	[deg]	-180.0 to <u>0.0</u> to 180.0				Transducer angle correction (fore/after: Pitch)	
	[deg]	-180.0 to <u>0.0</u> to 180.0				Transducer angle correction (Port/starboard: Yaw)	
	[deg]	-180.0 to <u>0.0</u> to 180.0				Transducer angle correction (Port/starboard: Roll)	
VD14 Depth Configuration	Draft [m]	-100.0 to <u>0.0</u> to +100.0				Draft	
VD18 System Test Status	TEST 18kn	Enabled : Red Disabled : Green				System test (18km test)	
	LOST SPEED	Enabled : Red Disabled : Green				System test (Lost speed alert)	
VD19 Power Detect Value	Ch1:	<u>0</u> to 4096	Display only			Travelling wave (Ch1: Fore direction)	

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
All Settings	VD19 Power Detect Value	Ch2:	0 to 4096	Display only			Travelling wave (Ch2: After direction)
		Ch3:	0 to 4096	Display only			Travelling wave (Ch3: Starboard direction)
		Ch4:	0 to 4096	Display only			Travelling wave (Ch4: Port direction)
	VD27 Support Frequency Configuration	NJC-70:	2.0,---	Display only			Supported frequency (NJC-70S/D)
		CDC-7400(1):	2.0,---	Display only			Supported frequency (CDC-7400 (1))
		CDC-7400(2):	2.0,---	Display only			Supported frequency (CDC-7400 (2))
		CMN-7400(1):	2.0,---	Display only			Supported frequency (CMN-7400 (1))
		CMN-7400(2):	2.0,---	Display only			Supported frequency (CMN-7400 (2))
	VD35 Transducer Mounting(NKF-547) Information	Model Name	Up to 9 ASCII characters				Model name (NKF-547/531E)
		Serial Number	Up to 10 ASCII characters				Serial number (NKF-547/531E)
		Barcode Number	Up to 13 ASCII characters				Bar code number (NKF-547/531E)
	VD36 Signal Processor(NJC-70S/D) Errors	No Bubble Reference	Normal : Green Abnormal : Red	Display only			Bubble detection reference abnormality
		Power Fail(1)	Normal : Green Abnormal : Red	Display only			Transmission power alert (1 axis)
		Power Fail(2)	Normal : Green Abnormal : Red	Display only			Transmission power alert (2 axes)
		PA Error(1)	Normal : Green Abnormal : Red	Display only			PA1 error
		PA Error(2)	Normal : Green Abnormal : Red	Display only			PA2 error
		PA Error(3)	Normal : Green Abnormal : Red	Display only			PA3 error
		PA Error(4)	Normal : Green Abnormal : Red	Display only			PA4 error
		RSLT Error(1)	Normal : Green Abnormal : Red	Display only			RSLT1 error
		RSLT Error(2)	Normal : Green Abnormal : Red	Display only			RSLT2 error
		RSLT Error(3)	Normal : Green Abnormal : Red	Display only			RSLT3 error
		RSLT Error(4)	Normal : Green Abnormal : Red	Display only			RSLT4 error
		Frequency Measure Error	Normal : Green Abnormal : Red	Display only			Frequency detection abnormality (Ch1)
		Frequency Measure Error	Normal : Green Abnormal : Red	Display only			Frequency detection abnormality (Ch2)
		Frequency Measure Error	Normal : Green Abnormal : Red	Display only			Frequency detection abnormality (Ch3)
		Frequency Measure Error	Normal : Green Abnormal : Red	Display only			Frequency detection abnormality (Ch4)
		FPGA Configuration Fail	Normal : Green Abnormal : Red	Display only			FPGA configuration abnormality (1 axis)
		FPGA Configuration Fail	Normal : Green Abnormal : Red	Display only			FPGA configuration abnormality (2 axes)
		Supported Frequency	Normal : Green Abnormal : Red	Display only			Supported frequency abnormality
		High Temperature	Normal : Green Abnormal : Red	Display only			Signal processor temperature abnormality
		Voltage Error(48V)	Normal : Green Abnormal : Red	Display only			Voltage abnormality (signal processor 48V)
		Voltage Error(5V-1)	Normal : Green Abnormal : Red	Display only			Voltage abnormality (signal processor 5V-Ch1)
		Voltage Error(5V-2)	Normal : Green Abnormal : Red	Display only			Voltage abnormality (signal processor 5V-Ch2)
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation CPU1)
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation CPU2)
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation CPU3)
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation CPU4)
		Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation (FPGA1))
	Software Version	Normal : Green Abnormal : Red	Display only			Software version abnormality (computation (FPGA2))	

Menu item	Item name	Setting name	Setting value		User settings		Description
					Current	Change	
All Settings	VD59 Channel Enable Flag	Channel 1	Disable,Enabled				Channel 1 valid flag
		Channel 2	Disable,Enabled				Channel 2 valid flag
		Channel 3	Disable,Enabled				Channel 3 valid flag
		Channel 4	Disable,Enabled				Channel 4 valid flag
	VD90 Mode Status	Mode:	<u>M</u> ,B,E,U,W,L,R	Display only			Mode flag
Demo	(VD17) Demonstration	Pattern(1 to 99)	<u>1</u> to 99				Demo pattern
		Speed [kn]	-100.00 to <u>0.00</u> to 100.00				Demo vessel speed
		Rate of Turn [deg/min]	-360.00 to <u>0.00</u> to 360.00				Demo rate of tern
Software Version	NJC-70S or NJC-70D		Display only				Signal processor version information
	NKF-547		Display only				Transducer version information
	CDF-7400		Display only				Signal processor I/F circuit version information
	CDC-7400(1,CPU)		Display only				Signal processor circuit (1, CPU) version information
	CDC-7400(1,FPGA)		Display only				Signal processor circuit (1, FPGA) version information
	CMN-7400(1)		Display only				Signal processor circuit (1) version information
	CDC-7400(2,CPU)		Display only				Signal processor circuit (2, CPU) version information
	CDC-7400(2,FPGA)		Display only				Signal processor circuit (2, FPGA) version information
	CMN-7400(2)		Display only				Signal processor transmission/reception circuit (2) version information
	CBD-7400		Display only				Signal processor power supply circuit version information

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# Appendix C NKF-531E Vacuum test procedure

## C.1 Overview

The purpose of procedure the vacuum test is to confirm that there are no air leaks between the welded joint between the bottom of the hull and the NKF-531E. NKF-531E is designed to handle water pressure but is not designed to handle negative pressure. This procedure describes how to deal with air leaks that occur during the vacuum test of the NKF-531E. It does not guarantee that the vacuum test will pass. By testing as recommended bellow, NKF-531E should withstand a vacuum pressure of -0.26 bar (-26kPa).

## C.2 Reference Standards

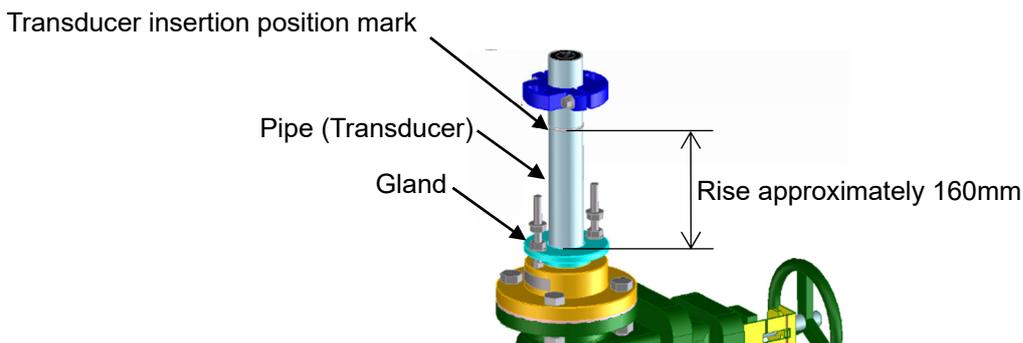
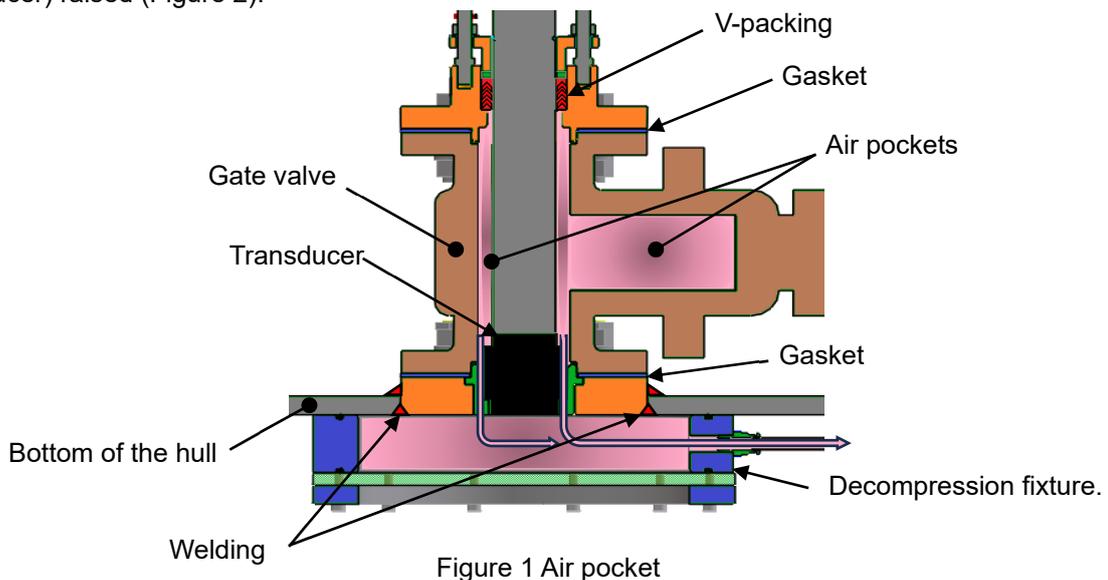
Tests are conducted in accordance with JIS Z 2332:2012 "Pressure change leak test method."

## C.3 Air pockets in the gate valve of NKF-531E

When the vacuum test begins, the air trapped inside the gate valve is expelled. (Figure 1)

For this reason, it may be mistaken for air leak detection fluid being used near the transducer. Use the detection fluid only on the welded parts, not near the transducer. (Figure 1)

If you perform a vacuum test with the transducer lowered position, the transducer may prevent the air from escaping properly, making it difficult to eliminate air pockets. In that case, perform the vacuum test with the pipe (transducer) raised (Figure 2).



C.4 Presence or absence of air leaks Check for air leaks

When performing a vacuum test, air may leak from (A) the gasket on the gate valve flange and (B) the V-packing around the sea chest and pipe. If air leaks occur, take the measures listed below.

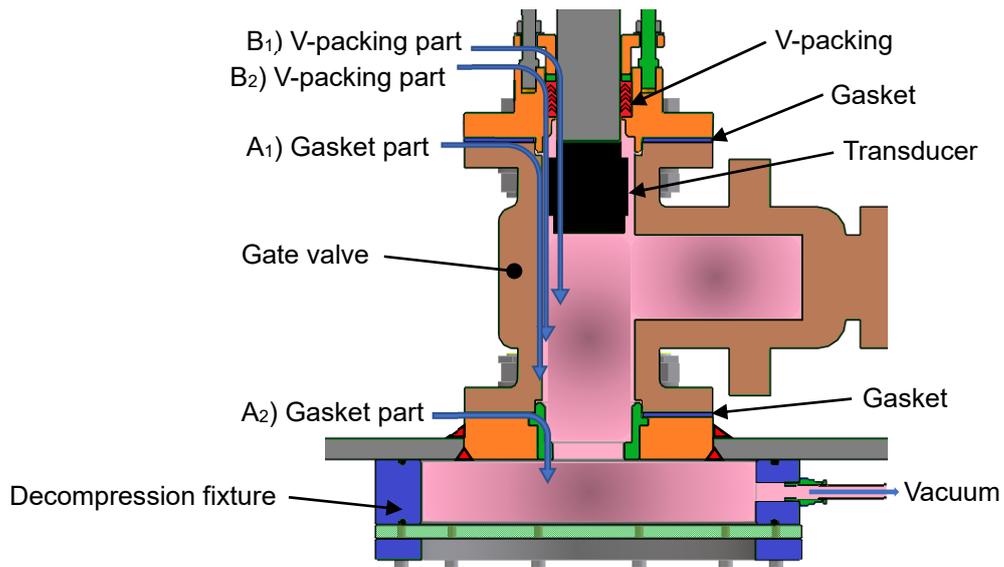


Figure 3 Air inflow path

A) Gasket part

Check that the bolts of the connections that use gaskets are tightened to the specified torque of 94 N m. (Figure 4) If any are loose, tighten them to the specified torque. Tighten the bolts diagonally in the order shown in Figure 5. If air leaks occur even after tightening with the specified torque, apply liquid gasket to both sides of the gasket and tighten again with the specified torque.

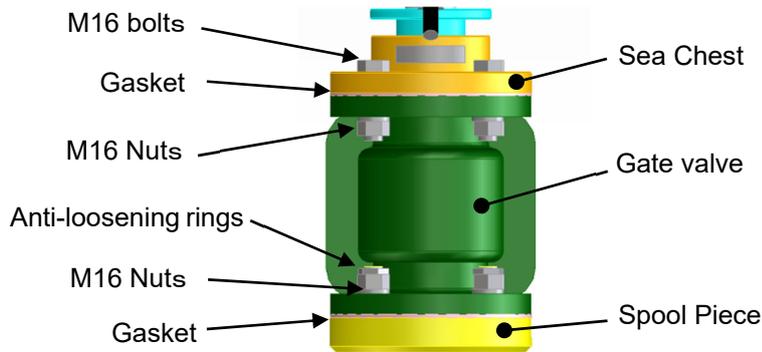


Figure 4 Fastening parts to check



Figure 5 Bolt tightening order

B) V-packing part

Fill all gaps leading to the V-packing section with a non-hardening sealant or similar material.

**Note: Do not loosen the adjustment nuts (M10 nut).**

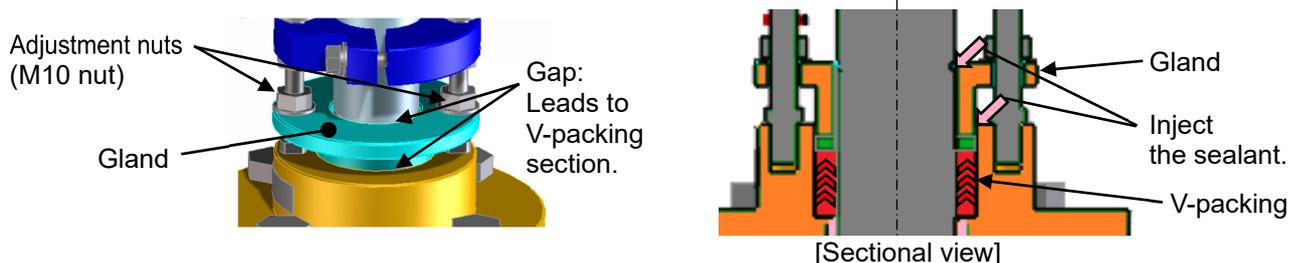


Figure 6 Sealing material injection area

## C.5 Test system verification

Before connecting the Test target equipment, depressurize the Test system and check the pressure gauge for changes and to ensure that there are no leaks in the fittings and hoses.

### C.5.1 Example of test procedure

#### C.5.1.1 Decompression

- A) Press the decompression fixture against the spool piece (Test target equipment).
- B) Turn on the exhaust system (vacuum pump) and reduce the pressure inside the Test target equipment to the test pressure over approximately 2 minutes.
- C) If the pressure is not reduced to the test pressure, discontinue the test.  
Check that there are no major leaks in the Test target equipment.  
Check that there are no leaks or abnormalities in the Test system.
- D) After the pressure gauge indicates the test pressure, leave it for at least 60 minutes until the pressure inside the Test target equipment stabilizes.

#### C.5.1.2 Detection

- A) Close the shutoff valve between the exhaust system and the pressure gauge and wait until the pressure fluctuations stop.
- B) Record the internal pressure of the Test target equipment, the outside temperature, and the time as the initial values for the start of detection.
- C) Leave the Test target equipment in the decompressed state for the specified detection time (5 minutes).
- D) After the specified detection time, record the internal pressure of the Test target equipment, the outside temperature, and the time.
- E) If the pressure changes before and after the specified exposure time is less than 1 kPa, it will be considered as passing.

**Note: During detection, no temperature changes or volume changes due to external forces that may affect the test results should be allowed.**

#### C.5.1.3 Open

Release the vacuum and return the pressure inside the Test target equipment to atmospheric pressure.

#### C.5.1.4 Post-processing

The non-hardening sealant that was used to block the air inflow path is removed, and the transducer is returned to its original state.

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