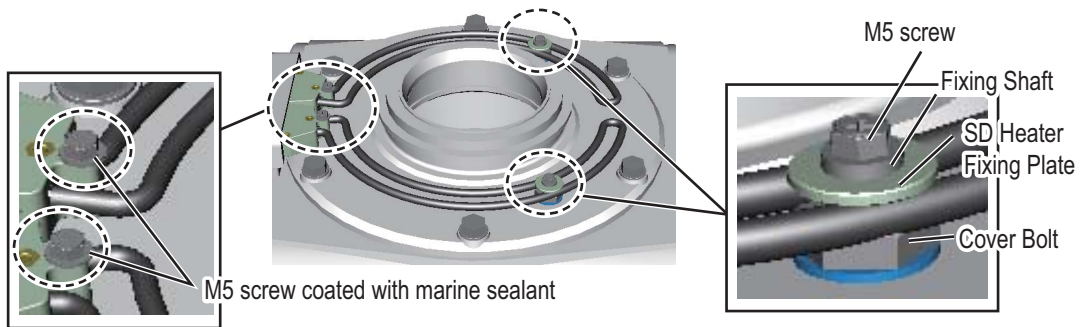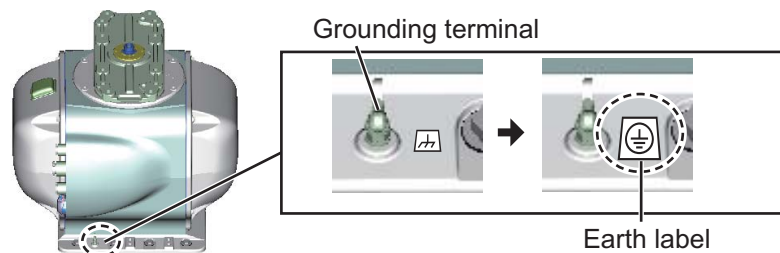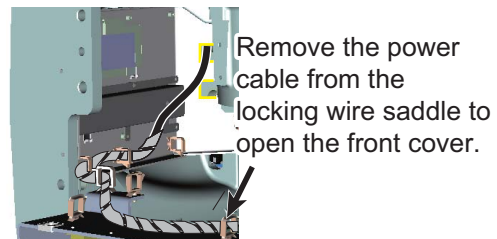8) Fasten the two heater elements to the chassis. Fasten the base of the heater with two M5 screws (supplied) coated with marine sealant supplied. Fasten the installation materials to each of the cover bolts.
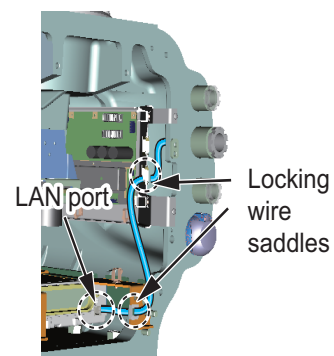

M5 screw
Fixing Shaft
SD Heater
Fixing Plate
Cover Bolt
M5 screw coated with marine sealant

9) Attach the supplied earth label over the earth label attached near the grounding terminal.

Grounding terminal

Earth label

Note: If it is necessary to open the front cover after installing the DE-ICER kit, remove the power cable from the locking wire saddle in the right figure then detach the cover slowly to prevent damage to the heater.

Remove the power cable from the locking wire saddle to open the front cover.

14. Re-mount the RF unit then reconnect the connectors for the motor (J803, J840 and J804), the four bolts (see step 4) and the coaxial cable (see step 3). The torque must be 27.5 N•m.

15. Pass the LAN cable of the antenna cable from the cable entrance through two locking wire saddles to the LAN port at the bottom of the RF unit (J821).
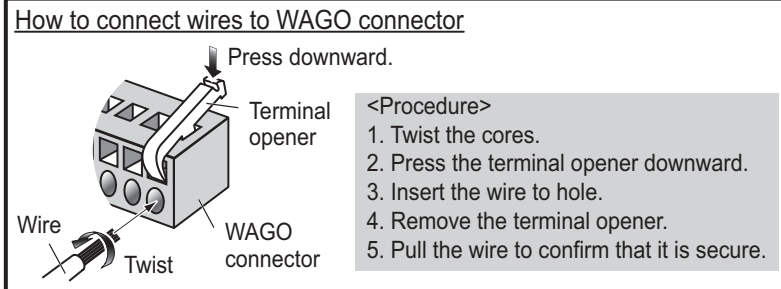

LAN port

Locking wire saddles

16. Attach appropriate WAGO connector (supplied) to both the antenna cable and the cable for the sub monitor. Connect the antenna cable and the cable for the sub monitor to the RF-TB Board as shown below. A terminal opener is provided on the RF-TB Board.

- **Antenna cable:**
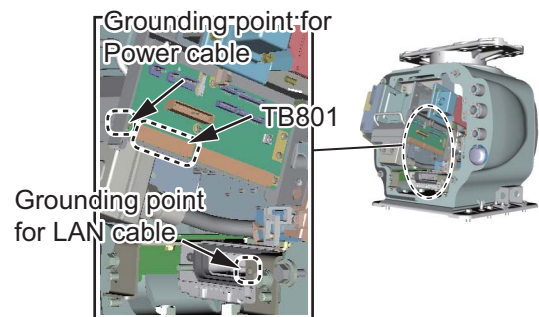Power: TB801 on RF-TB Board (03P9570)

Pin	1	2	3	4	5	6	7	8	9	10	11
Color	BRN		RED			ORG	YEL	GRN	BLU	PPL	WHT

How to connect wires to WAGO connector

Press downward.

Terminal opener

Wire

Twist

WAGO connector

<Procedure>
1. Twist the cores.
2. Press the terminal opener downward.
3. Insert the wire to hole.
4. Remove the terminal opener.
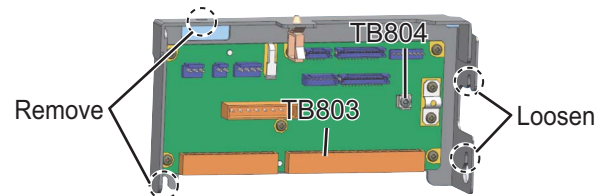5. Pull the wire to confirm that it is secure.

LAN: J821 on RF-TB board
Shields: For the power cable, screw on RF-TB Board (03P9570). For the LAN cable, screw near the LAN slot.
For the antenna cable RW-9600, connect the crimp-on lug (that binds unused wires) together with the shield of the power cable.
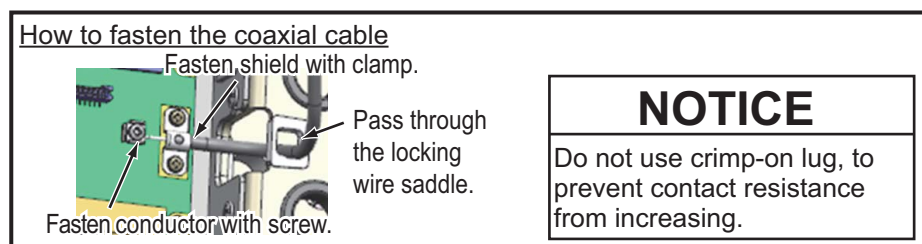
Grounding point for Power cable

TB801

Grounding point for LAN cable

- **Cable for sub monitor:**
Remove (or Loosen) four bolts shown in the right figure to remove the RF-TB board from the RF unit.

TB804

Remove

TB803

Loosen

Signal: TB803 on RF-TB board

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Color											BRN	RED	ORG	YEL	WHT	BLK

Coax. cable: TB804 on RF-TB board

How to fasten the coaxial cable

Fasten shield with clamp.

Pass through the locking wire saddle.

Fasten conductor with screw.

NOTICE

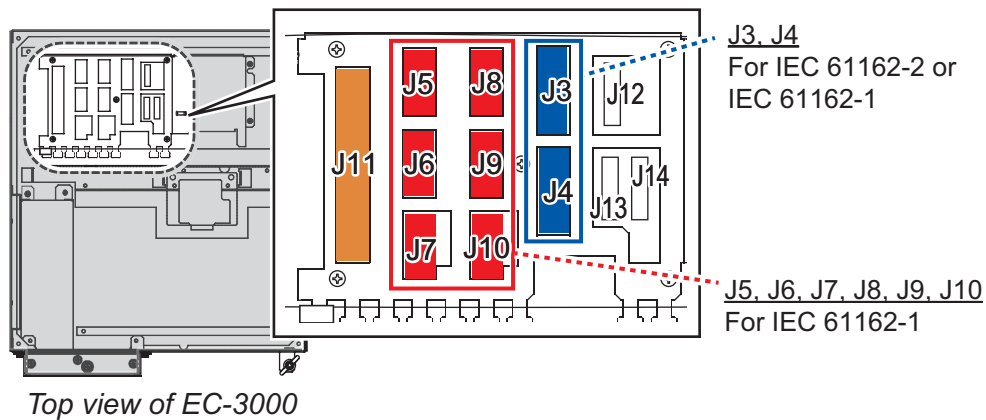Do not use crimp-on lug, to prevent contact resistance from increasing.

Shield: Screw on chassis.

17. Reconnect the performance monitor connector (J807), see step 2 on page 2-5.

18. Check that the gasket on the rear cover is seated properly, then close the covers. The torque must be 21.0 N•m.

2.3 Processor Unit

Note: The interface ports approved for interconnecting navigation equipment are shown in the figure below. For details, see paragraph 2.3.3 "How to select the serial input/output format".

J3, J4
For IEC 61162-2 or
IEC 61162-1

J5, J6, J7, J8, J9, J10
For IEC 61162-1
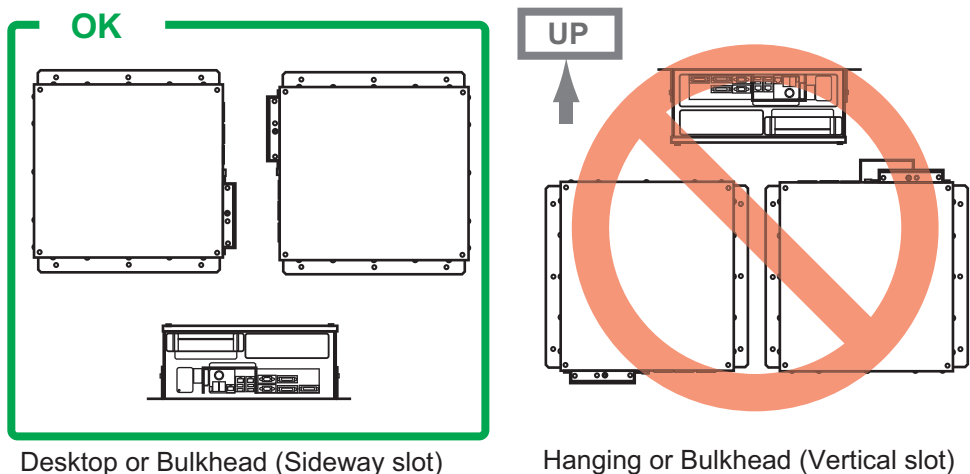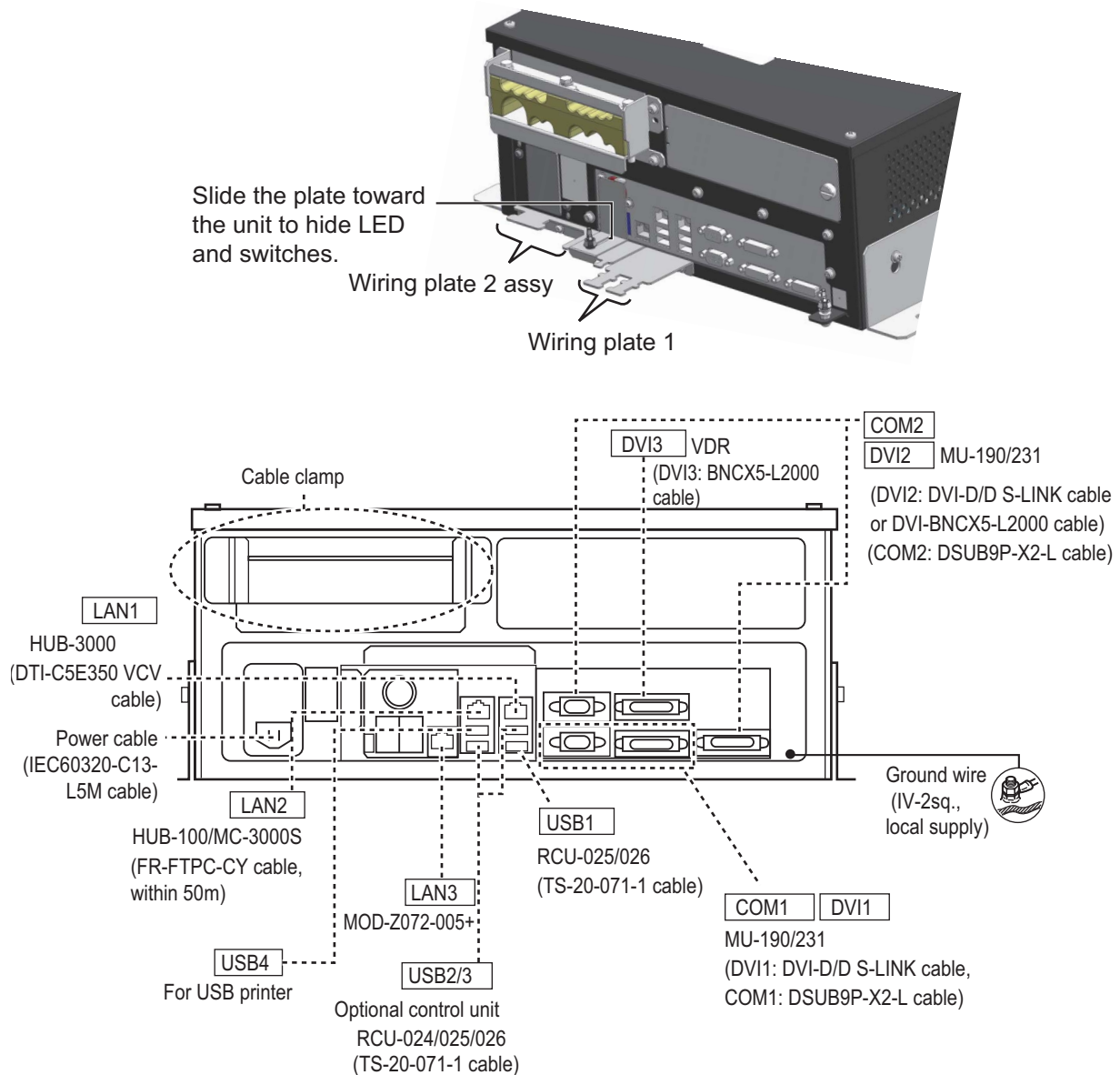
Top view of EC-3000

2.3.1 How to connect cables to terminals in the processor unit

Use screws (M3×6, supplied) to attach the wiring plate 1 and wiring plate 2 to the processor unit. Connect the cables shown below to the connectors at the front of the processor unit. Bind cables to the appropriate fixing metal with the cable ties (supplied).

For the cables from the monitor unit (type: DVI-D/D SLINK5M/10M* (*: MU-190 only), DSUB9P-X2-L5/10M) and ground wire, connect them to the processor unit directly (without fixing to a wiring plate). Tighten the fixing screws on these connectors to prevent disconnection from the processor unit.

Note: Connect the cables so that they do not interfere with the opening or closing of the DVD tray.

Desktop or Bulkhead (Sideway slot)

Hanging or Bulkhead (Vertical slot)

Slide the plate toward the unit to hide LED and switches.

Wiring plate 2 assy

Wiring plate 1

Cable clamp

DVI3 VDR
(DVI3: BNCX5-L2000 cable)

COM2
DVI2 MU-190/231
(DVI2: DVI-D/D S-LINK cable or DVI-BNCX5-L2000 cable)
(COM2: DSUB9P-X2-L cable)

LAN1
HUB-3000
(DTI-C5E350 VCV cable)

Power cable
(IEC60320-C13-L5M cable)

LAN2
HUB-100/MC-3000S
(FR-FTPC-CY cable, within 50m)

LAN3
MOD-Z072-005+

USB4
For USB printer

USB2/3
Optional control unit
RCU-024/025/026
(TS-20-071-1 cable)

USB1
RCU-025/026
(TS-20-071-1 cable)

COM1 DVI1
MU-190/231
(DVI1: DVI-D/D S-LINK cable, COM1: DSUB9P-X2-L cable)

Ground wire
(IV-2sq., local supply)

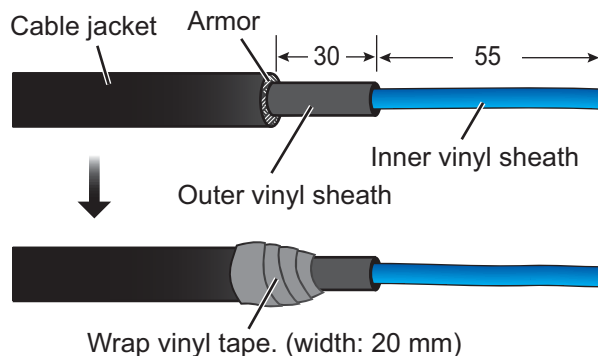### Cables connected at wiring plate 1 assy

- USB cables from the control units
- Printer cable
- LAN cable (type: DTI-C5E350 VCV) from the HUB-3000
- LAN cable (type: FR-FTPC-CY) from the HUB-100/MC-3000S

Cables connected at the wiring plate 2

- Power cable (Type: IEC60320-C13-L5M)
- LAN cable to the LAN3 port

How to fabricate the LAN cable

Fabricate the LAN cable (FR-FTPC-CY, DTI-C5E350 VCV), as shown below. (Wrap both edges of the armor with vinyl tape.) Make sure the shield of the cable contacts the shell of the modular plug.
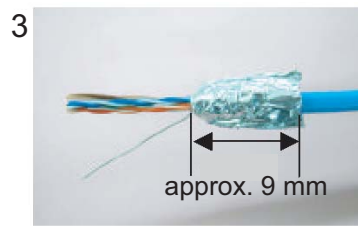

Wrap vinyl tape. (width: 20 mm)

Note: For a locally supplied LAN cable, expose the armor and clamp the armor with the cable clamp.
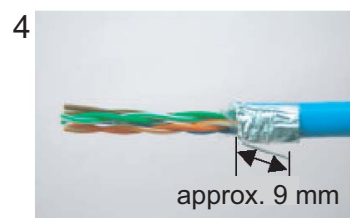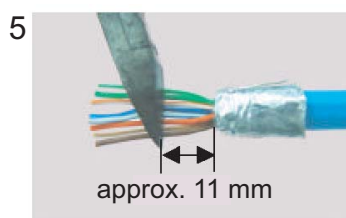
1

Expose inner vinyl sheath.

2

Remove the outer sheath by approx 25 mm. Be careful not to damage inner shield and cores.

3

Fold back the shield, wrap it onto the outer sheath and cut it, leaving 9 mm.

4

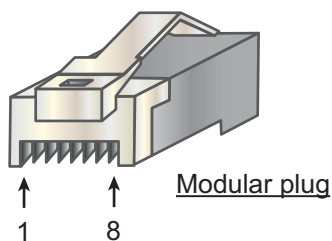Fold back drain wire and cut it, leaving 9 mm.

5

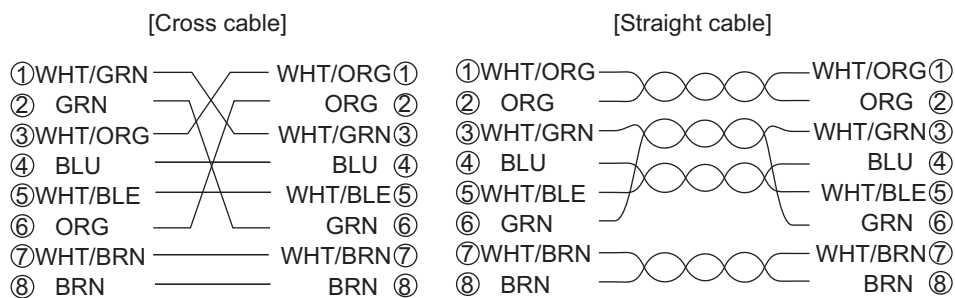Straighten and flatten the core in order and cut them, leaving 11 mm.

6

Insert the cable into the modular plug so that the folded part of the shield enters into the plug housing. The drain wire should be located on the tab side of the jack.

7

Using special crimping tool MPT5-8 (PANDUIT CORP.), crimp the modular plug. Finally check the plug visually.
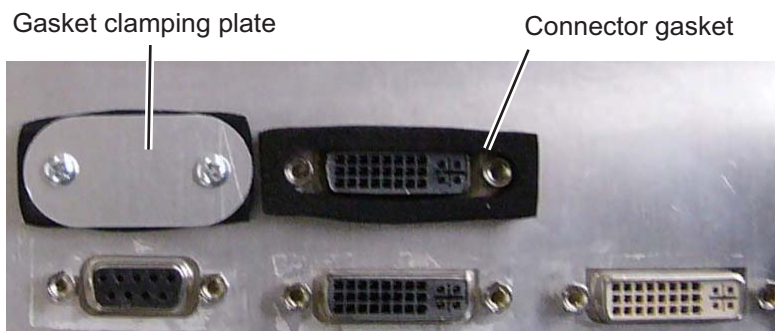

Modular plug

1   8

[Cross cable]

```
①WHT/GRN ──────── WHT/ORG①
② GRN            ORG ②
③WHT/ORG ──────── WHT/GRN③
④ BLU            BLU ④
⑤WHT/BLE ──────── WHT/BLE⑤
⑥ ORG            GRN ⑥
⑦WHT/BRN ──────── WHT/BRN⑦
⑧ BRN  ────────── BRN ⑧
```

[Straight cable]

```
①WHT/ORG ──────── WHT/ORG①
② ORG            ORG ②
③WHT/GRN ──────── WHT/GRN③
④ BLU            BLU ④
⑤WHT/BLE ──────── WHT/BLE⑤
⑥ GRN            GRN ⑥
⑦WHT/BRN ──────── WHT/BRN⑦
⑧ BRN  ────────── BRN ⑧
```

IPX2 kit

The optional IPX2 kit (Type: OP24-23, Code No.: 001-171-780) protects the connectors shown below to waterproofing standard IPX2.
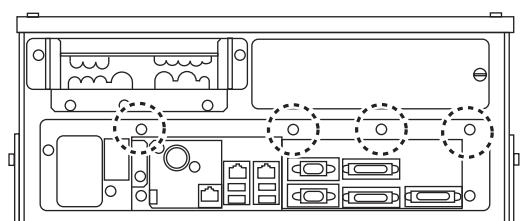
Contents of IPX2 kit

Name	Type	Code No.	Qty	Remarks
Binding Screw	#4-40UNCX3/16	000-176-619-10	10	
Connector Gasket 1	24-014-0107	100-367-730-10	2	For D-sub connectors
Connector Gasket 2	24-014-0108	100-367-741-10	3	For DVI connectors
Rainproof Cover	24-014-0109	100-372-202-10	1	
Gasket Clamping Plate	24-014-0114	100-372-210-10	2	For D-sub connectors
	24-014-0115	100-372-220-10	3	For DVI connectors

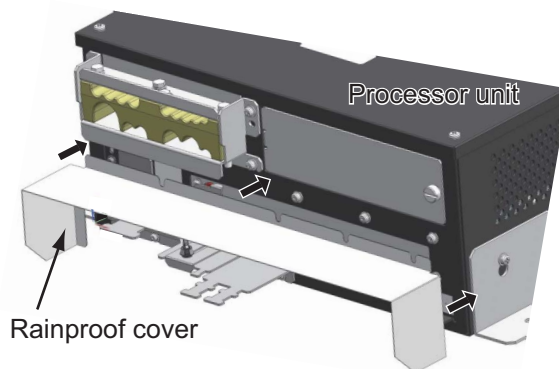1. Set the connector gasket to the unused connector not used.

2. Fasten two binding screws to fix the connector gasket.

Gasket clamping plate   Connector gasket

3. Peel the paper from the double-sided tape on the rainproof cover, then attach the cover to the position shown below by using four screws pre-attached to the processor unit.

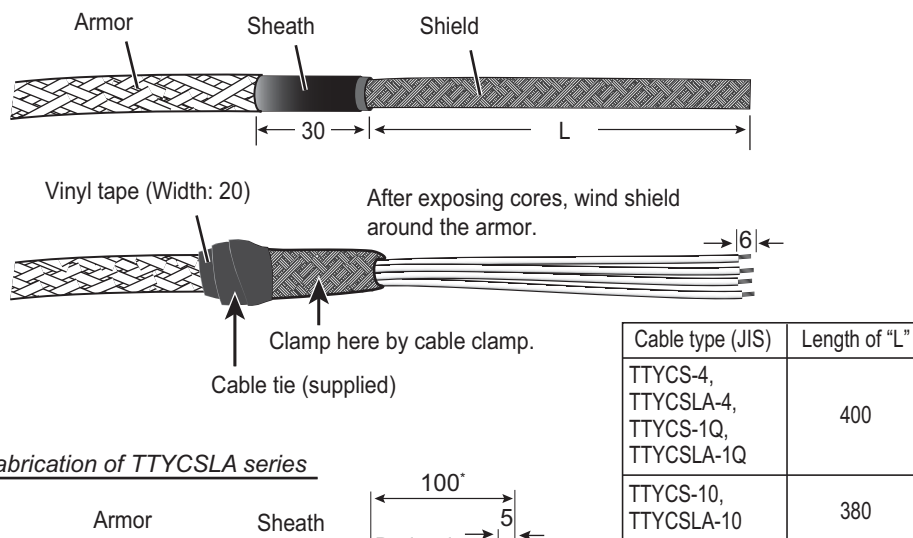
Screws to fix the rainproof cover

Processor unit

Rainproof cover

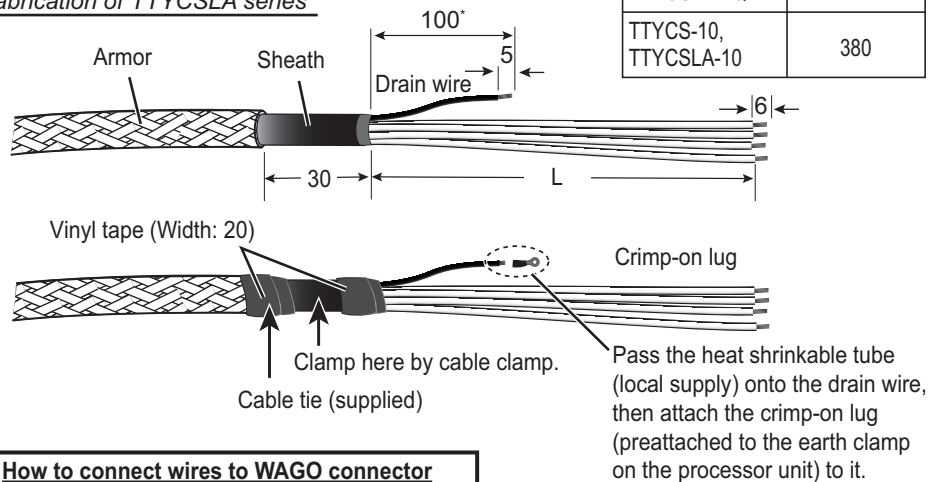## 2.3.2 How to connect cables inside the processor unit

Fabrication

Fabricate the JIS cables (see the Appendix for equivalent cables if not available locally) as shown below. Connect the cables to the WAGO connectors on the I/O Board (24P0124) inside the processor unit.

For locations of cables and cores, see the sticker on the reverse side of the top cover. (All dimensions in millimeters)
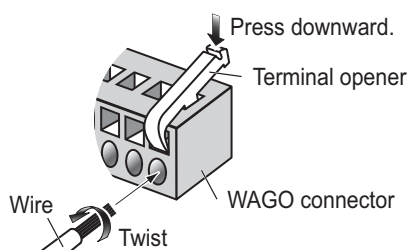
Fabrication of TTYCS series

Armor   Sheath   Shield

30   L

Vinyl tape (Width: 20)   After exposing cores, wind shield around the armor.

6

Clamp here by cable clamp.

Cable tie (supplied)

Cable type (JIS)	Length of "L"
TTYCS-4, TTYCSLA-4, TTYCS-1Q, TTYCSLA-1Q	400
TTYCS-10, TTYCSLA-10	380

Fabrication of TTYCSLA series

100*

Armor   Sheath   5

Drain wire

30   L   6

Vinyl tape (Width: 20)   Crimp-on lug

Clamp here by cable clamp.

Cable tie (supplied)

Pass the heat shrinkable tube (local supply) onto the drain wire, then attach the crimp-on lug (preattached to the earth clamp on the processor unit) to it.

How to connect wires to WAGO connector
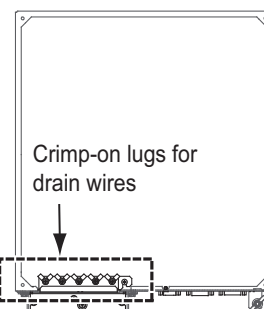
Press downward.

Terminal opener
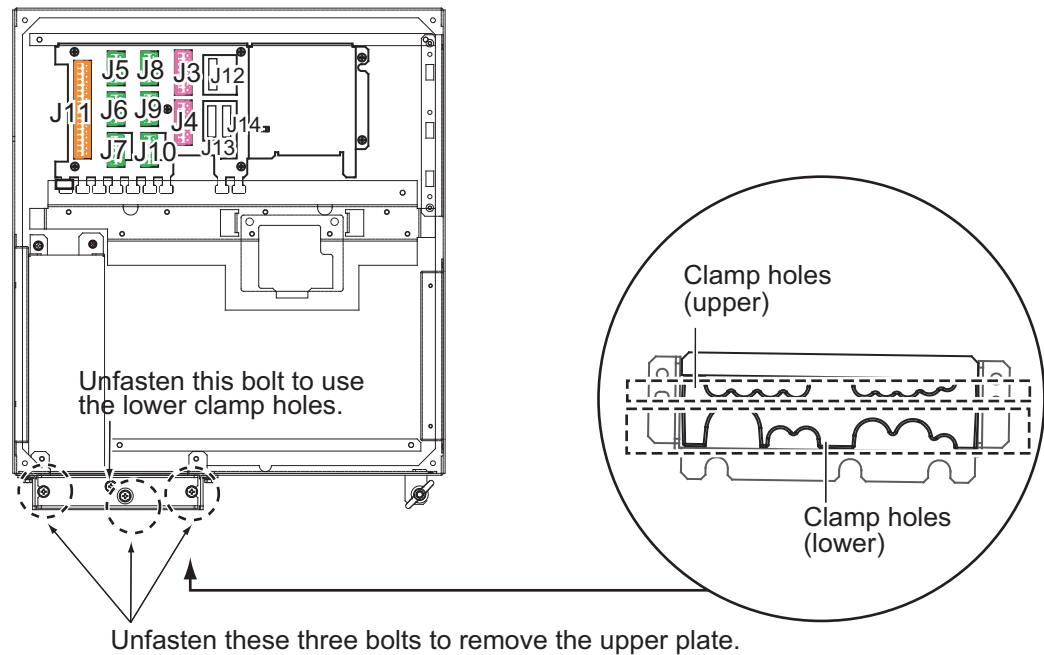
Wire   WAGO connector

Twist

<Procedure>
1. Twist the cores.
2. Press the terminal opener downward.
3. Insert the wire to hole.
4. Remove the terminal opener.
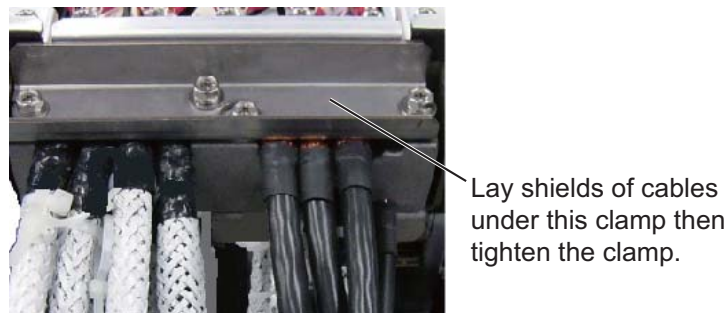5. Pull the wire to confirm that it is secure.

Crimp-on lugs for drain wires

Processor unit, cover removed

Connection

1. Unfasten four screws (M4×8) to remove the top cover from the processor unit.

2. Unfasten the three bolts circled below to remove the upper plate of the cable clamp.

Processor unit, top view

3. Pass the cables through the clamp holes, then fasten the bolts removed at step 2 to fix the cables.

Lay shields of cables under this clamp then tighten the clamp.

4. Connect the WAGO connectors to the I/O Board, referring to the interconnection diagram. See the figure at step 2 for J13 and J14.

J12 (main control unit)

For J13 and J14 (sub control units).

2-15

5. Bind the cables to the fixing metal in the processor unit with the cable ties (supplied).

6. For the drain wire of the TTYCSLA series cable, attach shrink tubing (local supply) to drain wire, fasten a crimp-on lug (pre-attached at location shown below) to drain wire then fasten the wire with a screw.

Example of wiring inside the processor unit

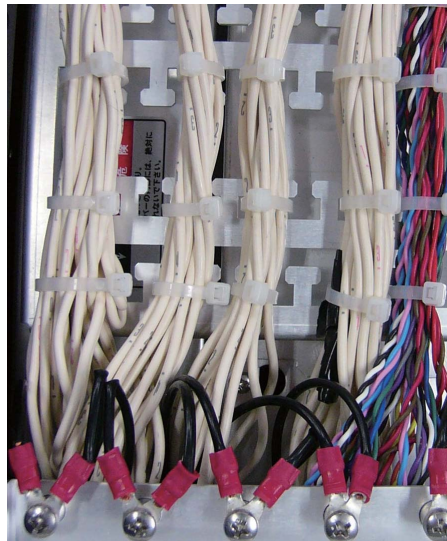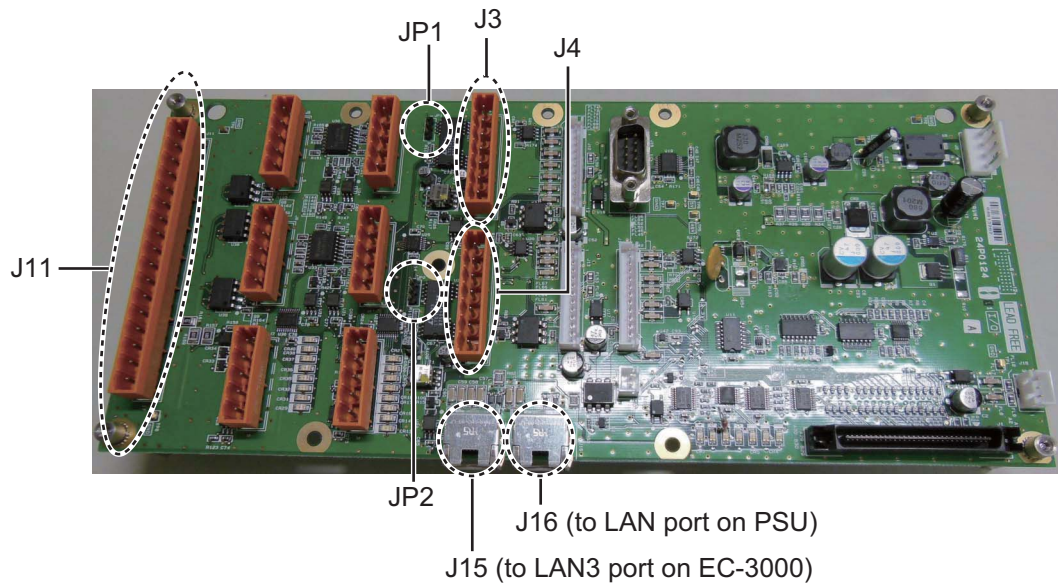### 2.3.3 How to select the serial input/output format

How to set the termination resistors

Use the jumper blocks JP1 and JP2 on the I/O Board (24P0124) to set the termination resistor J3 and J4 ON or OFF. The default setting is termination resistor: ON.

• When setting the starting/ending terminal for the multipoint connection, or multipoint is not connected (CH1 or CH2): termination resistor ON

• When not setting the starting/ending terminal for the multipoint connection (CH1 or CH2): termination resistor OFF

Processor unit, I/O Board (24P0124)

Jumper block J1		Connector J3
1-2	SHORT	Termination resistor: ON (default setting)
2-3	OPEN	
1-2	OPEN	Termination connector: OFF
2-3	SHORT	

Jumper block J2		Connector J4
1-2	SHORT	Termination resistor: ON (default setting)
2-3	OPEN	
1-2	OPEN	Termination connector: OFF
2-3	SHORT	

How to select the serial input/output format

Use the connectors J3 and J4 to set the input/output format for serial CH1/CH2, from IEC-61162-1 or IEC-61162-2. For connectors J5 to J10, use the TTYCS-1Q or TTYC-SLA-1Q cable.

Connector J3

Pin#	Signal	In/Out	Description	IEC61162-2	IEC61162-1
1	TD1-A	Out	Serial CH1, output IEC61162-1/2	TTYCS(LA)-4	TTYCS(LA)-4
2	TD1-B	Out	Serial CH1, output IEC61162-1/2		
3	RD1-A	In	Serial CH1, input IEC61162-2		No connection
4	RD1-B	In	Serial CH1, input IEC61162-2		
5	ISOGND1	-	Isolation GND (CH1)		
6	RD1-H	In	Serial CH1, input IEC61162-1	No connection	TTYCS(LA)-4
7	RD1-C	In	Serial CH1, input IEC61162-1		

Connector J4

Pin#	Signal	In/Out	Description	IEC61162-2	IEC61162-1
1	TD2-A	Out	Serial CH2, output IEC61162-1/2	TTYCS(LA)-4	TTYCS(LA)-4
2	TD2-B	Out	Serial CH2, output IEC61162-1/2		
3	RD2-A	In	Serial CH2, input IEC61162-2		No connection
4	RD2-B	In	Serial CH2, input IEC61162-2		
5	ISOGND2	-	Isolation GND (CH2)		
6	RD2-H	In	Serial CH2, input IEC61162-1	No connection	TTYCS(LA)-4
7	RD2-C	In	Serial CH2, input IEC61162-1		

Connector J5

Pin#	Signal	In/Out	Description	Remarks
1	TD3-A	Out	Serial CH3, output IEC61162-1	Use TTYCS(LA)-1Q, IEC61162-1 only
2	TD3-B	Out	Serial CH3, output IEC61162-1	
3	RD3-H	In	Serial CH3, input IEC61162-1	
4	RD3-C	In	Serial CH3, input IEC61162-1	
5	GND	-	GND	

Connector J6

Pin#	Signal	In/Out	Description	Remarks
1	TD4-A	Out	Serial CH4, output IEC61162-1	Use TTYCS(LA)-1Q, IEC61162-1 only
2	TD4-B	Out	Serial CH4, output IEC61162-1	
3	RD4-H	In	Serial CH4, input IEC61162-1	
4	RD4-C	In	Serial CH4, input IEC61162-1	
5	GND	-	GND	

Connector J7

Pin#	Signal	In/Out	Description	Remarks
1	TD5-A	Out	Serial CH5, output IEC61162-1	Use TTYCS(LA)-1Q, IEC61162-1 only
2	TD5-B	Out	Serial CH5, output IEC61162-1	
3	RD5-H	In	Serial CH5, input IEC61162-1	
4	RD5-C	In	Serial CH5, input IEC61162-1	
5	GND	-	GND	

Connector J8

Pin#	Signal	In/Out	Description	Remarks
1	TD6-A	Out	Serial CH6, output IEC61162-1	Use TTYCS(LA)-1Q, IEC61162-1 only
2	TD6-B	Out	Serial CH6, output IEC61162-1	
3	RD6-H	In	Serial CH6, input IEC61162-1	
4	RD6-C	In	Serial CH6, input IEC61162-1	
5	GND	-	GND	

Connector J9

Pin#	Signal	In/Out	Description	Remarks
1	TD7-A	Out	Serial CH7, output IEC61162-1	Use TTYCS(LA)-1Q, IEC61162-1 only
2	TD7-B	Out	Serial CH7, output IEC61162-1	
3	RD7-H	In	Serial CH7, input IEC61162-1	
4	RD7-C	In	Serial CH7, input IEC61162-1	
5	GND	-	GND	

Connector J10

Pin#	Signal	In/Out	Description	Remarks
1	TD8-A	Out	Serial CH8, output IEC61162-1	Use TTYCS(LA)-1Q, IEC61162-1 only
2	TD8-B	Out	Serial CH8, output IEC61162-1	
3	RD8-H	In	Serial CH8, input IEC61162-1	For PSU
4	RD8-C	In	Serial CH8, input IEC61162-1	
5	GND	-	GND	

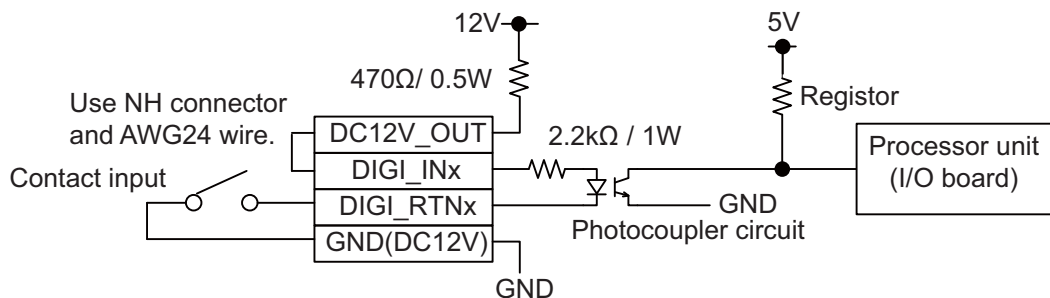**2-19**

How to set contact input/output

The connector J11 can be used for the connection of contact input or voltage input. Refer to the figures shown below to make the wiring which complies with the input specification.

Note: The input must not exceed the range of the input voltage, to prevent malfunction.
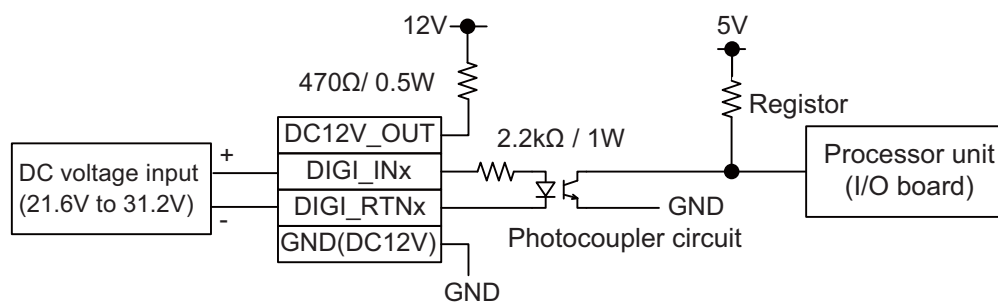-Setting for contact input: Voltage cannot be input (contact signal only).
-Setting for voltage input: 21.6V to 31.2V

- **<Setting for contact input>**
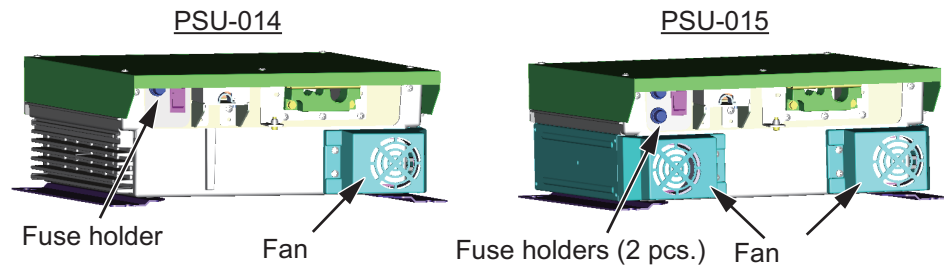

- **<Setting for voltage input>**

Connector J11

Pin #	Signal name	In/Out	Description	Contact input	Voltage input
1	SYS_FAIL-A	Out	System fail output	TTYCS(LA)-10	TTYCS(LA)-10
2	SYS_FAIL-B	Out	System fail output		
3	PWR_FAIL-A	Out	Power fail output		
4	PWR_FAIL-B	Out	Power fail output		
5	NC1-A	Out	Alarm output (NC1)		
6	NC1-B	Out	Alarm output (NC1)		
7	NC2-A	Out	Alarm output (NC2)		
8	NC2-B	Out	Alarm output (NC2)		
9	NO1-A	Out	Alarm output (NO1)		
10	NO1-B	Out	Alarm output (NO1)		
11	NO2-A	Out	Alarm output (NO2)		
12	NO2-B	Out	Alarm output (NO2)		
13	DC12V_OUT	Out	ACK input	#13-#14: short	No connection
14	DIGI_IN1	In	ACK input		TTYCS(LA)-10
15	DIGI_RTN1	Out	ACK input	TTYCS(LA)-10	
16	GND (DC12V)	In	ACK input		No connection
17	GND	-	GND	NO connection	

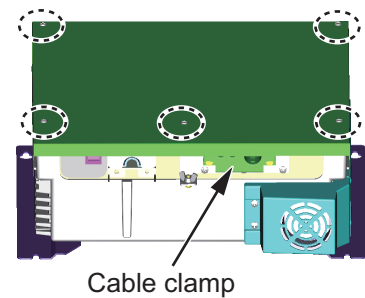**Note:** NC1/2 and NO1/2 are output with a fixed value.

2.4   Power Supply Unit

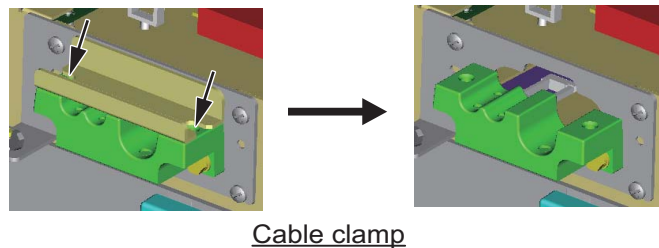Wire the unit as shown below. See the interconnection diagram for details.

• PSU-014: For antenna of 24 rpm, w/a fan
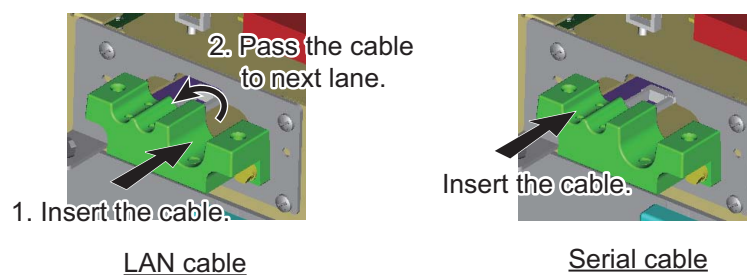• PSU-015: For antenna of 42 rpm, w/two fans

PSU-014   PSU-015

Fuse holder   Fan   Fuse holders (2 pcs.)   Fan

1. Unfasten five screws to open the cover of the power supply unit.

Cable clamp

2. Unfasten two screws from the cable clamp to separate the assembly.
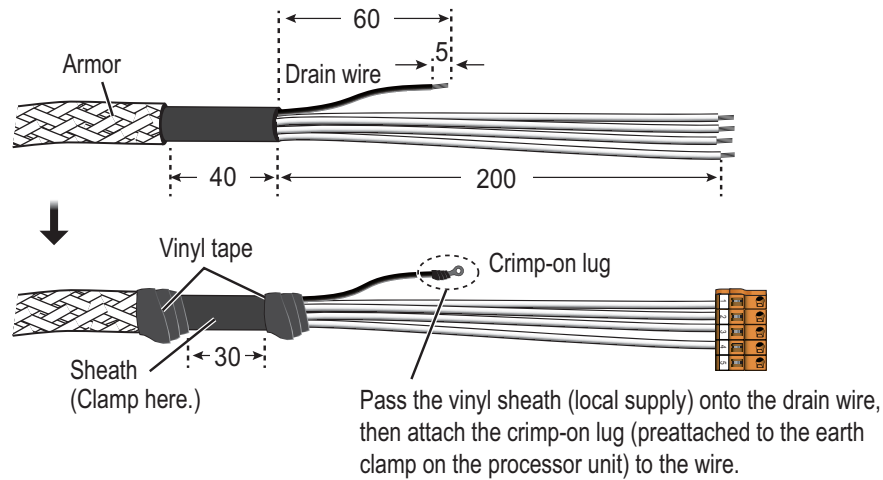
Cable clamp

3. Pass the LAN and serial cables from the processor unit through the cable clamp.

2. Pass the cable to next lane.

1. Insert the cable.   Insert the cable.
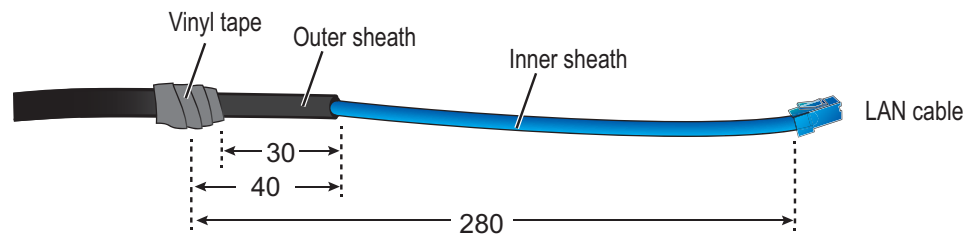
LAN cable   Serial cable

4. As shown below, fabricate the serial cable TTYCS(LA)-1Q and LAN cable that connect between the processor unit and the power supply unit. Also, for retrofit installation, the LAN signal converter is required. For wiring, see "LAN Signal Converter Kit (option)" on page 2-43.
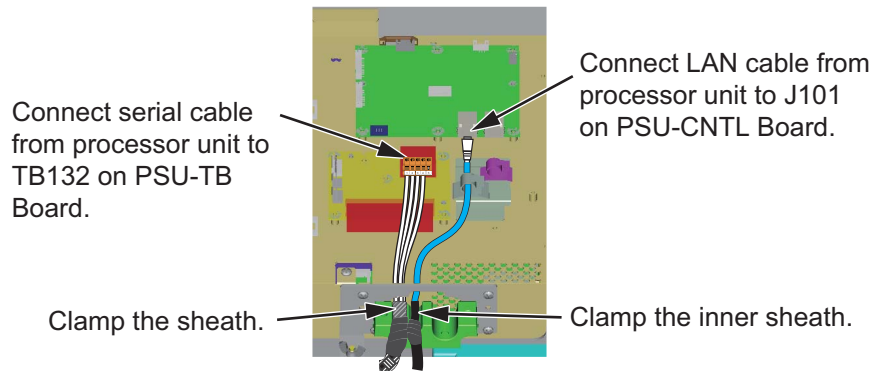
TTYCS(LA)-1Q

Armor
60
Drain wire
5
40
200

Vinyl tape
Crimp-on lug
Sheath
(Clamp here.)
30

Pass the vinyl sheath (local supply) onto the drain wire, then attach the crimp-on lug (preattached to the earth clamp on the processor unit) to the wire.

LAN cable

See "How to fabricate the LAN cable" on page 2-12 for how to attach the LAN cable connector.

Vinyl tape   Outer sheath   Inner sheath

LAN cable

30
40
280

5. Connect the cables fabricated at step 4 as shown below.

Connect serial cable from processor unit to TB132 on PSU-TB Board.

Connect LAN cable from processor unit to J101 on PSU-CNTL Board.

Clamp the sheath.

Clamp the inner sheath.

6. Fabricate the antenna cable as shown below.
   <u>For RW-00135</u>
   See "How to fabricate the LAN cable" on page 2-12 for how to attach the LAN cable connector.

Armor   Vinyl tape   170   } Power line
Sheath   LAN cable
30   250   6
40   100   Braided shield
Crimp-on lug (M4)   Crimp-on lug (M3)
Wrap the shield of LAN cable with vinyl tape.

<u>For existing cable (RW-4873/6895/9600)</u>

Armor   Vinyl tape   170   } Power line
Sheath   6
30   180   Coaxial cable
40   100
Crimp-on lug (M4)
14   5   9

7. Pass the antenna cable through the cable clamp.

Insert the antenna cable.

8. Connect the power line of the antenna cable to the 13-pin WAGO connector.

Pin	Color	Pin	Color
1	Brown	8	Green
3	Red	9	Blue
6	Orange	11	Purple
7	Yellow	12	White

2-23

9.   Connect the power line and the LAN cable as shown below.

Connect power line of antenna cable to TB131 on PSU-TB Board.

Connect LAN cable of antenna cable to J102 on PSU-CNTL Board.

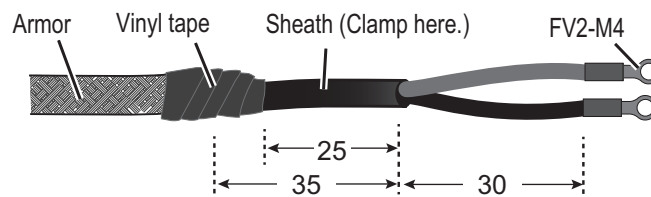Ground the LAN cable.

For existing antenna cable, ground unused lines here.

Clamp the armor.

10. Connect the shield wires of the antenna cable and serial cable for processor unit to each grounding point.

Grounding point (for antenna cable)

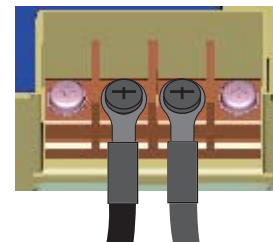Grounding point (for serial cable for processor unit)

11. Remount the cable clamp assembly removed at step 2.

12. Remove the connector cover for the power cable (2 places).

Connector cover of power cable

Plastic cover

13. Fabricate the power cable (DPYC-2.5) as shown below.

Armor   Vinyl tape   Sheath (Clamp here.)   FV2-M4

←25→

←— 35 —→ ←— 30 —→

14. Pull up the plastic cover and connect the power cable.

15. Remount the connector cover for the power cable.

16. Reattach the cover of the power supply unit.

2.5 Monitor Unit

For the wiring of the monitor unit, see the operator's manual supplied with the monitor unit.

Installation consideration

<Standard type>

• Connect the main monitor to the DVI1 and COM1 ports.

• For the sub monitor, connect it to the DVI2 and COM2 port.
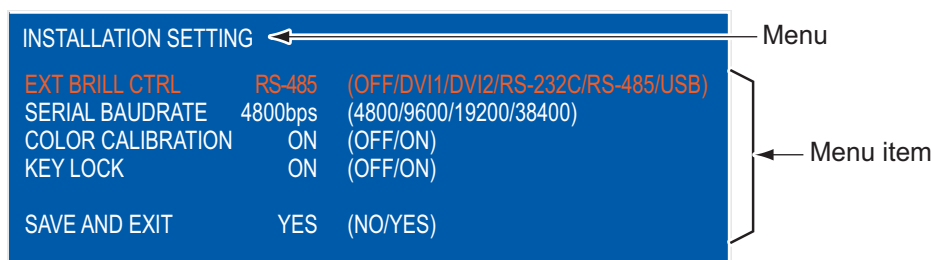
<VDR connection, ask your dealer>

To connect a VDR, it is necessary to output data in analog format. See the installation manuals for VDR to prepare the cables to use.

• When connecting a VDR to the DVI3 port:
Use the optional DVI-BNCX5-L2000 cable to output RGB signal from the DVI-I. Adjustment of the output picture is necessary.

• When connecting a VDR to the DVI2 port:
Use a DVI/RGB converter (maker: IMAGENICS, type: DVI-12A, local supply) to convert DVI output from DVI2 port to RGB.

Menu setting

The [INSTALLATION SETTING] menu appears only when the power is turned on for the first time after installation of the monitor unit.
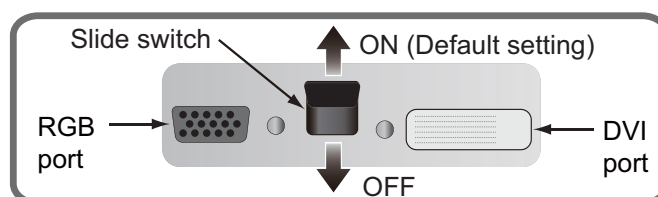

Adjust the settings referring to the following table.

EXT BRILL CTRL	SERIAL BAUDRATE	COLOR CALIBRATION	KEY LOCK	DVI PWR SYNC*
RS-485	4800bps	ON	ON	ON

*: [DVI PWR SYNC] is the slide switch at the bottom rear of the monitor unit. Confirm that this switch is set to [ON] (default setting). See Slide switch below for details.

Slide switch

Set the slide switch to "ON" (default setting). This setting automatically powers the monitor unit on or off according to the DVI signal input. The power switch of the monitor unit is inoperative.

Note: The OFF position provides control of the monitor unit power with the power switch of the monitor unit.

How to open the [INSTALLATION SETTING] menu

Turn off the monitor unit. While you hold the **DISP** key, press the **BRILL** key to turn on the monitor unit. Press and hold the **DISP** key for more than five seconds.

Note: When the [DVI PWR SYNC] slide switch is ON, turn on the connected external equipment while you press the **DISP** key to turn on the monitor unit.

2.6   Sensor Adapters (option)

A maximum of eight MC-3000S can be connected to a sensor network (for the redundant connection: 16). The MC-3000S (serial input/output, IEC61162-2/1, 4ch) can connect a maximum of 10 sensor adapters, using the MC1.5-W cables. The maximum number of MC-3010A units is five.
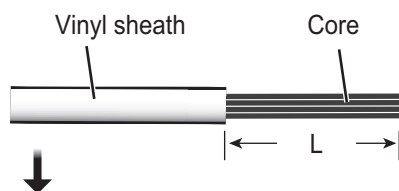
When fabricating the MC1.5-W cables, use the lot terminal (ferrule type, supplied) to maintain performance. This fabrication requires the optional crimping tool (type: CRIMPFOX 10S). For the relations between the connectors and rod terminals, see page AP-2. Also, the stickers attached on the reverse side of the covers show the detailed connections.

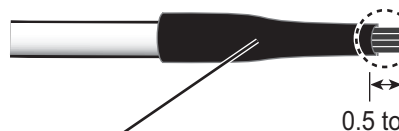 Attach the cables to the applicable pins.

Pin no.	Cable color (MC1.5-W)	Signal
1	Red	24V_OUT or 24V_IN
2	Black	24V_GND
3	White	MODBUS-A
4	Blue	MODBUS-B
5	Gray	GND

Note 1: Use the MC1.5-W cable between the sensor adapters.

Note 2: The total length of the MC1.5-W cables must be less than 6 m to prevent malfunction.

How to attach the rod terminal (ferrule type)

How to attach ferrule-type lug

Vinyl sheath   Core

Ferrule-type lug	Length of "L"
AI 1.5-6 BK (BLK)	6 mm
AI 0.34-6 TQ (BLU)	
AI 0.75-6 GY (GREY)	
AI 1-6 RD (RED)	
AI 0.14-8 GY(GREY)	8 mm

|←   L   →|

Rod terminal (ferrule type):
The core must protrude 0.5 to 1 mm past the rod terminal.
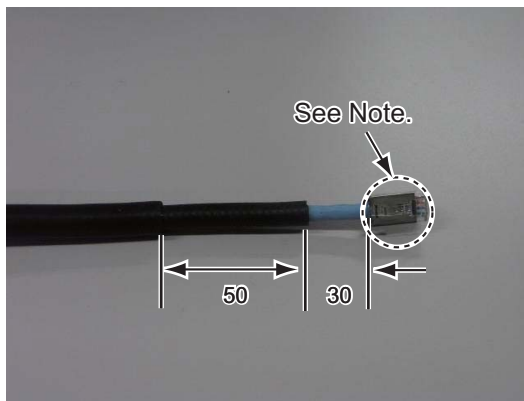
|←→|
0.5 to 1 mm

Rod terminal (ferrule type):
After attaching the rod terminal, use the optional crimping tool CRIMPFOX 10S to crimp.
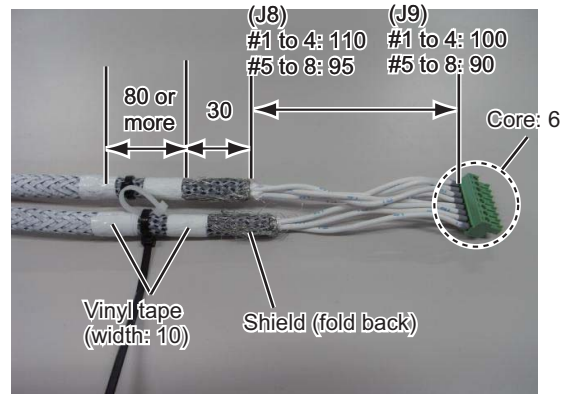
2.6.1   MC-3000S

Use the LAN cable FR-FTPC-CY cable to connect the MC-3000S and the processor unit. With HUB-100, a maximum of eight MC-3000S can be connected (for the redundant connection: 16).
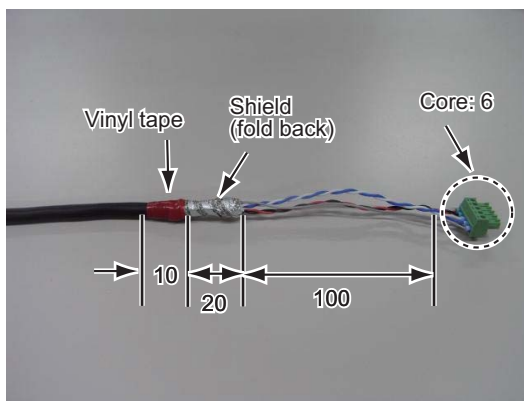
Fabrications (unit: mm)
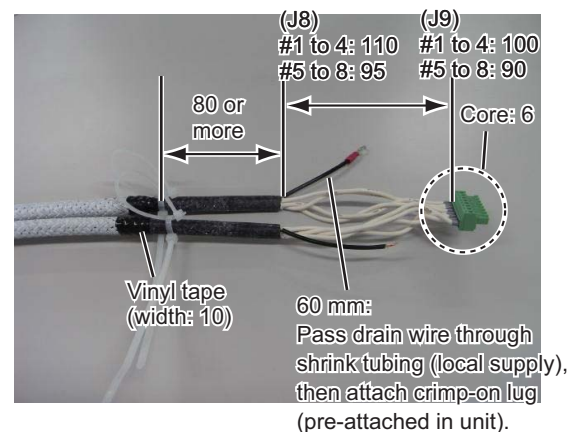
LAN cable (FR-FTPC-CY)
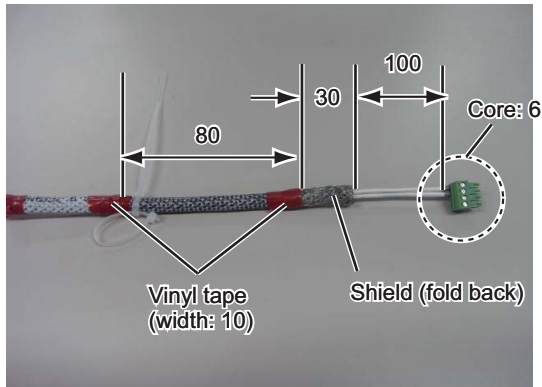

TTYCS-1Q cable
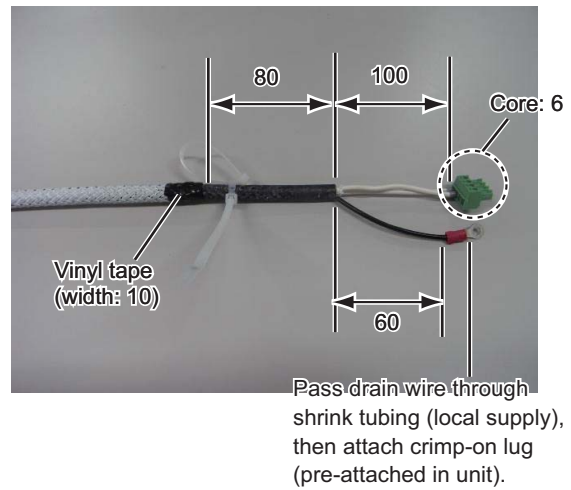

MC1.5-W-L600/1000/2000/3000 cable

TTYCSLA-1Q cable

Note: For the fabrication of LAN cable (FR-FTPC-CY), see "How to fabricate the LAN cable" on page 2-12.

TTYCS-1 cable

Vinyl tape (width: 10)
Shield (fold back)
80
30
100
Core: 6

TTYCSLA-1 cable

Vinyl tape (width: 10)
80
100
Core: 6
60

Pass drain wire through shrink tubing (local supply), then attach crimp-on lug (pre-attached in unit).

TTYCS-4 cable

Vinyl tape (width: 10)
20
J4/J6: 100
J5/J7: 120
Core: 6
80 or more
No use: 50 (Wind tape to insulate.)

TTYCSLA-4 cable

J4/J6: 100
J5/J7: 120
80 or more
60
Core: 6
Vinyl tape (width: 10)
No use: 50 (Wind tape to insulate.)

Pass drain wire through shrink tubing (local supply), then attach crimp-on lug (pre-attached in unit).

DPYC-1.5 cable

Vinyl tape (width: 10)
Core: 6
80 (or more)
85

Connections

Unfasten four screws to remove the cover. Pass the cables through the clamps and attach the cables to respective connectors.

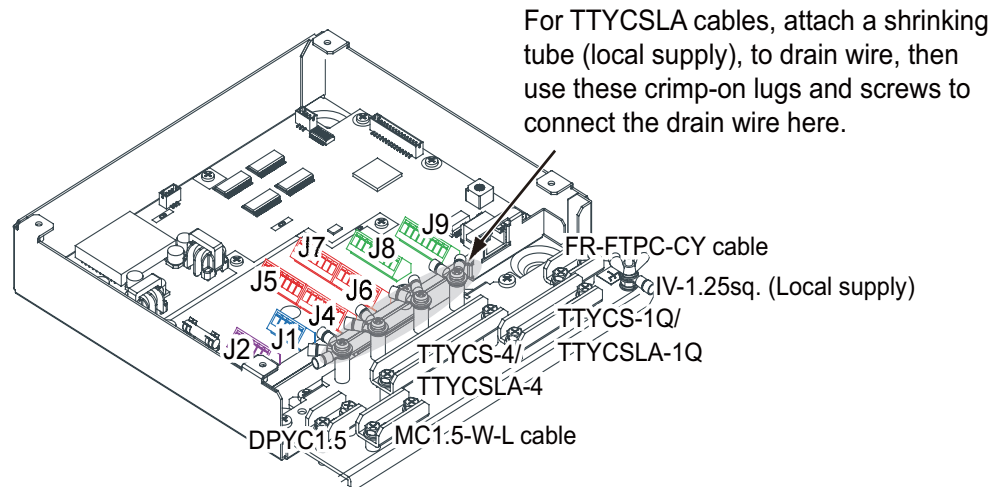For TTYCSLA cables, attach a shrinking tube (local supply), to drain wire, then use these crimp-on lugs and screws to connect the drain wire here.

Note: Fasten the cable shield with the cable clamp.

How to set NC/NO output (J2)

The POWER FAIL signal on the connector J2 can be set to NC (normal close) output or NO (normal open) output as shown in the table below.

Connector J2

Pin #	Signal name	In/Out	Remarks	NO	NC
1	24V_IN	-	24 VDC	DPYC-1.5	
2	24V_GND	-	GND (24 VDC)		
3	PWR_FAIL_A	Out	Power fail output	TTYCS(LA)-1	No connection
4	PWR_FAIL_COM	Out	Power fail output		TTYCS(LA)-1
5	PWR_FAIL_B	Out	Power fail output	No connection	

How to set input specification (J4 to J9)

For connectors J4 to J7, the connections are different depending on the input specifications as shown below. For connectors J8 and J9, the signal names corresponding to the pins are shown.

Connector J4

Pin #	Signal name	In/Out	Remarks	IEC61162-2	IEC61162-1	Modbus*
1	TD1-A	Out	Serial CH1, output IEC61162-1/2/modbus	TTYCS(LA)-4	TTYCS(LA)-4	TTYCS(LA)-4
2	TD1-B	Out	Serial CH1, output IEC61162-1/2/modbus			
3	RD1-A	In	Serial CH1, input IEC61162-2/modbus		No connection	No connection
4	RD1-B	In	Serial CH1, input IEC61162-2/modbus			
5	ISOGND1	-	Isolation, GND (CH1)			
6	RD1-H	In	Serial CH1, input IEC61162-1	No connection	TTYCS(LA)-4	
7	RD1-C	In	Serial CH1, input IEC61162-1			

*: Set the jumpers J20/J21 to Modbus.

Connector J5

Pin #	Signal name	In/Out	Remarks	IEC61162-2	IEC61162-1	Modbus*
1	TD2-A	Out	Serial CH2, output IEC61162-1/2/modbus	TTYCS(LA)-4	TTYCS(LA)-4	TTYCS(LA)-4
2	TD2-B	Out	Serial CH2, output IEC61162-1/2/modbus			
3	RD2-A	In	Serial CH2, input IEC61162-2/modbus		No connection	No connection
4	RD2-B	In	Serial CH2, input IEC61162-2/modbus			
5	ISOGND2	-	Isolation, GND (CH2)			
6	RD2-H	In	Serial CH2, input IEC61162-1	No connection	TTYCS(LA)-4	
7	RD2-C	In	Serial CH2, input IEC61162-1			

*: Set the jumpers J20/J21 to Modbus.

Connector J6

Pin #	Signal name	In/Out	Remarks	IEC61162-2	IEC61162-1
1	TD3-A	Out	Serial CH3, output IEC61162-1/2	TTYCS(LA)-4	TTYCS(LA)-4
2	TD3-B	Out	Serial CH3, output IEC61162-1/2		
3	RD3-A	In	Serial CH3, input IEC61162-2		No connection
4	RD3-B	In	Serial CH3, input IEC61162-2		
5	ISOGND3	-	Isolation, GND (CH3)		
6	RD3-H	In	Serial CH3, input IEC61162-1	No connection	TTYCS(LA)-4
7	RD3-C	In	Serial CH3, input IEC61162-1		

Connector J7

Pin #	Signal name	In/Out	Remarks	IEC61162-2	IEC61162-1
1	TD4-A	Out	Serial CH4, output IEC61162-1/2	TTYCS(LA)-4	TTYCS(LA)-4
2	TD4-B	Out	Serial CH4, output IEC61162-1/2		
3	RD4-A	In	Serial CH4, input IEC61162-2		No connection
4	RD4-B	In	Serial CH4, input IEC61162-2		
5	ISOGND4	-	Isolation, GND (CH4)		
6	RD4-H	In	Serial CH4, input IEC61162-1	No connection	TTYCS(LA)-4
7	RD4-C	In	Serial CH4, input IEC61162-1		

Connector J8

Pin#	Signal name	In/Out	Description	Remarks
1	TD5-A	Out	Serial CH5, output IEC61162-1	TTYCS(LA)-1Q is required.
2	TD5-B	Out	Serial CH5, output IEC61162-1	Specification to connect:
3	RD5-H	In	Serial CH5, input IEC61162-1	IEC61162-1 only
4	RD5-C	In	Serial CH5, input IEC61162-1	
5	TD6-A	Out	Serial CH6, output IEC61162-1	
6	TD6-B	Out	Serial CH6, output IEC61162-1	
7	RD6-H	In	Serial CH6, input IEC61162-1	
8	RD6-C	In	Serial CH6, input IEC61162-1	

Connector J9

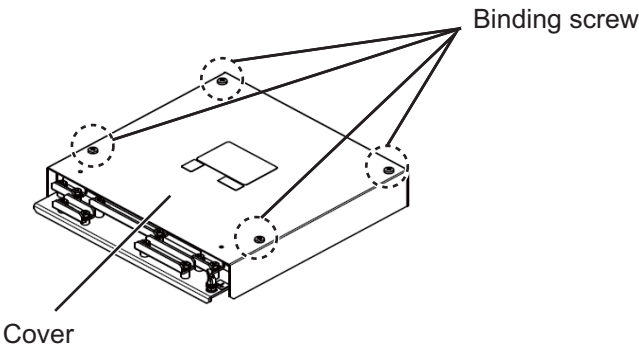| Pin#	Signal name	In/Out	Description	Remarks
1	TD7-A	Out	Serial CH7, output IEC61162-1	Specification to connect:
2	TD7-B	Out	Serial CH7, output IEC61162-1	IEC61162-1 onlys
3	RD7-H	In	Serial CH7, input IEC61162-1	
4	RD7-C	In	Serial CH7, input IEC61162-1	
5	TD8-A	Out	Serial CH8, output IEC61162-1	
6	TD8-B	Out	Serial CH8, output IEC61162-1	
7	RD8-H	In	Serial CH8, input IEC61162-1	
8	RD8-C	In	Serial CH8, input IEC61162-1	

Case gasket OP24-28

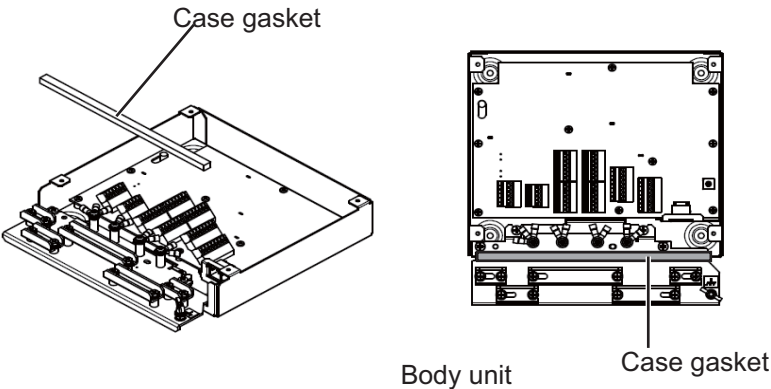The optional kit OP24-28 protects the connectors on the MC-3000C to waterproofing standard IPX2.
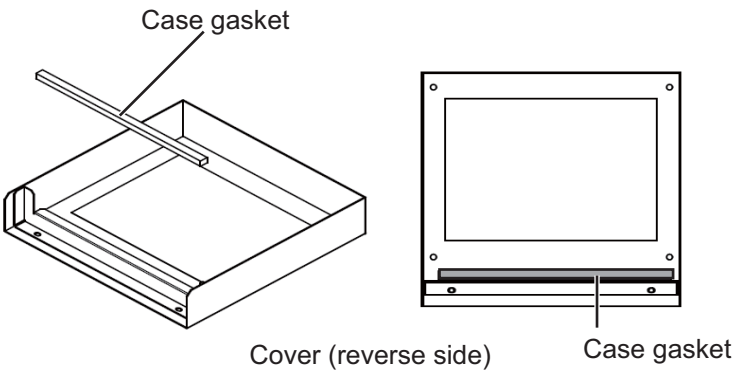
Case gasket (type: OP24-28, code no.: 001-169-970)

Name	Type	Code No.	Qty	Remarks
Case packing (serial)	24-014-2051	100-367-880-10	2	For MC-3000S

1. Unfasten four binding screws to remove the cover from the adapter.

Binding screw

Cover

2. Peel the paper from the case gasket, then attach the case gasket to the reverse side of the cover and the body unit as shown below.

Case gasket

Cover (reverse side)   Case gasket

Case gasket

Body unit   Case gasket

3. Attach the cover to the MC-3000S body unit.