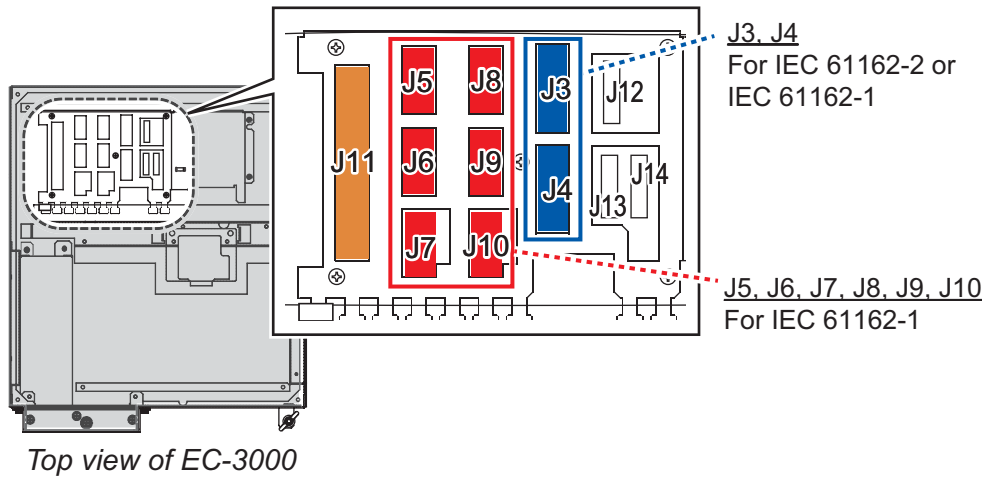


2.3 Processor Unit

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".

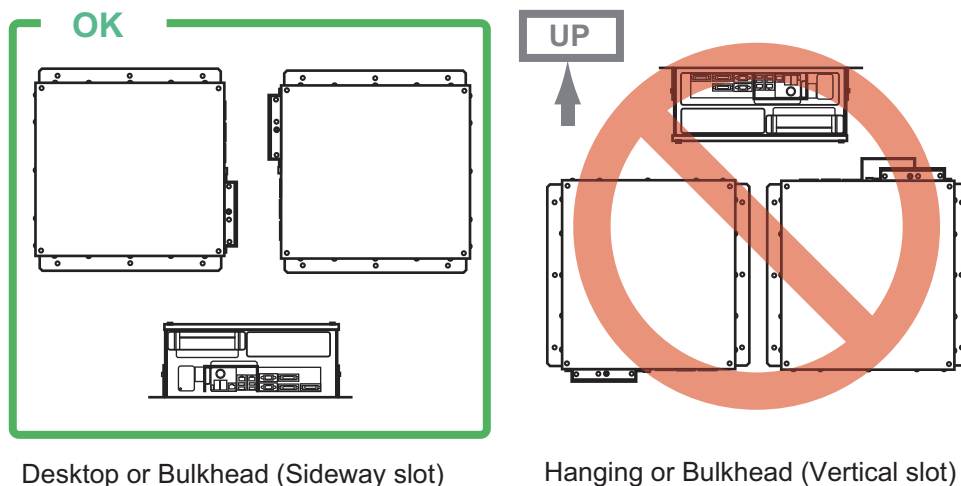


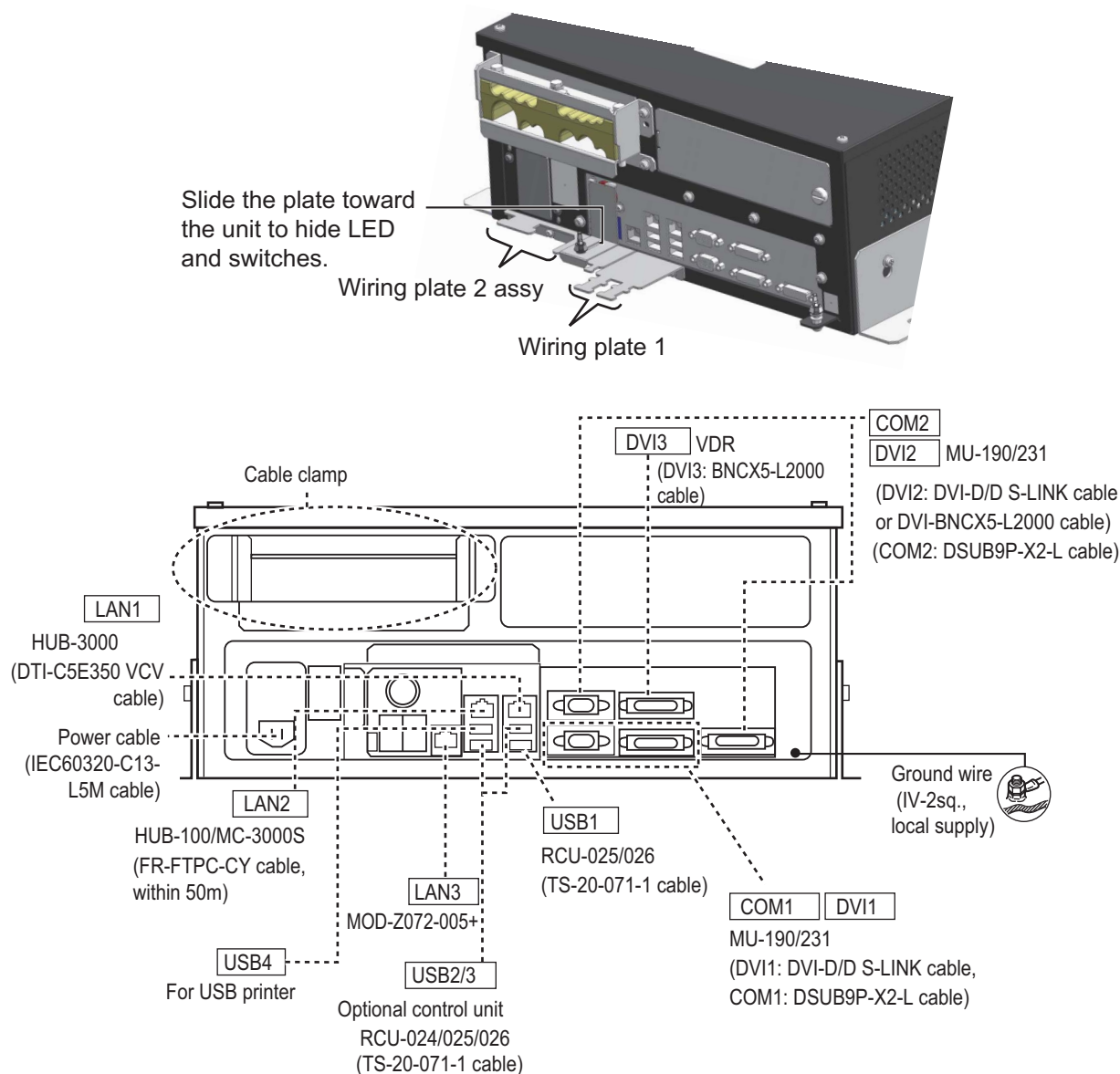
2.3.1 How to connect cables to terminals in the processor unit

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.





Cables connected at wiring plate 1 assy

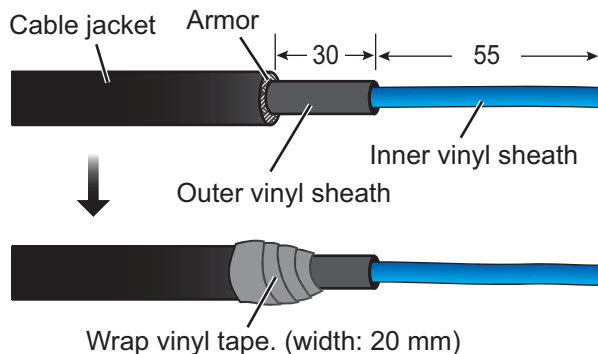
- USB cables from the control units
- Printer cable
- LAN cable (type: DTI-C5E350 VCV) from the HUB-3000
- LAN cable (type: FR-FTPC-CY) from the HUB-100/MC-3000S

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.



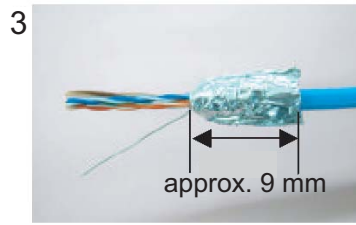
Note: For a locally supplied LAN cable, expose the armor and clamp the armor with the cable clamp.



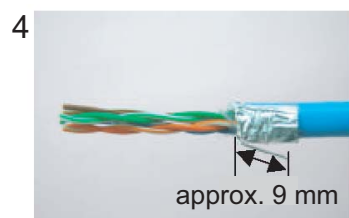
Expose inner vinyl sheath.



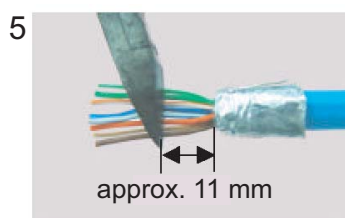
Remove the outer sheath by approx 25 mm. Be careful not to damage inner shield and cores.



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



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



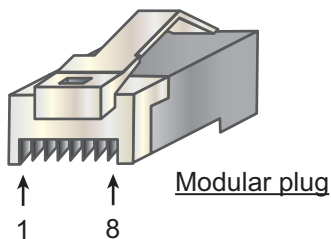
Straighten and flatten the core in order and cut them, leaving 11 mm.



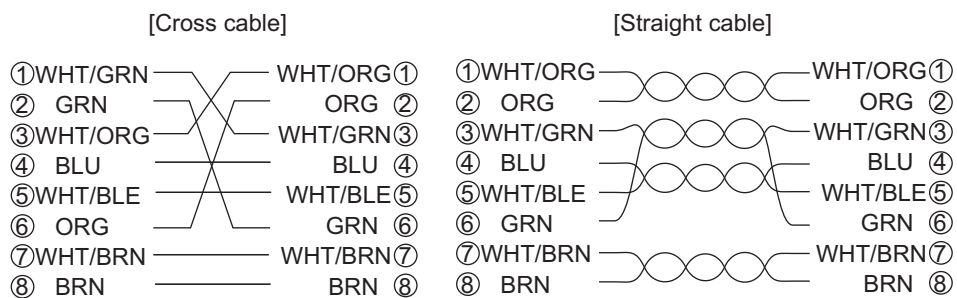
Insert the cable into the modular plug so that the folded part of the shield enters into the plug housing. The drain wire should be located on the tab side of the jack.



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



Modular plug

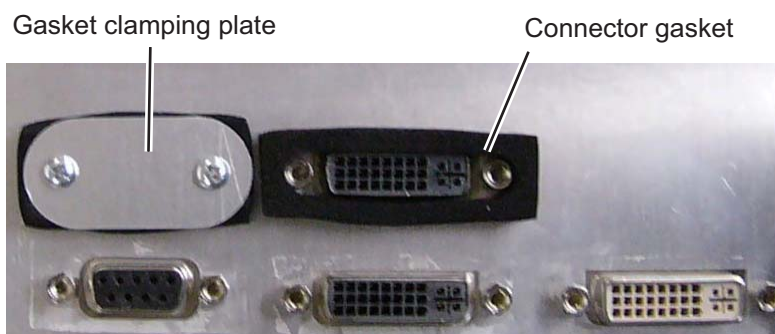
**IPX2 kit**

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

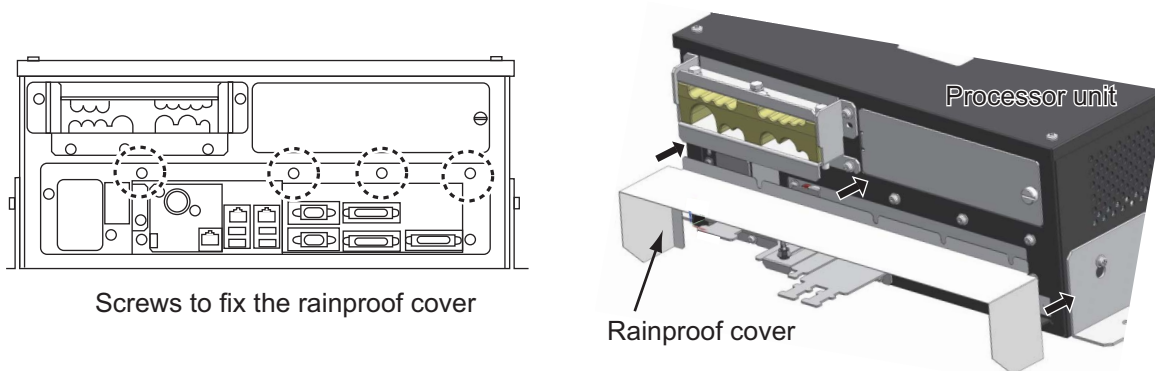
Contents of IPX2 kit

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.



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.



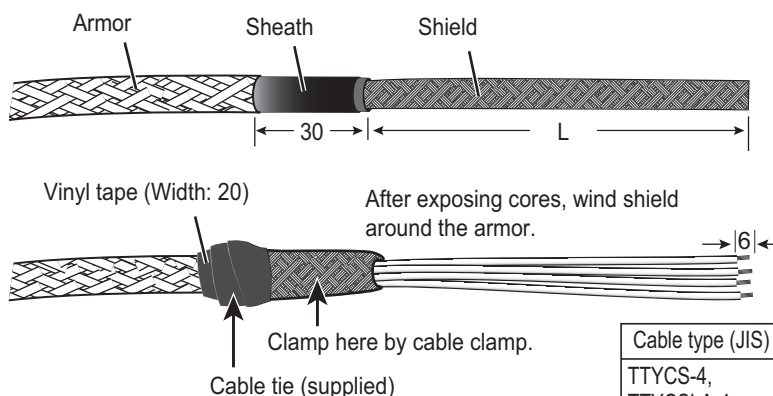
2.3.2 How to connect cables inside the processor unit

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.

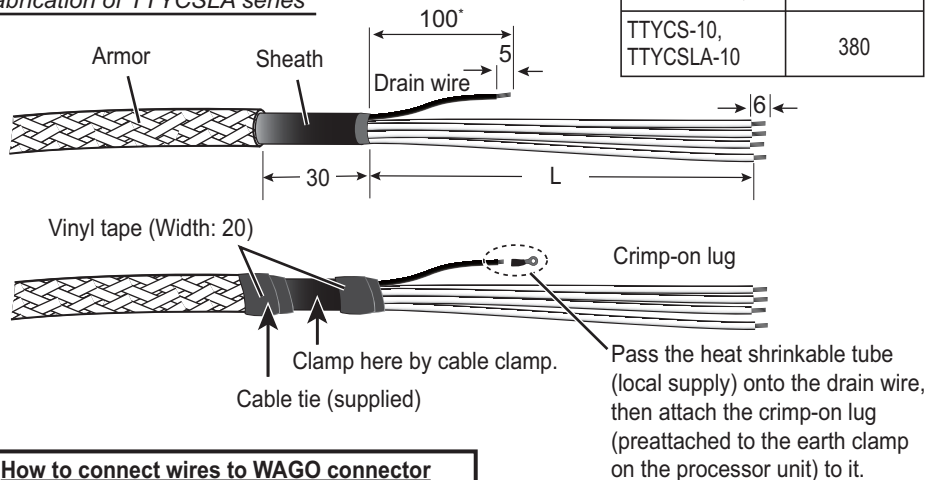
For locations of cables and cores, see the sticker on the reverse side of the top cover. (All dimensions in millimeters)

Fabrication of TTYCS series

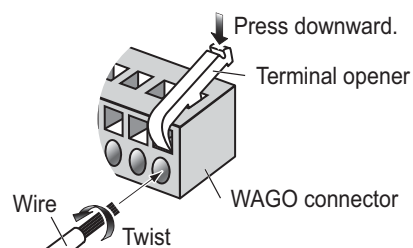


Cable type (JIS)	Length of "L"
TTYCS-4, TTYCSLA-4, TTYCS-1Q, TTYCSLA-1Q	400
TTYCS-10, TTYCSLA-10	380

Fabrication of TTYCSLA series

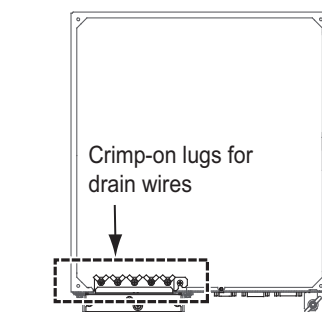


How to connect wires to WAGO connector



<Procedure>

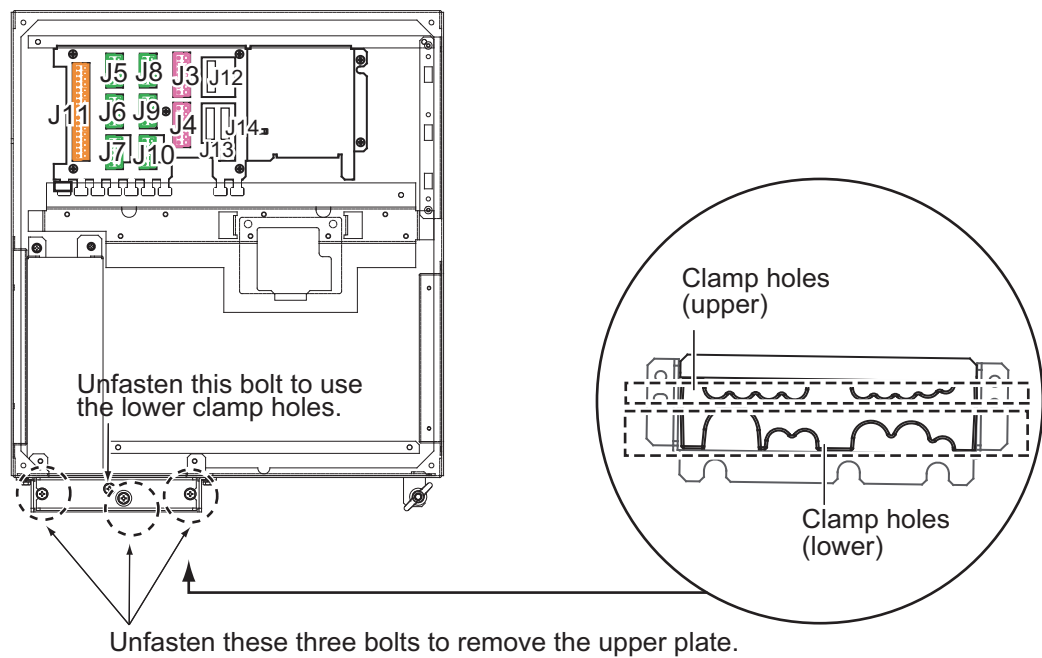
1. Twist the cores.
2. Press the terminal opener downward.
3. Insert the wire to hole.
4. Remove the terminal opener.
5. Pull the wire to confirm that it is secure.



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.

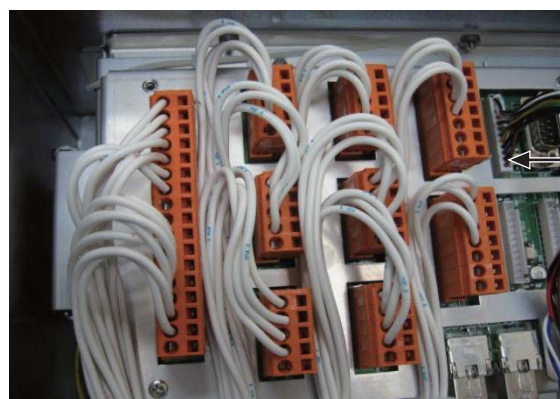
*Processor unit, top view*

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.

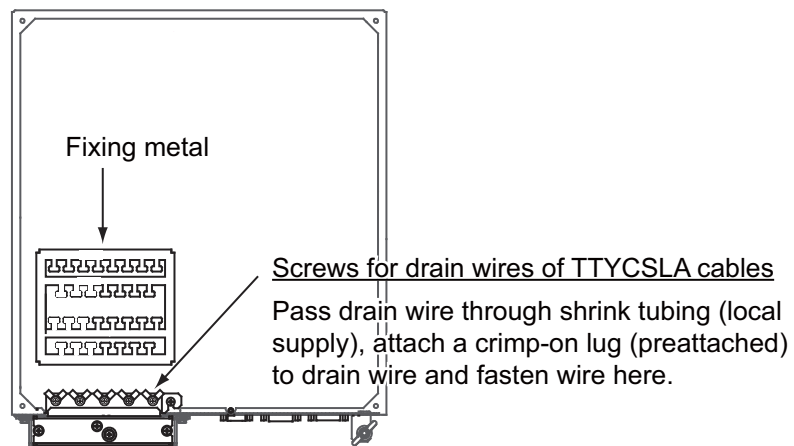


J12 (main control unit)

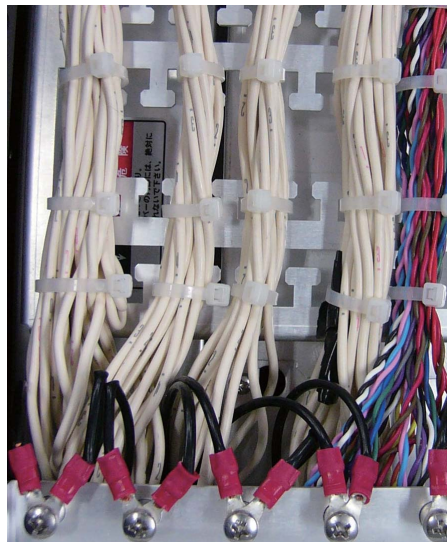
For J13 and J14 (sub control units).

2. WIRING

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.



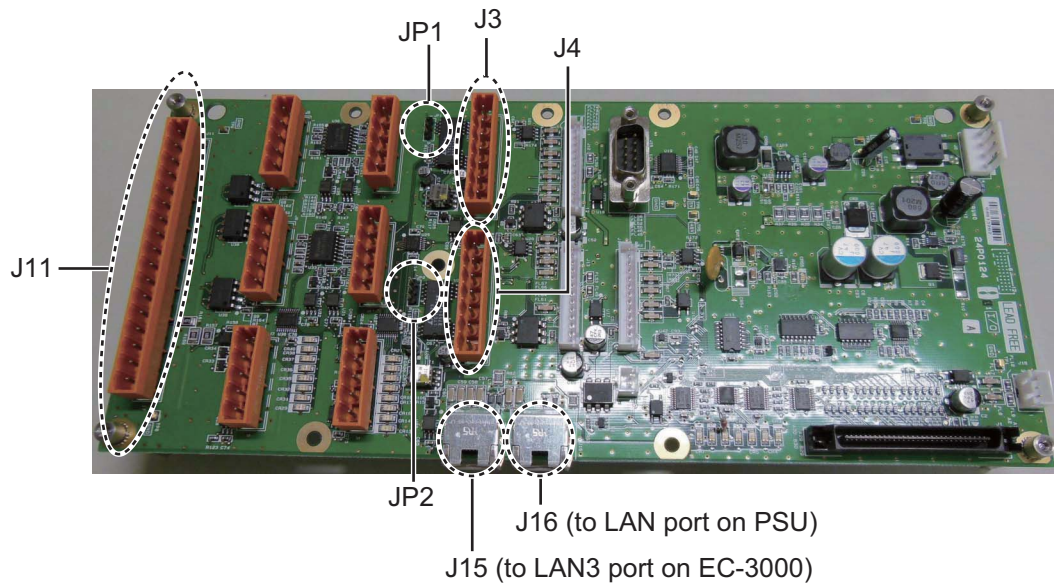
Example of wiring inside the processor unit

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 For PSU
2	TD8-B	Out	Serial CH8, output IEC61162-1	
3	RD8-H	In	Serial CH8, input IEC61162-1	
4	RD8-C	In	Serial CH8, input IEC61162-1	
5	GND	-	GND	

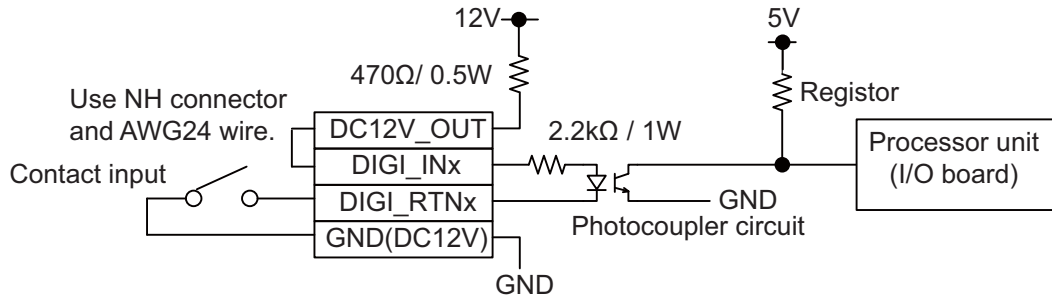
How to set contact input/output

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.

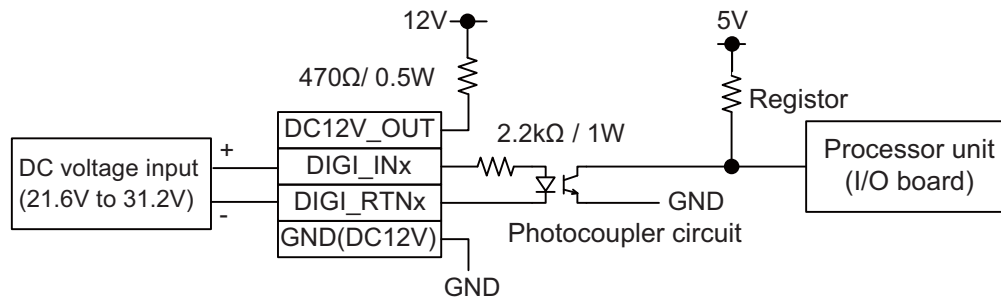
Note: The input must not exceed the range of the input voltage, to prevent malfunction.

- 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**

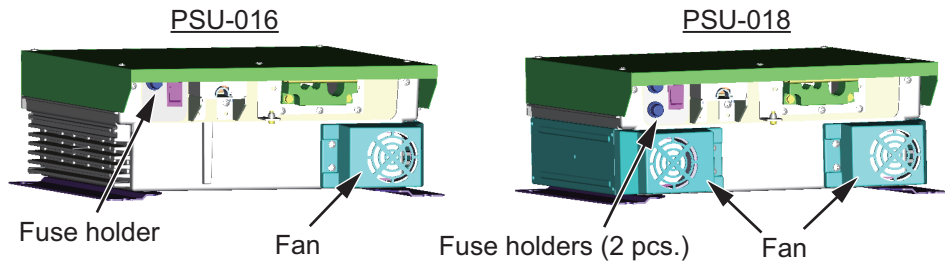
Pin #	Signal name	In/Out	Description	Contact input	Voltage input
1	SYS_FAIL-A	Out	System fail output	TTYCS(LA)-10	TTYCS(LA)-10
2	SYS_FAIL-B	Out	System fail output		
3	PWR_FAIL-A	Out	Power fail output		
4	PWR_FAIL-B	Out	Power fail output		
5	NC1-A	Out	Alarm output (NC1)		
6	NC1-B	Out	Alarm output (NC1)		
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	TTYCS(LA)-10
15	DIGI_RTN1	Out	ACK input		No connection
16	GND (DC12V)	In	ACK input		
17	GND	-	GND	NO connection	

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

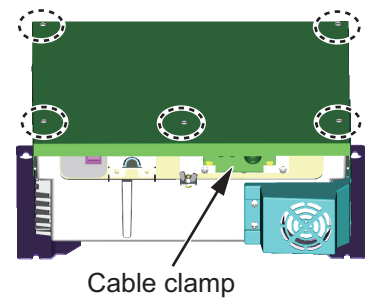
2.4 Power Supply Unit

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

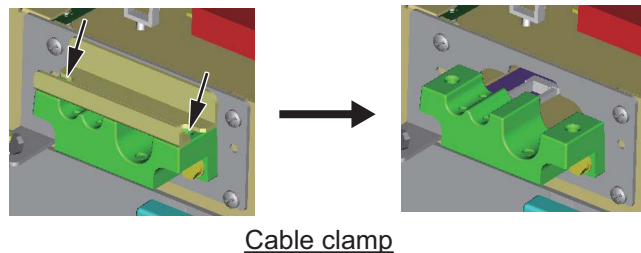
- PSU-016: For antenna of 24 rpm, w/a fan
- PSU-018: For antenna of 42 rpm, w/two fans



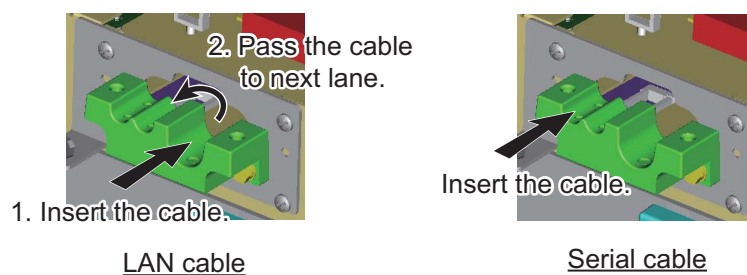
1. Unfasten five screws to open the cover of the power supply unit.



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



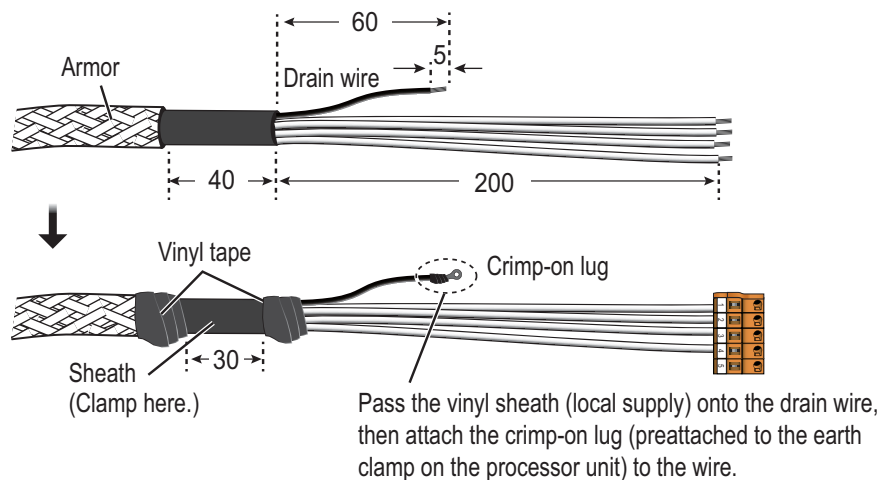
3. Pass the LAN and serial cables from the processor unit through the cable clamp.



2. WIRING

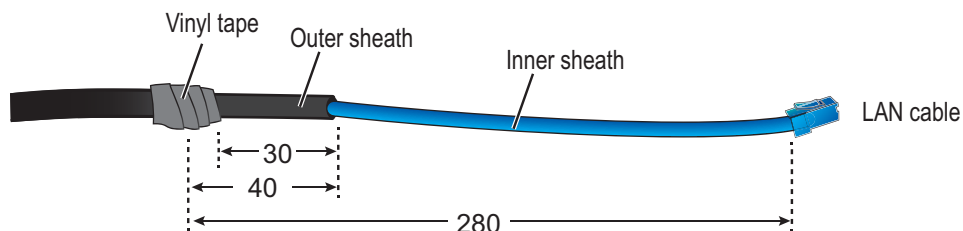
4. As shown below, fabricate the serial cable TTYCS(LA)-1Q and LAN cable that connect between the processor unit and the power supply unit. Also, for retrofit installation, the LAN signal converter is required. For wiring, see "LAN Signal Converter Kit (option)" on page 2-43.

TTYCS(LA)-1Q

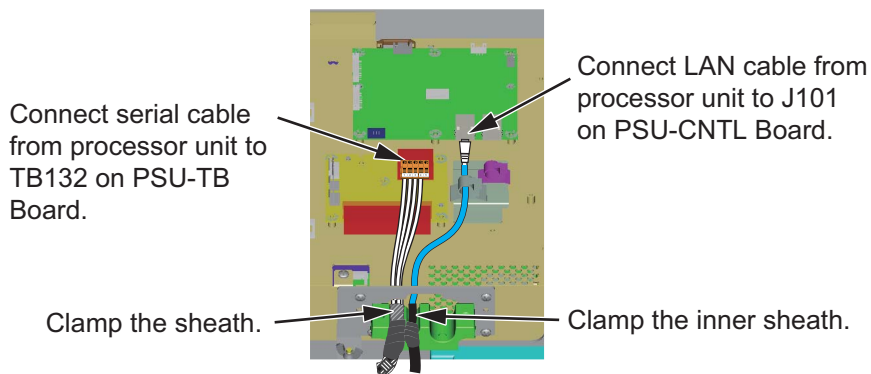


LAN cable

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



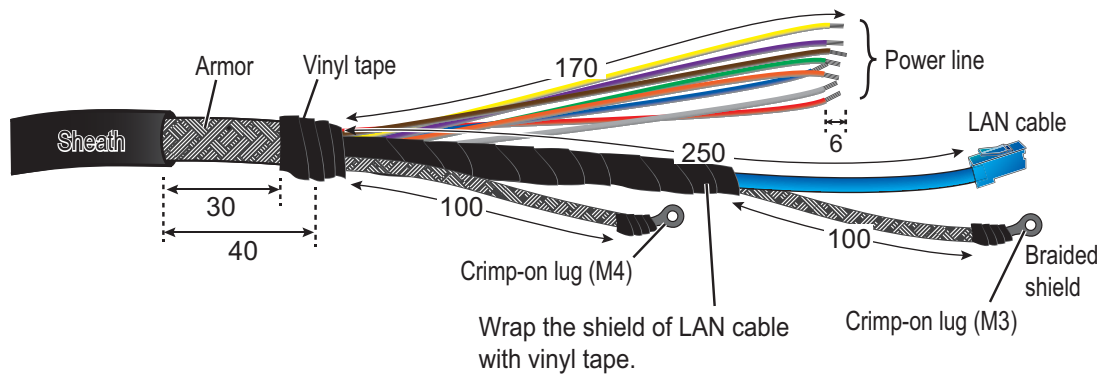
5. Connect the cables fabricated at step 4 as shown below.



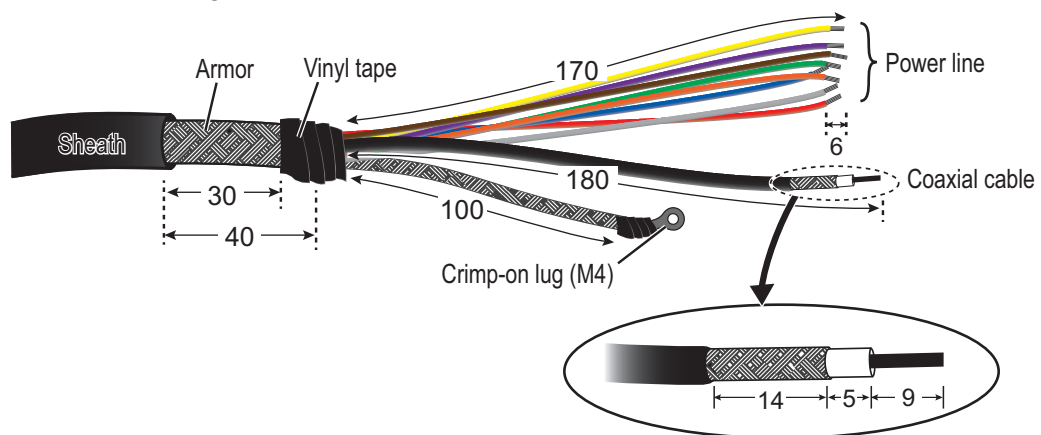
6. Fabricate the antenna cable as shown below.

For RW-00135

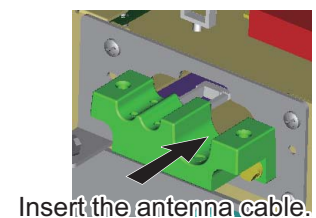
See "How to fabricate the LAN cable" on page 2-12 for how to attach the LAN cable connector.



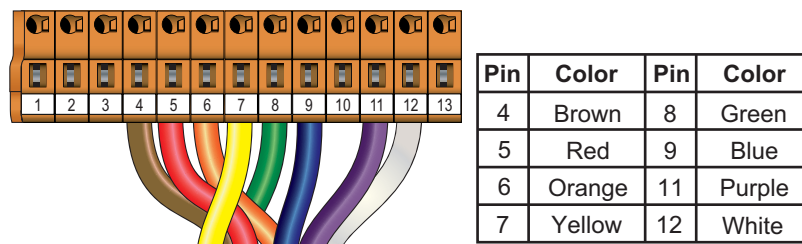
For existing cable (RW-4873/6895/9600)



7. Pass the antenna cable through the cable clamp.

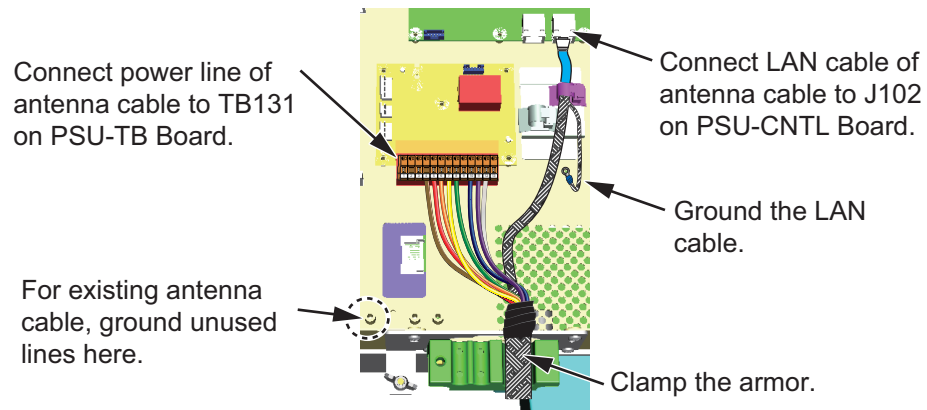


8. Connect the power line of the antenna cable to the 13-pin WAGO connector.

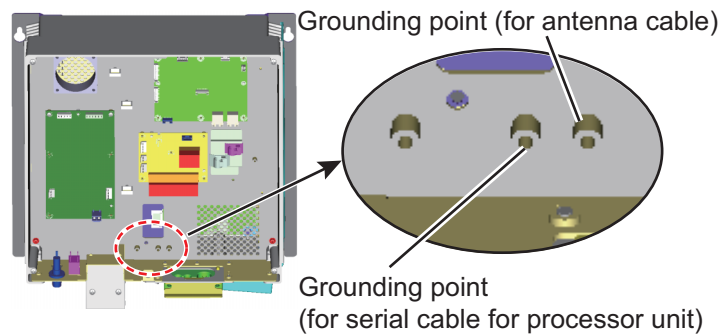


2. WIRING

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

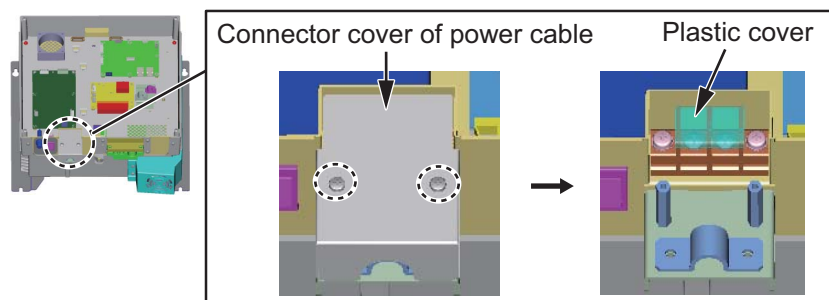


10. Connect the shield wires of the antenna cable and serial cable for processor unit to each grounding point.

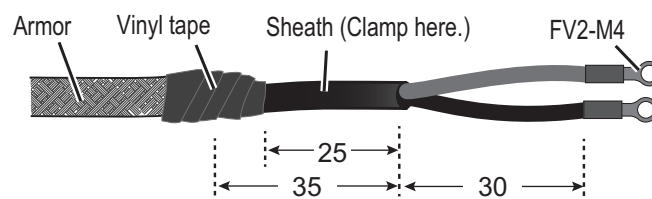


11. Remount the cable clamp assembly removed at step 2.

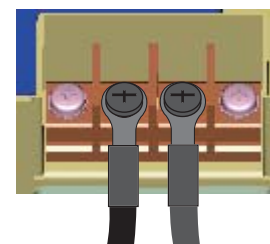
12. Remove the connector cover for the power cable (2 places).



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



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 considerations

<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.



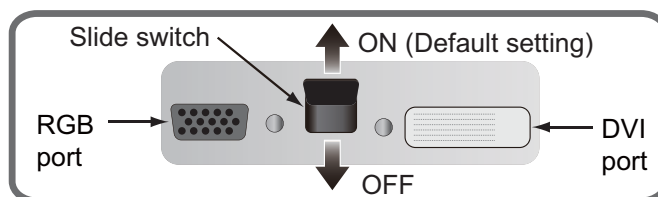
Adjust the settings referring to the following table.

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.

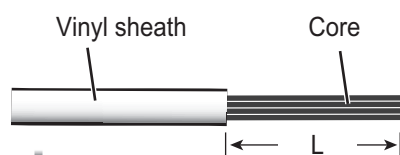
When fabricating the MC1.5-W cables, use the lot terminal (ferrule type, supplied) to maintain performance. This fabrication requires the optional crimping tool (type: CRIMPFOX 10S). For the relations between the connectors and rod terminals, see page AP-2. Also, the stickers attached on the reverse side of the covers show the detailed connections.

Attach the cables to the applicable pins.

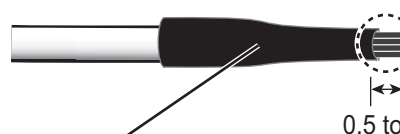
Pin no.	Cable color (MC1.5-W)	Signal
1	Red	24V_OUT or 24V_IN
2	Black	24V_GND
3	White	MODBUS-A
4	Blue	MODBUS-B
5	Gray	GND

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**

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



Rod terminal (ferrule type):

After attaching the rod terminal, use the optional crimping tool CRIMPFOX 10S to crimp.

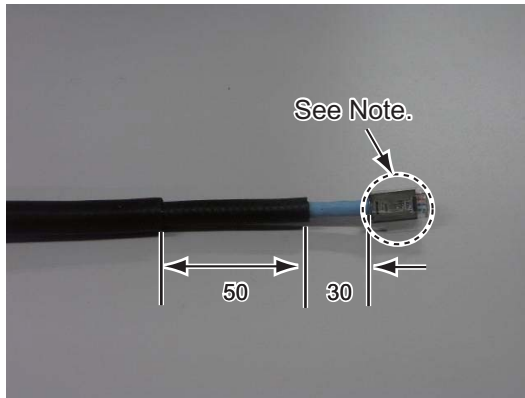
Rod terminal (ferrule type):
The core must protrude 0.5 to 1 mm past the rod terminal.

2.6.1 MC-3000S

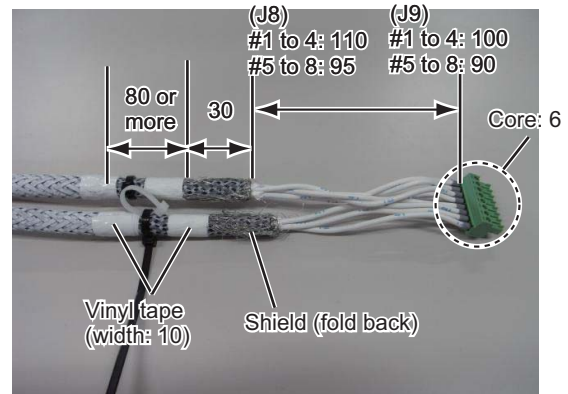
Use the LAN cable FR-FTPC-CY cable to connect the MC-3000S and the processor unit. With HUB-100, a maximum of eight MC-3000S can be connected (for the redundant connection: 16).

Fabrications (unit: mm)

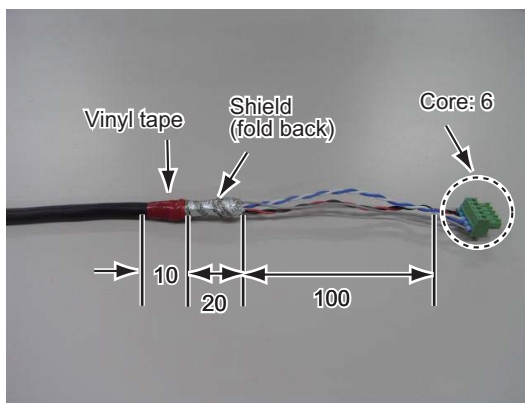
LAN cable (FR-FTPC-CY)



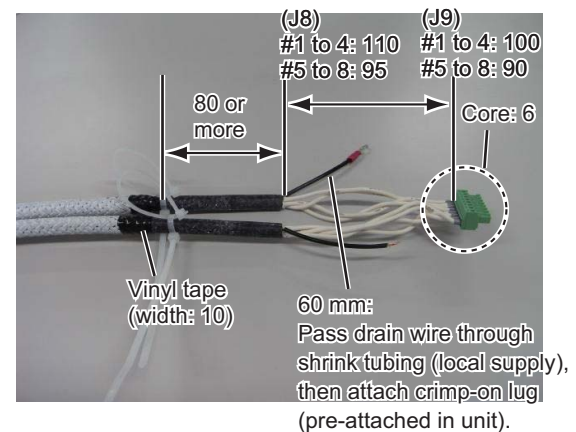
TTYCS-1Q cable



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



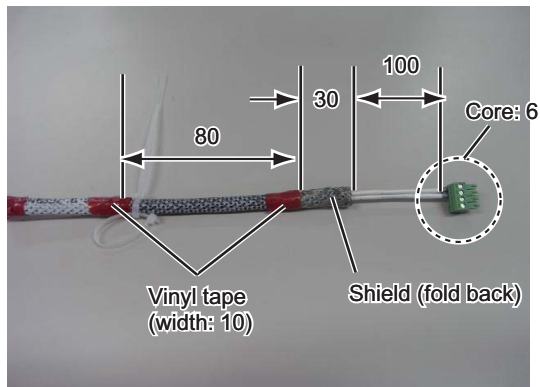
TTYCSLA-1Q cable



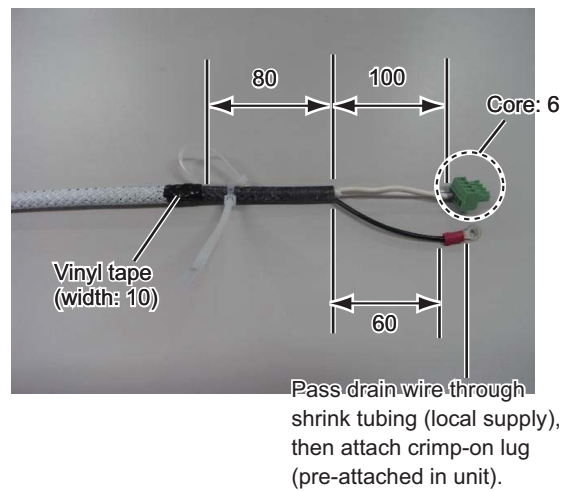
Note: For the fabrication of LAN cable (FR-FTPC-CY), see "How to fabricate the LAN cable" on page 2-12.

2. WIRING

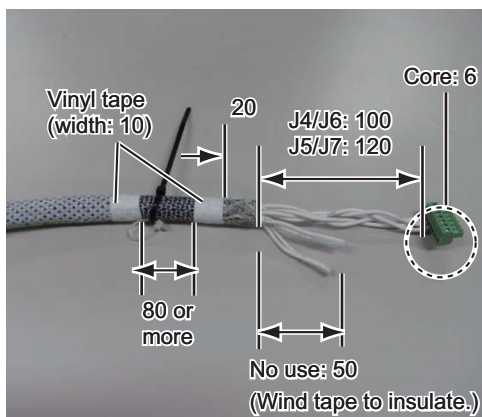
TTYCS-1 cable



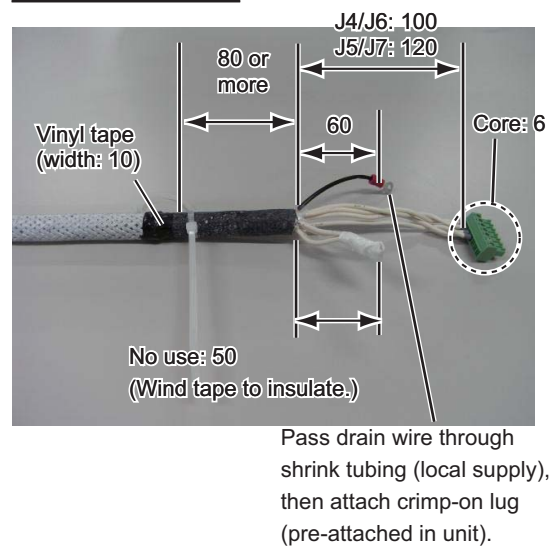
TTYCSLA-1 cable



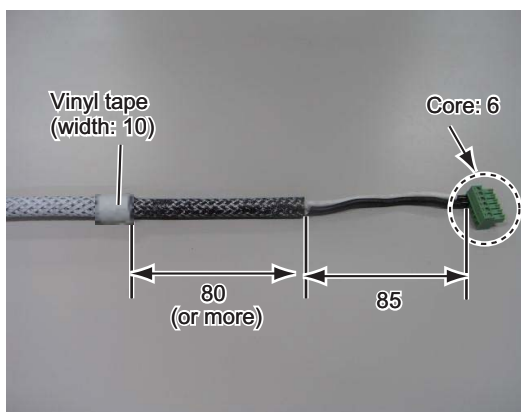
TTYCS-4 cable



TTYCSLA-4 cable

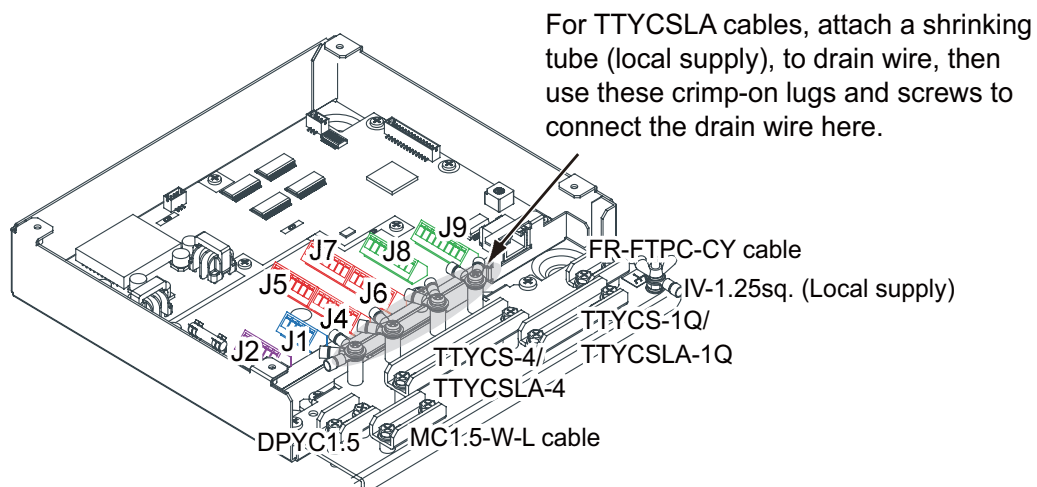


DPYC-1.5 cable



Connections

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



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	

2. WIRING

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	ISOGND 1	-	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		No connection
3	RD3-A	In	Serial CH3, input IEC61162-2		
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		No connection
3	RD4-A	In	Serial CH4, input IEC61162-2		
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	Specification to connect: 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	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: 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	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	

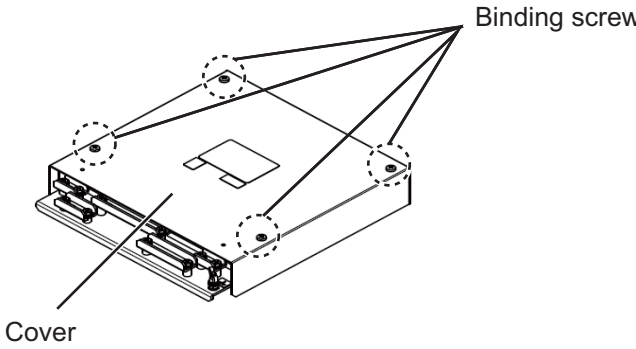
Case gasket OP24-28

The optional kit OP24-28 protects the connectors on the MC-3000C to waterproofing standard IPX2.

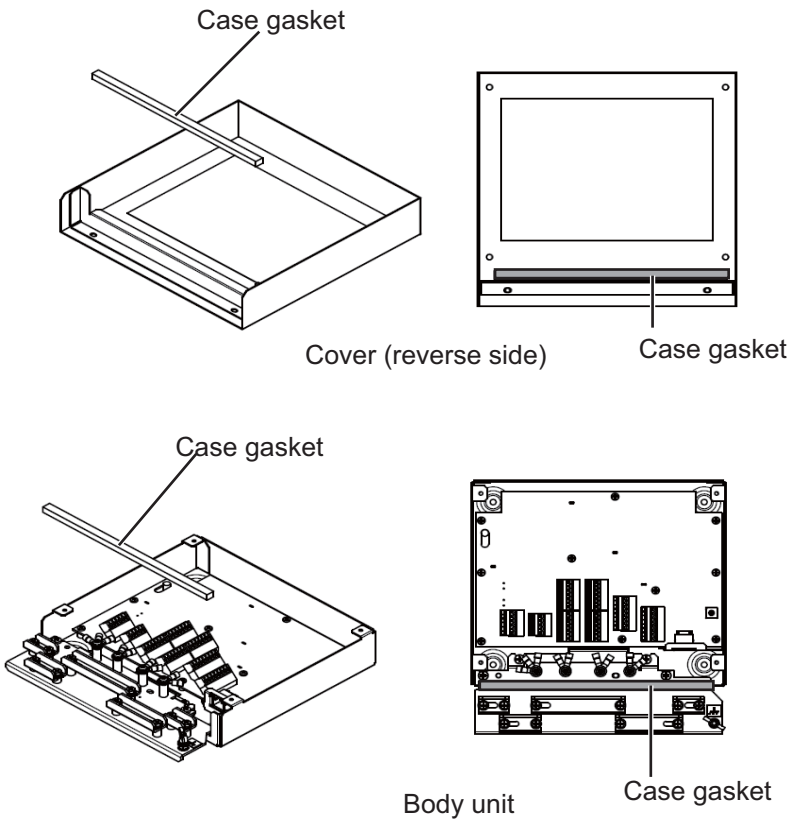
Case gasket (type: OP24-28, code no.: 001-169-970)

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.



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.



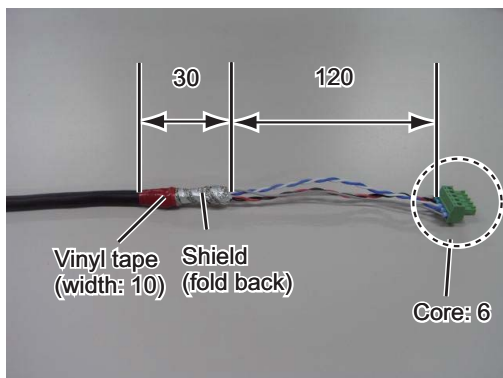
3. Attach the cover to the MC-3000S body unit.

2.6.2 MC-3010A/3020D/3030D

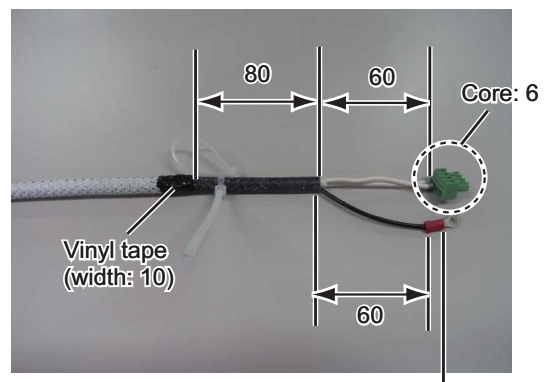
- MC-3010A: Inputs analog signal. To use MC-3010A as current input, connect short pins to each terminals.
- MC-3020D: Inputs digital signal (8ch contact input). Contact or voltage input is selectable (contact input requires short pins).
- MC-3030D: Outputs digital signal (8ch, normal open/close).

Fabrications

MC1.5-W-L600/1000/2000/3000 cable
(Input)

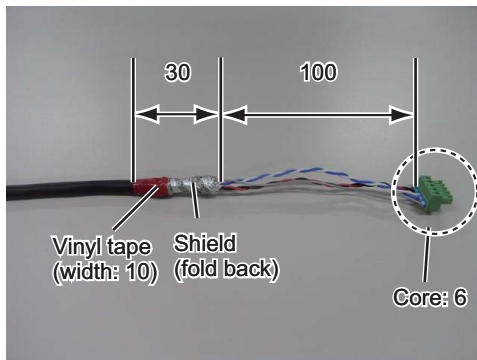


TTYCSLA-1 (MC-3010A)

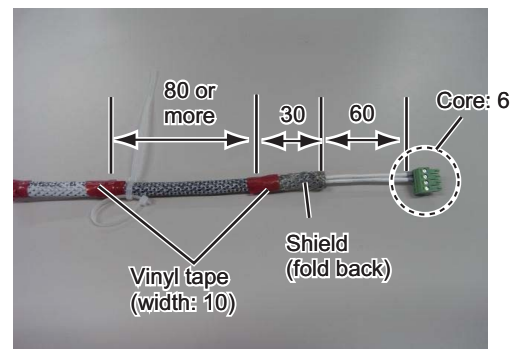


Pass drain wire through shrink tubing (local supply), then attach crimp-on lug (pre-attached in unit).

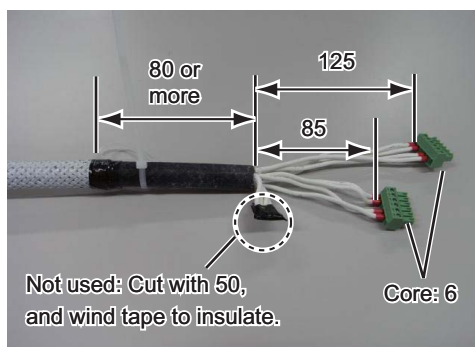
MC1.5-W-L600/1000/2000/3000 cable
(Output)



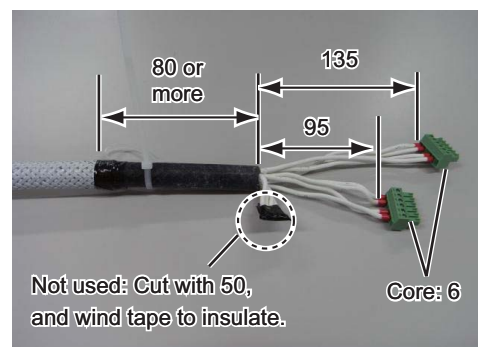
TTYCS-1 (MC-3010A)



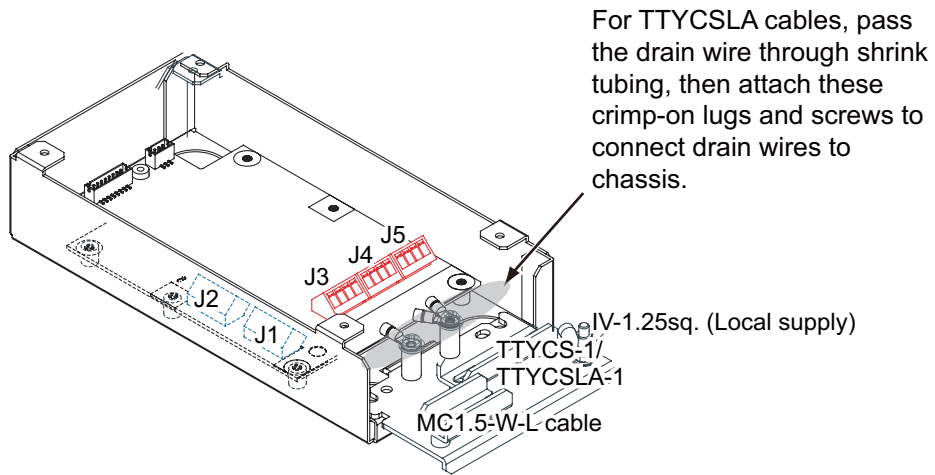
MPYC-12 cable (MC-3030D)



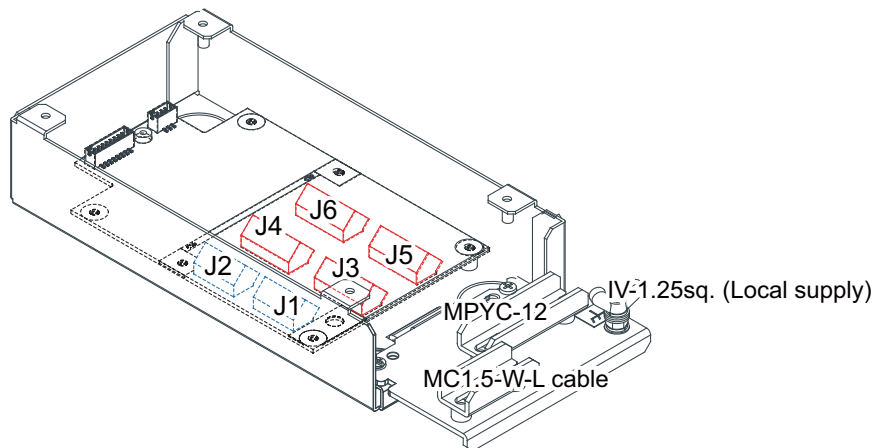
MPYC-12 cable (MC-3020D)



Connection



Note: The cable shield must lie in the cable clamp.



Note: The cable shield must lie in the cable clamp.

MC-3020D/3030D

Input method (MC-3010A only)

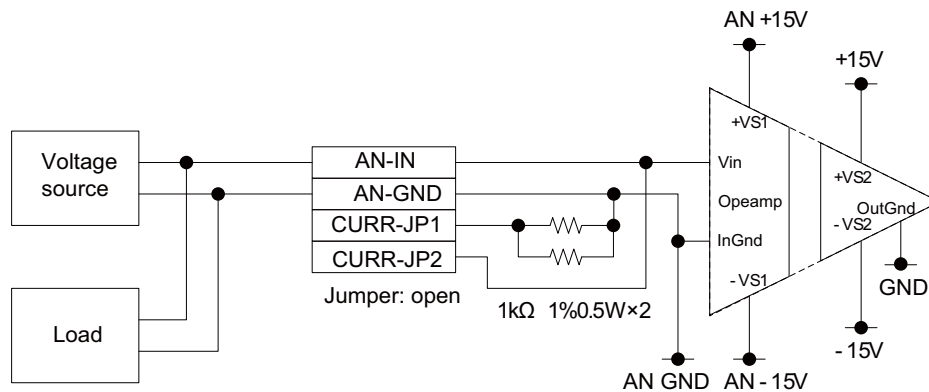
Select the method of the analog data input, power voltage or power current.

Note 1: The input must not exceed the range of the input voltage, to prevent malfunction.

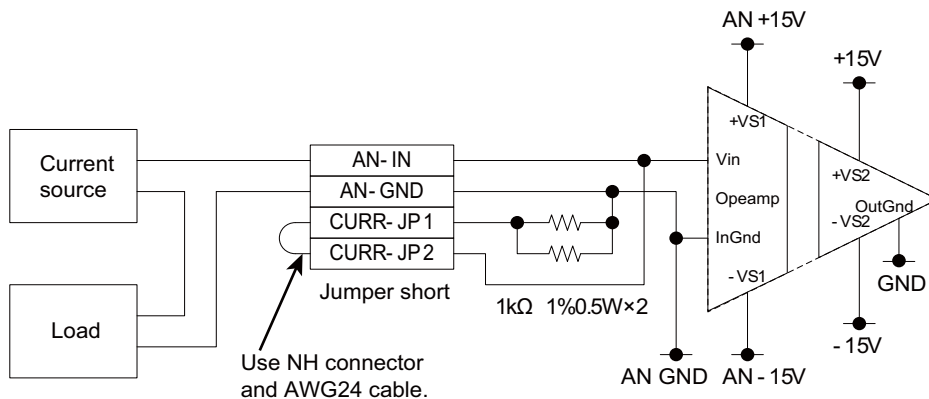
- Setting for voltage input: -10V to +10V or 0 to 10V (depending on the setting)
- Setting for contact input: Voltage 4mA to 20mA.

Note 2: When changing the input method, turn off the MC-3010A and on again to put change in effect.

- Power voltage: Input the amount of power voltage change to the operational amplifier.



- Power current: Pass the power current to the shunt resistor, 1kΩ/parallel (combined resistance: 500Ω) to input the amount of voltage change at the both ends of the resistor to the operational amplifier.

**Connector J3**

Pin #	Signal name	In/Out	Description	Power voltage	Power current
1	AN1_IN	In	Analog 1 input	TTYCS(LA)-1	
2	AN1_GND	-	Analog 1 GND		
3	CURRE1_JP1	-	Analog 1 input, power current/voltage setting jumper 1	Pin #3-#4: open	Pin #3-#4: short
4	CURRE1_JP2	-	Analog 1 input, power current/voltage setting jumper 2		

Connector J4

Pin #	Signal name	In/Out	Description	Power voltage	Power current
1	AN2_IN	In	Analog 2 input	TTYCS(LA)-1	
2	AN2_GND	-	Analog 2 GND		
3	CURR2_JP1	-	Analog 2 input, power current/ voltage setting jumper 1	Pin #3-#4: open	Pin #3-#4: short
4	CURR2_JP2	-	Analog 2 input, power current/ voltage setting jumper 1		

Connector J5

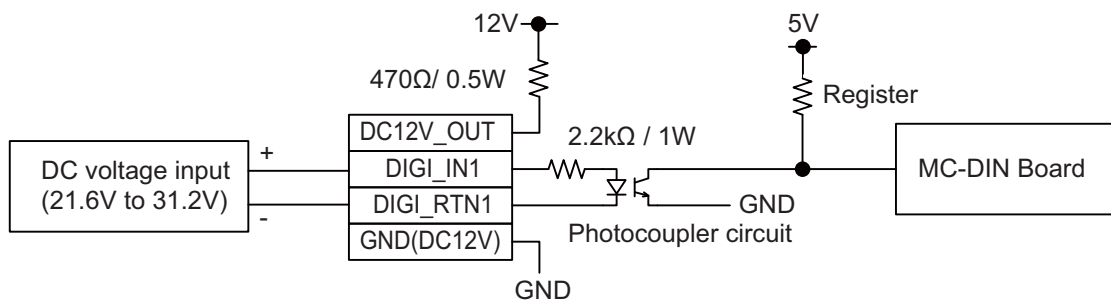
Pin #	Signal name	In/Out	Description	Power voltage	Power current
1	AN3_IN	In	Analog 3 input	TTYCS(LA)-1	
2	AN3_GND	-	Analog 3 GND		
3	CURR3_JP1	-	Analog 3 input, power current/ voltage setting jumper 1	Pin #3-#4: open	Pin #3-#4: short
4	CURR3_JP2	-	Analog 3 input, power current/ voltage setting jumper 1		

How to set ACK input (MC-3020D)

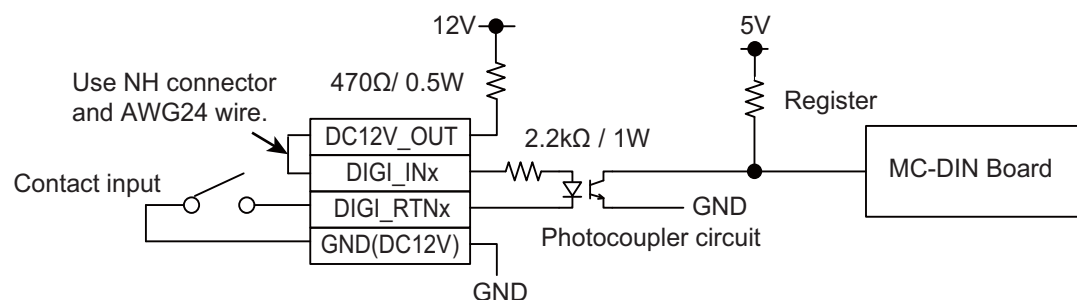
Use the connectors J3 to J6 to set the ACK input for ACK1 to ACK8 as shown below.

Note: The input must not exceed the range of the input voltage, to prevent malfunction.

- Setting for voltage input: 21.6V to 31.2V
- Setting for contact input: Voltage cannot be input (contact signal only).
- Input circuit for voltage input



- Input circuit for contact input



Connector J3

Pin #	Signal name	In/Out	Remarks	ACK1 contact	ACK1 voltage	ACK2 contact	ACK2 voltage
1	DC12V_OUT	Out	ACK1 In	Pin #1-#2: short	No connection	Depending on ACK1 input	
2	DIGI_IN1	In			MPYC-12		
3	DIGI_RTN1	Out		MPYC-12	No connection		
4	GND (DC12V)	In					
5	DC12V_OUT	Out	ACK2 In	Depending on ACK2 input		Pin #1-#2: short	No connection
6	DIGI_IN2	In				MPYC-12	
7	DIGI_RTN2	Out				NO connection	
8	GND (DC12V)	In					

Connector J4

Pin #	Signal name	In/Out	Remarks	ACK1 contact	ACK1 voltage	ACK2 contact	ACK2 voltage	
1	DC12V_OUT	Out	ACK3 In	Pin #1-#2: short	No connection	Depending on ACK3 input		
2	DIGI_IN3	In			MPYC-12			MPYC-12
3	DIGI_RTN3	Out		MPYC-12				No connection
4	GND (DC12V)	In						
5	DC12V_OUT	Out	ACK4 In	Depending on ACK4 input		Pin #1-#2: short	No connection	
6	DIGI_IN4	In				MPYC-12	MPYC-12	
7	DIGI_RTN4	Out					No connection	
8	GND (DC12V)	In						No connection

Connector J5

Pin #	Signal name	In/Out	Remarks	ACK1 contact	ACK voltage	ACK2 contact	ACK2 voltage
1	DC12V_OUT	Out	ACK5 In	Pin #1-#2: short	No connection	Depending on ACK5 input	
2	DIGI_IN5	In			MPYC-12		
3	DIGI_RTN5	Out		MPYC-12			
4	GND (DC12V)	In					
5	DC12V_OUT	Out	ACK6 In	Depending on ACK6 input		Pin #1-#2: short	No connection
6	DIGI_IN6	In					MPYC-12
7	DIGI_RTN6	Out				MPYC-12	
8	GND (DC12V)	In					NO connection

2. WIRING

Connector J6

Pin #	Signal name	In/Out	Remarks	ACK7 contact	ACK7 voltage	ACK8 contact	ACK8 voltage
1	DC12V_OUT	Out	ACK7 In	Pin #1-#2: short	No connection	Depending on ACK8 input	
2	DIGI_IN7	In			MPYC-12		
3	DIGI_RTN7	Out		MPYC-12			
4	GND (DC12V)	In					
5	DC12V_OUT	Out	ACK8 In	Depending on ACK8 input		Pin #1-#2: short	No connection
6	DIGI_IN8	In					MPYC-12
7	DIGI_RTN8	Out				MPYC-12	NO connection
8	GND (DC12V)	In					

How to set alarm output (MC-3030D)

Use the connector J3 to J6 on the MC_OUT Board (24P0117) to select NC (normal close) or NO (normal open) for alarm output 1 to 8.

Connector J3

Pin #	Signal name	In/ Out	Remarks	Alarm1 NO Out	Alarm1 NC Out	Alarm2 NO Out	Alarm2 NC Out	
1	A1	Out	Alarm1 Out	MPYC-12	No connection	-		
2	COM1			No connection	MPYC-12			
3	B1							
4	A2		Alarm2 Out	-			MPYC-12	No connection
5	COM2						No connection	MPYC-12
6	B2							

Connector J4

Pin #	Signal name	In/ Out	Remarks	Alarm3 NO Out	Alarm3 NC Out	Alarm4 NO Out	Alarm4 NC Out	
1	A3	Out	Alarm3 Out	MPYC-12	No connection	-		
2	COM3				MPYC-12			
3	B3			No connection				
4	A4		Alarm4 Out	-			MPYC-12	No connection
5	COM4						MPYC-12	
6	B4						No connection	

Connector J5

Pin #	Signal name	In/ Out	Remarks	Alarm5 NO Out	Alarm5 NC Out	Alarm6 NO Out	Alarm6 NC Out	
1	A5	Out	Alarm5 Out	MPYC-12	No connection	-		
2	COM5				MPYC-12			
3	B5			No connection				
4	A6		Alarm5 Out	-			MPYC-12	No connection
5	COM6						MPYC-12	
6	B6						No connection	

Connector J6

Pin #	Signal name	In/ Out	Remarks	Alarm7 NO Out	Alarm7 NC Out	Alarm8 NO Out	Alarm8 NC Out
1	A7	Out	Alarm7 Out	MPYC-12	No connection	-	
2	COM7				MPYC-12		
3	B7			No connection			
4	A8	Out	Alarm8 Out	-		MPYC-12	No connection
5	COM8						MPYC-12
6	B8					No connection	

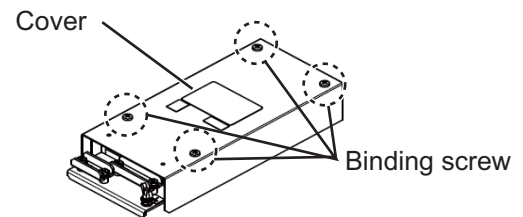
Case gasket OP24-29

The optional kit OP24-29 protects the connectors on the MC-3010A/3020D/3030D to waterproofing standard IPX2.

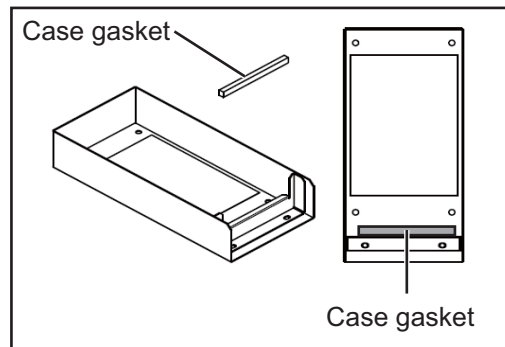
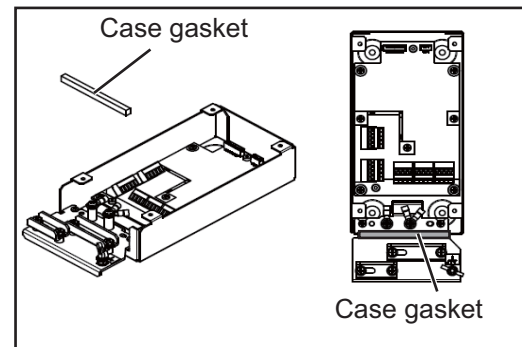
Case packing (type: OP24-29, code no.: 001-169-960)

Name	Type	Code No.	Qty	Remarks
Case gasket (analog)	24-014-2052-1	100-367-961-10	2	MC-3010A/3020D/3030D

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



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.

Cover (reverse side)Chassis

3. Attach the cover to the MC-3010A/3020D/3030D chassis.