



This User Handbook describes how to install and operate the FAP-FU2000 follow-up remote controller for the FURUNO autopilot. For details of the autopilot, see the Operator's Manual and Installation Manual of the autopilot.

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# SAFETY INSTRUCTIONS

Follow the safety instructions listed below and throughout this manual to prevent damage to your equipment or vessel and to prevent harm to the operator or other personnel on-board. The results of failing to follow the instructions and guidelines outlined herein are listed below.

 <b>WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

 Warning, Caution	 Prohibitive Action	 Mandatory Action
--	--	--

 <b>WARNING</b>	
	<b>Do not open the equipment.</b> Only qualified technician should work inside the equipment. There are no servicable or replacable parts inside the equipment.
	<b>Do not disassemble or modify the equipment.</b> Fire or electrical shock can result if the equipment is modified.
	<b>Do not operate the equipment with wet hands.</b> Electrical shock can result.
	<b>Do not hold the lever on the FAP-FU2000 to support your body.</b> The damage to unit or injury can result.
	<b>Make sure no rain or water splash leaks into the equipment.</b> Fire or electrical shock can result if water leaks into the equipment.
	<b>Immediately turn off the power at the switchboard if water leaks into the equipment.</b> Continued use of the equipment can cause fire or electrical shock.
	<b>Turn off the power at the switchboard before beginning the installation.</b> Turn off the power to prevent electrical shock.
	<b>Make sure the installation site is not subject to water spray.</b> Fire or electrical shock can result if water leaks into the equipment.

 <b>CAUTION</b>							
	<b>Do not use high-pressure cleaners to clean this equipment.</b> This equipment has the waterproof rating of IPx6 (front)/IPx5 (rear). However, the use of high-pressure cleaning equipment can cause water ingress, resulting in damage to, or failure of, the equipment.						
	<b>Be careful for the lever position when you switch control rights during the RC FU mode.</b> If the lever position of the remote controller differ significantly after switching control rights, the order rudder angle may change suddenly.						
	<b>Observe the following compass safe distances to prevent interference to a magnetic compass:</b>						
	<table border="1"> <thead> <tr> <th></th> <th>Standard Compass</th> <th>Steering Compass</th> </tr> </thead> <tbody> <tr> <td>FAP-FU2000</td> <td>0.30 m</td> <td>0.30 m</td> </tr> </tbody> </table>		Standard Compass	Steering Compass	FAP-FU2000	0.30 m	0.30 m
	Standard Compass	Steering Compass					
FAP-FU2000	0.30 m	0.30 m					

**About the TFT LCD**

The TFT LCD is constructed using the latest LCD techniques, and displays 99.99% of its pixels. The remaining 0.01% of the pixels may drop out or are constantly lit. Additionally, the LCD has a limited viewing angle and may flicker. However, these are not indications of malfunction.

# 1 INSTALLATION

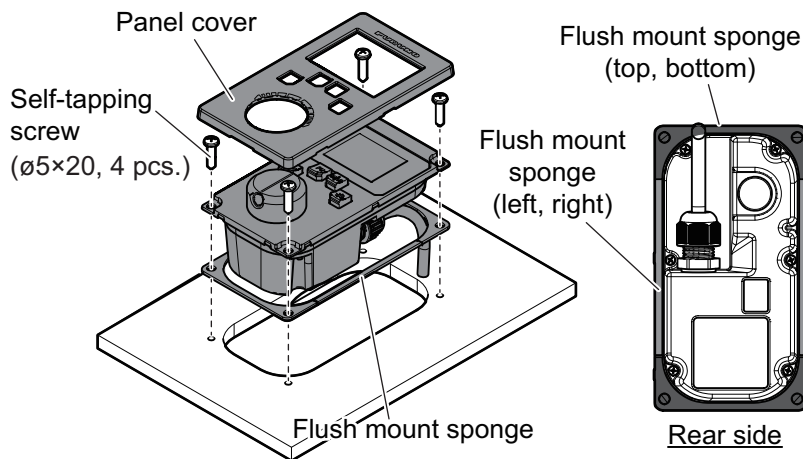
## 1.1 Mounting

### Installation considerations

When installing the unit, keep the following points in consideration:

- Select a well-ventilated location.
- Select a location with minimal vibrations and shock.
- Keep the unit away from heat sources.
- Observe the compass safe distances.  
(Standard: 0.30 m, Steering: 0.30 m)
- Select a location with a smooth surface.
- Keep cable lengths in mind when selecting the mounting location.
- Referring to the outline drawing at the back of the handbook, leave sufficient space for service and maintenance.

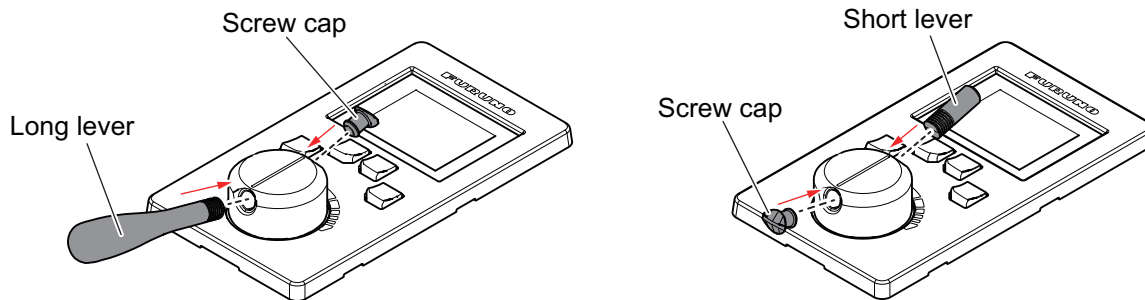
1. Make a mounting hole and drill four pilot holes in the mounting location, using the supplied mounting template.
2. Attach the supplied flush mount sponges to the rear of the unit.
3. Set the unit into the mounting hole and secure the unit using the four supplied self-tapping screws ( $\varnothing 5 \times 20$ ).
4. Attach the panel cover.



Category of units: Exposed to the weather

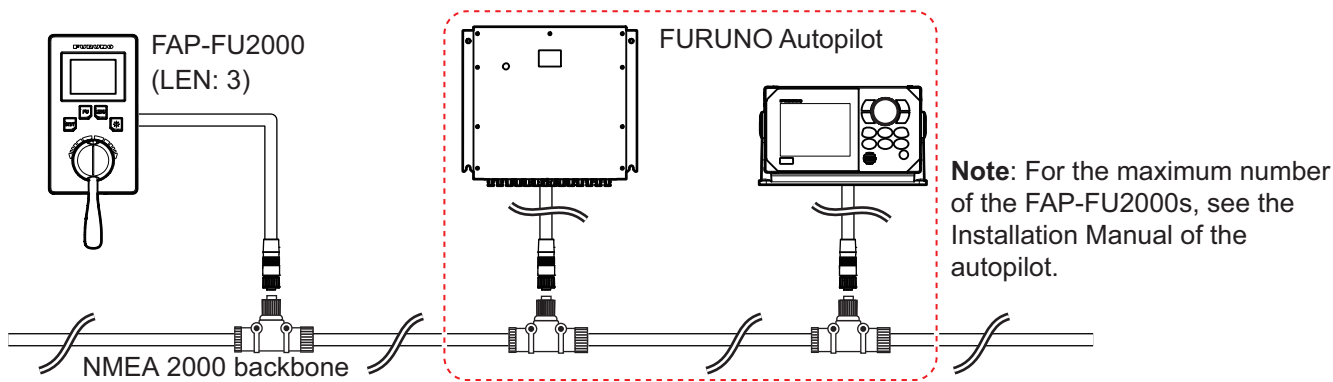
## 1.2 Knob Lever

The long and short levers are supplied with the FAP-FU2000. Screw an appropriate lever to the **Course control** knob and attach the screw cap on the screw hole opposite the lever.



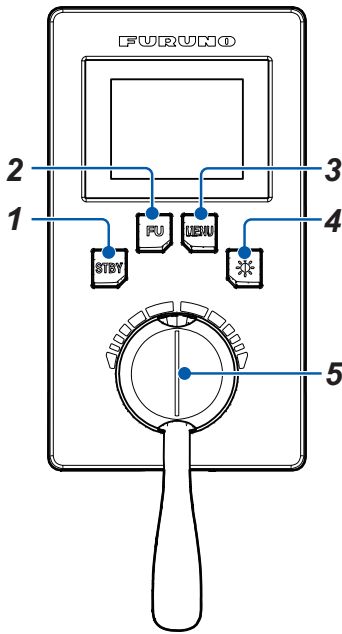
## 1.3 Wiring

Connect the FAP-FU2000 to the FURUNO autopilot via a NMEA 2000 network. Connect the drop cable on this unit to the NMEA 2000 backbone.



## 2 OPERATION OVERVIEW

### 2.1 Key Controls



No.	Name	Description
1	STBY key	Deactivates the current steering mode and puts the NAVpilot into the STBY mode.
2	FU key	Activates the RC-FU mode.
3	MENU key	<b>Short press:</b> Opens the quick menu. <b>Long press:</b> Opens the [Local Settings] menu (STBY mode only). While pressing the key, the countdown window appears until the menu opens.
4	BRILL key	<b>Short press:</b> Opens the screen and key brightness settings window. <b>Long press:</b> Switches the unit to the sleep mode. While pressing the key, the countdown window appears until the sleep mode is enabled.
5	Course control knob	<b>AUTO mode:</b> Adjusts the course setting. <b>RC FU mode:</b> Adjusts the order rudder angle.

### 2.2 How to Turn Power On, Off

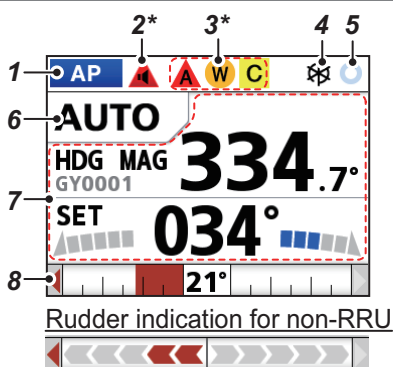
The power for the FAP-FU2000 is supplied from the NMEA 2000 network. When the power for the NMEA 2000 network is turned on, the FAP-FU2000 is automatically turned on.

When the FAP-FU2000 is powered, the startup screen appears for a short period of time, then startup test is performed. If the test results are all successful, the FAP-FU2000 starts the communication with the autopilot, then the main screen appears.

**Note:** If an error message shown in the table below appears and you cannot restore normal operation, contact your dealer.

Error Message	Meaning/Remedy
Remote controller has failed the startup test. Contact your local dealer.	ROM or RAM error may occur. Ask your dealer to check the unit.
Backup data is corrupt or lost. Factory defaults will be restored. Press any key.	Previously saved backup data is either lost or corrupted and cannot be used. Factory default settings will be used to startup the unit. User settings must be re-entered.
Communication with Autopilot has failed. Check connections. Press any key.	The autopilot may be turned off or disconnected. Check the power is supplied to the autopilot, then check the NMEA 2000 network connections. If error is not rectified, contact your dealer.

### 2.3 Display Overview



1 Display mode icon: Shows the current display mode.

AP : Non-IMO type HCS : IMO type  
--- : Not connected to the autopilot

2\* Alert icon: Shows the current alert status of the autopilot.

3\* Background alert icon: Shows the alert priority icon (A: alarm, W: warning, C: caution) of alerts, other than the highest priority alert.

4 Control icon: Indicates this unit has the control right of the autopilot.

5 Working indicator: Spins clockwise if the system is working properly.

6 Steering mode: Shows the current steering mode.

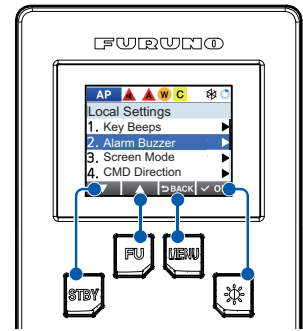
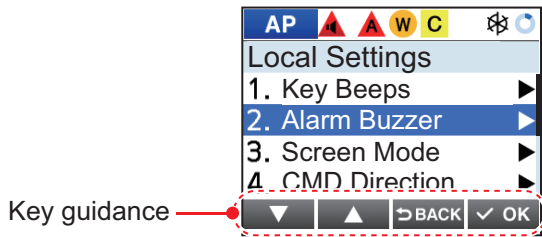
7 Steering mode data: Data shown in this area depends on the current steering mode.

8 Rudder indicator: Shows the rudder angle, order rudder angle\*\*, and steering direction. Red-cored segments indicate rudder to port, green segments indicate rudder to starboard.

\*: Not shown for the IMO mode. \*\*: Shown in the FU mode and when the RRU is not installed.

## 2.4 Software Key

When the menu is opened or a message window is shown, the key guidance appears at the bottom of the screen and it indicates the operative function for the key.



## 2.5 How to Adjust the Screen Brilliance and Panel Dimmer

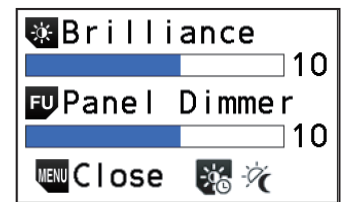
To adjust the screen brilliance and panel dimmer, press the **BRILL** key to show the brilliance setting window.

**Screen brilliance:** Pressing the **BRILL** key repeatedly cycles through the brilliance levels (default: 8).

**Panel dimmer (key panel backlights):** Pressing the **FU** key repeatedly cycles through the brilliance levels (default: 8).

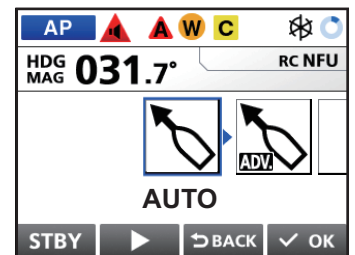
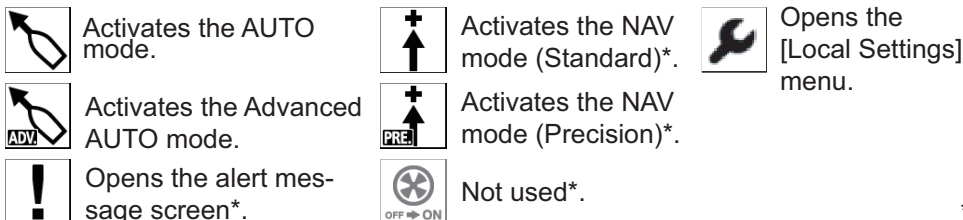
**Note:** You can switch between Day and Night modes by pressing and holding the **BRILL** key.

After adjusting the brilliance, press the **MENU** key to close the window. When there is no operation for a while, the window is automatically closed.



## 2.6 Quick Menu

You can select the steering mode, or open the alert message screen from the quick menu. Press the **MENU** key to show the quick menu. Press the **FU** key to select the quick menu icon, then press the **BRILL** key.



\*: Not shown for the IMO mode.

## 2.7 Sleep Mode

The sleep mode is a low-power mode. When the FAP-FU2000 is in sleep mode, the LCD is turned off. To enable the sleep mode, do one of the following.

### Key operation

Press and hold the **BRILL** key for three seconds. While pressing the key, the countdown window appears until the sleep mode is enabled. To disable the sleep mode and to turn the LCD on, press the **BRILL** key.

Sleep mode in  
3sec.

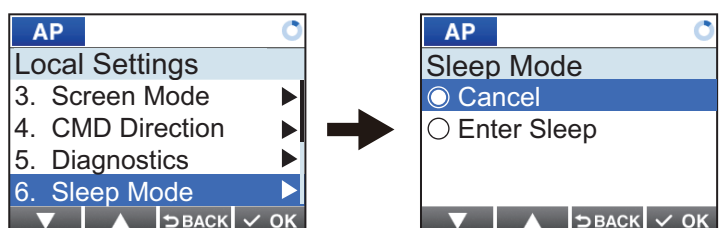
### Menu operation

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [6. Sleep Mode].
3. Select [Enter Sleep].

The sleep mode is enabled, and the LCD is turned off. To disable the sleep mode and to turn the LCD on, press the **BRILL** key.



## 2.8 Day/Night Mode

You can change the color scheme used in the FAP-FU2000 to suit your viewing condition and requirements. To change the color scheme, do the following:

### Operation from the brilliance setting window

1. Press the **BRILL** key to show the brilliance setting window.
2. Press and hold the **BRILL** key until the color scheme is changed.

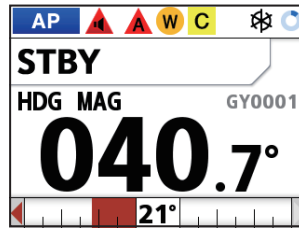
### Menu operation

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

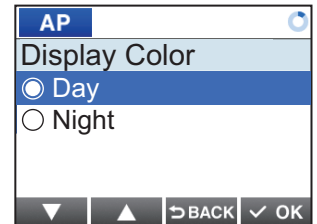
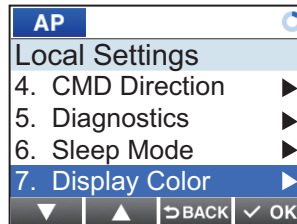
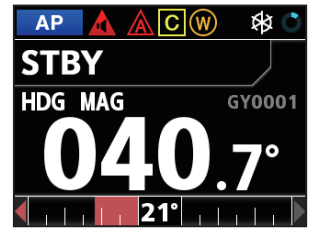
**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [7. Display Color].
3. Select [Day] or [Night].
4. Close the menu.

■ Example: Day mode



■ Example: Night mode

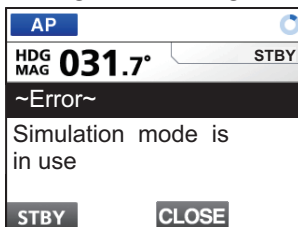


## 2.9 Message Screen

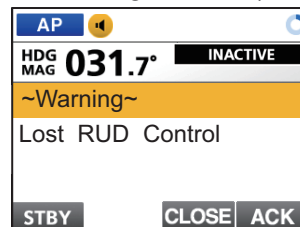
When the steering mode changes to error, or when an alert occurs, audible alarm is generated and the message screen automatically appears. Check the message on the screen. You can also open the alert message screen from the quick menu.

**Note:** This unit shows error and alert messages generated on the autopilot. For details about each message, see the Operator's Manual of the autopilot.

■ Ex. Steering mode changed to error



■ Ex. Alert message screen (Non-IMO mode only)

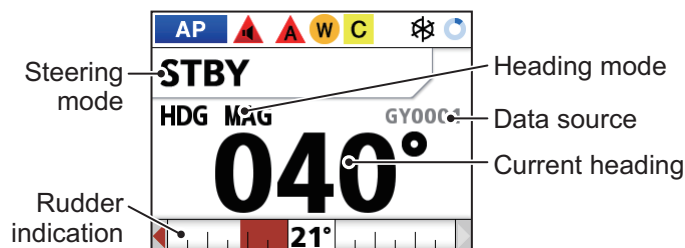


When no active alert exists, "No Active Alert" is shown.

# 3 STEERING MODE

## 3.1 STBY Mode (Manual Steering)

After turning on the power, this unit goes to the STBY (standby) mode. This is the manual steering mode. When sailing into or out of a harbor, you can steer the vessel while in the STBY mode, by using the helm (steering wheel) of your boat.

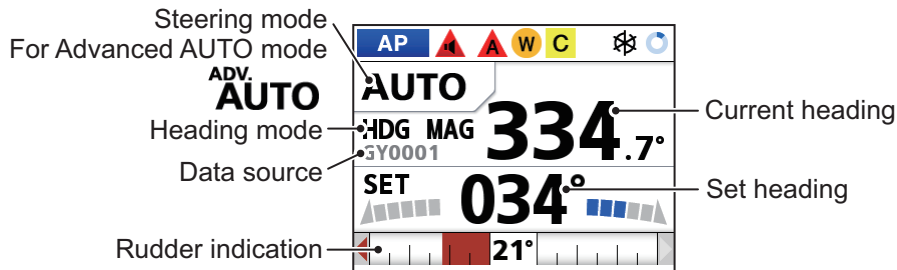


### 3.2 AUTO/Advanced AUTO Mode

The AUTO/Advanced AUTO mode steers the boat automatically on a course set by the operator.

- AUTO mode: This mode does not compensate for the effects of tide and wind. Use this mode for short, straight voyages.
- Advanced AUTO mode: If either tide or wind begins to push you off course, the autopilot corrects your heading accordingly.

To get the AUTO or Advanced AUTO mode, press the **MENU** key to show the quick menu, then select the AUTO or Advanced AUTO icon.



To change the course setting in the AUTO/Advanced AUTO mode, operate the **Course control** knob.

To exit the AUTO/Advanced AUTO mode to steer manually, press the **STBY** key.

### 3.3 NAV Mode (Non-IMO type only)

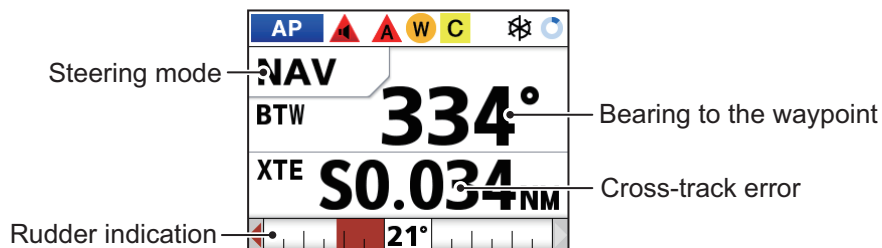
The autopilot steers the vessel towards the current waypoint while compensating the effects tide and wind.

When connected to a GPS navigator, chart plotter, or FURUNO FMD-series ECDIS, the autopilot steers the vessel to follow a series of waypoints in sequence. When you arrive at each waypoint or destination, audible and visual alerts are activated.

To activate the NAV mode, follow the procedure shown below.

1. Set the destination waypoint (or route) on the GPS navigator, chart plotter, or FURUNO FMD-series ECDIS.
2. Manually steer the boat toward the waypoint.
3. Press the **MENU** key to show the quick menu, then select the NAV or Precision NAV icon.

Precision NAV mode provides for tighter course keeping than the standard NAV mode.



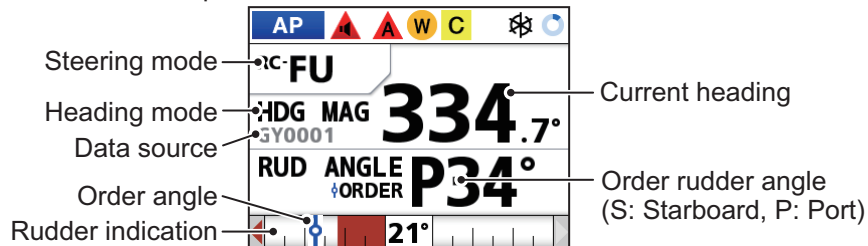
To exit the NAV mode to steer manually, press the **STBY** key.

### 3.4 RC FU Mode

The autopilot steers to the rudder angle specified by the **Course control** knob on this unit.

To activate the RC FU mode, press the **FU** key. The RC FU mode is available in the STBY, AUTO, or NAV mode.

**Note:** When the **FU** key is pressed during the DISENGAGED mode, the error message “ERROR: Mode Shift Rejection” appears and the you cannot activate the RC FU mode. For details about the DISENGAGED mode, see the Operator’s Manual of the autopilot.



Operate the **Course control** knob to set the order rudder angle.

To disable the RC FU mode, press the **FU** key. To disable the RC FU mode to steer manually, press the **STBY** key.

- IMO type operation

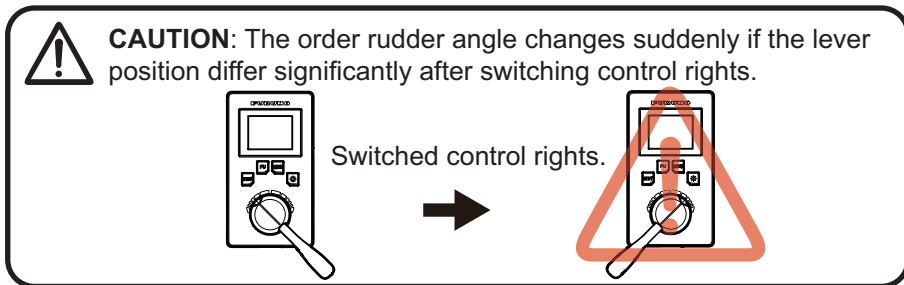
When the RC FU mode is disabled by the **FU** key, the autopilot goes to the AUTO mode.

- Non-IMO type operation:

- RC FU mode activation in the STBY mode: When the RC FU mode is disabled by the **FU** key, the autopilot goes to the STBY mode.
- RC FU mode activation in the AUTO or NAV mode: When the RC FU mode is disabled by the **FU** key, the autopilot goes to the AUTO mode.

#### Control rights

If the multiple FU type remote controllers are connected, only the last activated remote controller has control rights, and operation with other remote controllers is invalid. The control icon that has the control rights is shown at the top right corner on the screen of the FAP-FU2000.



## 4 MENU OPERATION

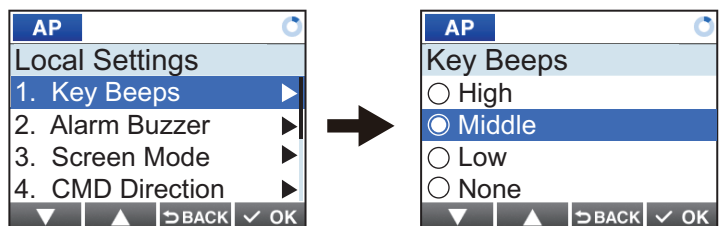
### 4.1 How to Adjust the Key Beep Volume

When a key is pressed, the remote controller can release a beep sound. To adjust the key beep volume, do as follows.

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [1. Key Beeps].
3. Select [High], [Middle], [Low], or [None]. To turn the key beep off, select [None].
4. Close the menu.



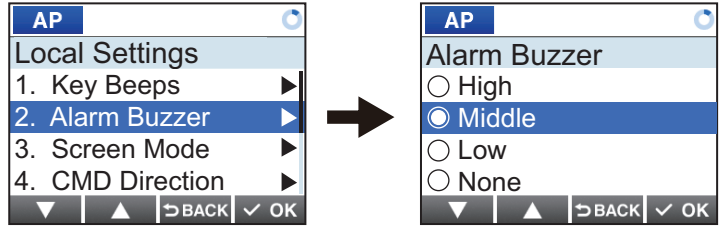
## 4.2 How to Adjust the Buzzer Volume (Non-IMO type only)

To adjust the buzzer volume, do as follows.

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

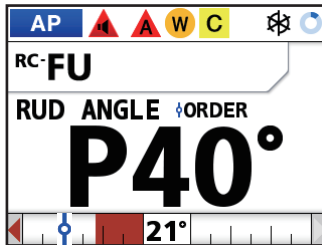
2. Select [2. Alarm Buzzer].
3. Select [High], [Middle], [Low], or [None].  
To turn the buzzer off, select [None].
4. Close the menu.



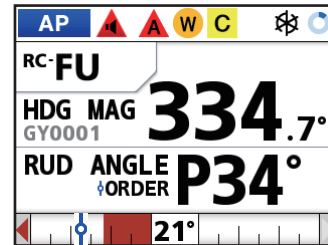
## 4.3 How to Change the Screen Mode (Non-IMO type only)

The FAP-FU2000 main screen can display the navigation data in a single row or two rows. To change the screen mode, do as follows.

■ Display example: [Screen Mode] = [Simple]



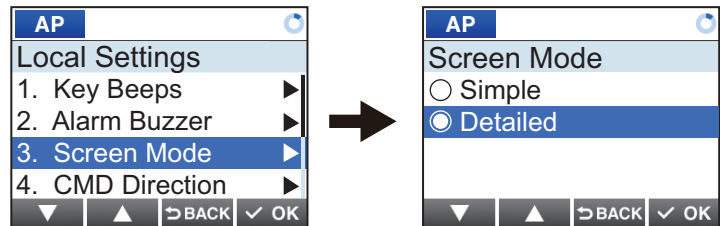
■ Display example: [Screen Mode] = [Detailed]



1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [3. Screen Mode].
3. Select [Simple] or [Detailed].
4. Close the menu.



## 4.4 How to Change the Direction of the Knob Command

You can change the direction of the knob command.

- [Normal]: Rotating the knob clockwise changes the order rudder angle or set course to starboard direction. Rotating the knob counterclockwise changes to port direction.
- [Invert]: Rotating the knob clockwise changes the order rudder angle or set course to port direction. Rotating the knob counterclockwise changes to starboard direction.

**Note:** For the IMO mode, set [CMD Direction] as follows depending on the lever type.

- Short lever: [Normal]
- Long lever: [Invert]

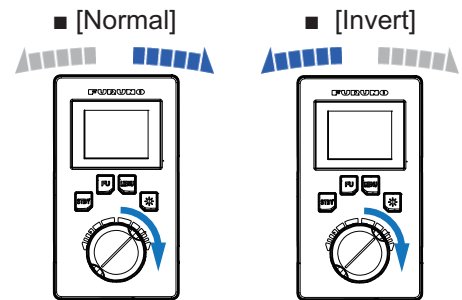
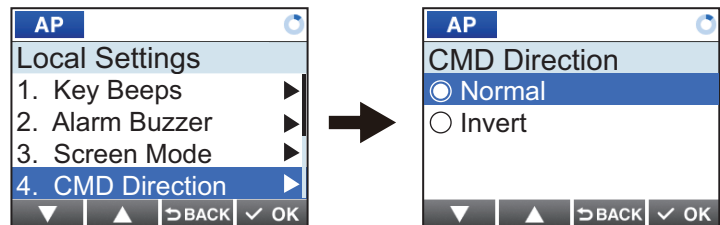
The ISO 11674 standard requires that the direction of lever rotation must correspond to the direction of the set heading/rudder angle.

Do as follows to change the direction of the knob command.

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [4. CMD Direction].
3. Select [Normal] or [Invert].
4. Close the menu.



## 4.5 How to Perform the Self Test

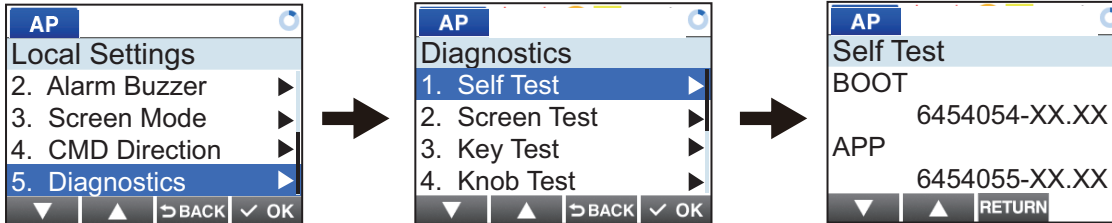
The self test checks for correct operation. To perform the test, do as follows.

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [5. Diagnostics].
3. Select [1. Self Test].

Test results appear on the screen.



4. To view the next page of the test results, press the **STBY** key. To go back to the previous page, press the **FU** key.
5. Press the **MENU** key to close the test results.

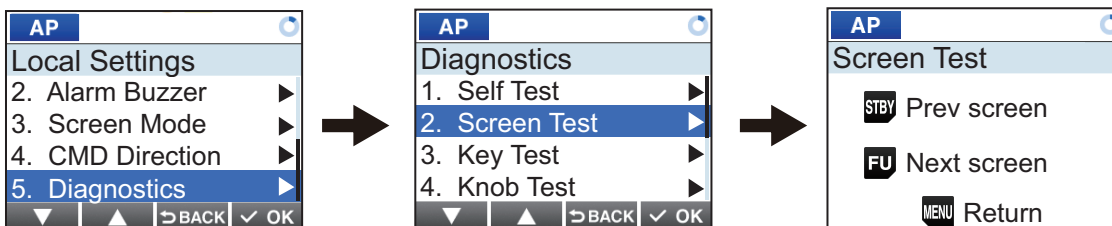
## 4.6 How to Perform the Screen Test

The screen test checks for correct presentation of color tones. To perform the test, do as follows.

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [5. Diagnostics].
3. Select [2. Screen Test].



4. Press the **FU** key to cycle through the screens in the following order. Press the **STBY** key to cycle through the screens in the reverse order.  
Test start screen → White → Black → Red → Green → Blue → Multi-Hue RGB → Checker board → Test start screen → White → ...
5. Press the **MENU** key to quit the screen test.

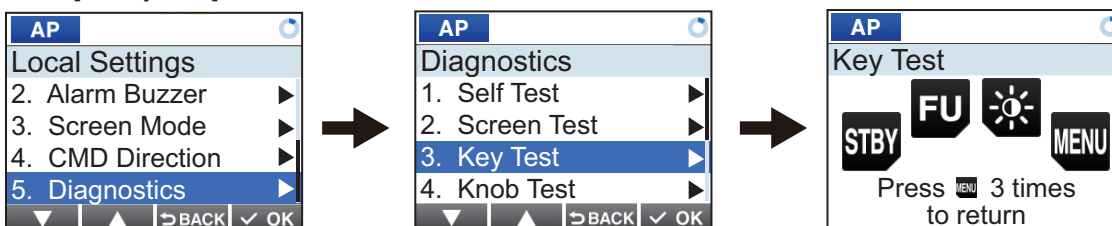
## 4.7 How to Perform the Key Test

The key test checks the key panel on the FAP-FU2000. To perform the test, do as follows.

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [5. Diagnostics].
3. Select [3. Key Test].



4. Press each key. The related on-screen location is shown in blue if the key is operating normally. **FU** ↔ **FU** (black) (blue)
5. Press the **MENU** key three times to quit the key test.

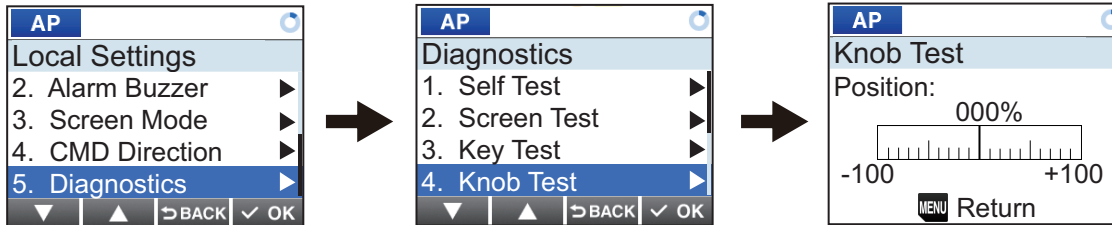
## 4.8 How to Perform the Knob Test

The knob test checks the **Course control** knob on the FAP-FU2000. To perform the test, do as follows.

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [5. Diagnostics].
3. Select [4. Knob Test].



4. Rotate the **Course control** knob. The gauge is shown in blue depending on the direction of the knob rotation and the value above the gauge increases/decreases with knob rotation.
5. Press the **MENU** key to quit the knob test.

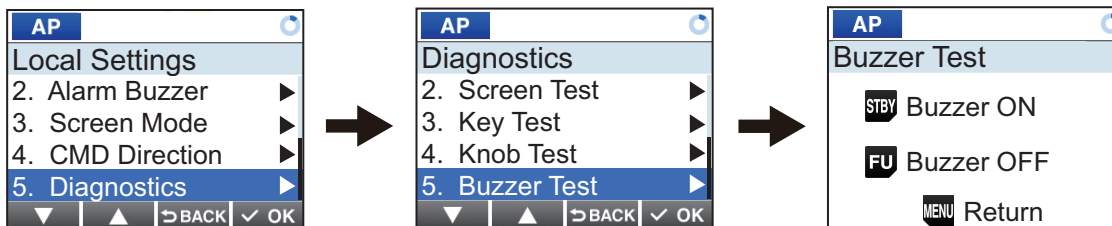
## 4.9 How to Perform the Buzzer Test

The buzzer test checks the buzzer sound. To perform the test, do as follows.

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [5. Diagnostics].
3. Select [5. Buzzer Test].



4. Press the **STBY** key to check the buzzer sound. To turn the buzzer off, press the **FU** key.
5. Press the **MENU** key to quit the buzzer test.

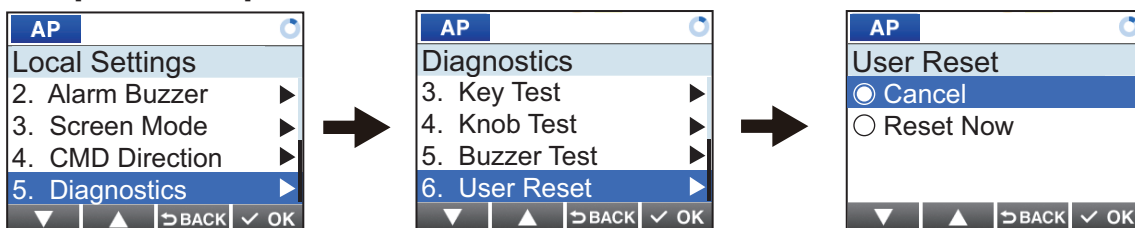
## 4.10 How to Restore Factory Default Settings

To restore the all [Local Settings] menu items to factory default settings, do as follows.

1. Press and hold the **MENU** key in the STBY mode until the [Local Settings] menu opens. While pressing the key, the countdown window appears.

**Note:** You can open the [Local Settings] menu from the quick menu. Press the **MENU** key, then select the [Local Settings] icon.

2. Select [5. Diagnostics].
3. Select [6. User Reset].



4. Select [Reset Now].  
The menu closes and all [Local Settings] menu items are restored to their factory default settings.

# 5 MENU TREE

Press and hold the **MENU** key

*Default settings shown in bold italic.*

- 1. Key Beeps (High, *Middle*, Low, None)
- 2. Alarm Buzzer\* (High, *Middle*, Low, None)
- 3. Screen Mode\* (Single, *Detailed*)
- 4. CMD Direction (*Normal*, Invert)
- 5. Diagnostics
  - 1. Self Test
  - 2. Screen Test
  - 3. Key Test
  - 4. Knob Test
  - 5. Buzzer Test
  - 6. User Reset (*Cancel*, Reset Now)
- 6. Sleep Mode (*Cancel*, Enter Sleep)
- 7. Display Color (*Day*, Night)

\*: Shown only for the non-IMO type.

Program No.

App: 6454055-01.xx

Boot: 6454054-01.xx

("xx" denotes minor version changes.)

## **SPECIFICATIONS OF FOLLOW-UP REMOTE CONTROLLER FAP-FU2000**

### **1 GENERAL**

1.1	Display	2-inch TFT color LCD
1.2	Resolution	320 x 240 (QVGA)
1.3	Pixel pitch	0.1275 mm
1.4	Visible distance	0.44 m
1.5	Remote control method	Lever type
1.6	Language	English (US/UK)

### **2 INTERFACE**

2.1	Number of port	
	NMEA2000	1 port
2.2	NMEA2000 PGNs	
	Input	059904, 060160/416/928, 061184, 065240, 126208/720, 130827
	Output	059392/904, 060928, 061184, 126208/464/720/993/996/998, 130822/823/827

### **3 POWER SUPPLY**

12-24 VDC (9-16V), LEN: 3

### **4 ENVIRONMENTAL CONDITIONS**

4.1	Ambient temperature	-25°C to +55°C (storage: -25°C to +70°C)
4.2	Relative humidity	93% or less at +40°C
4.3	Degree of protection	IPX6 (front), IPX5 (rear)
4.4	Vibration	IEC60945 Ed.4

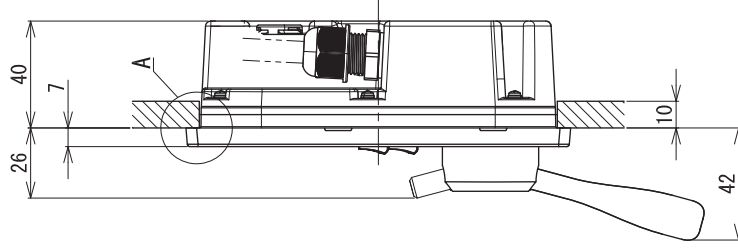
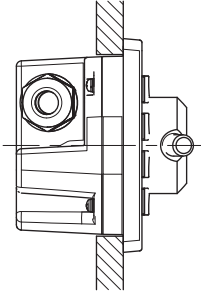
### **5 UNIT COLOR**

N1.0

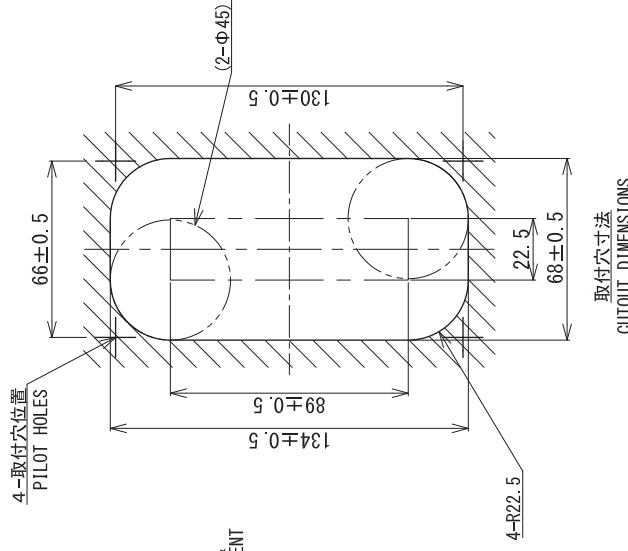
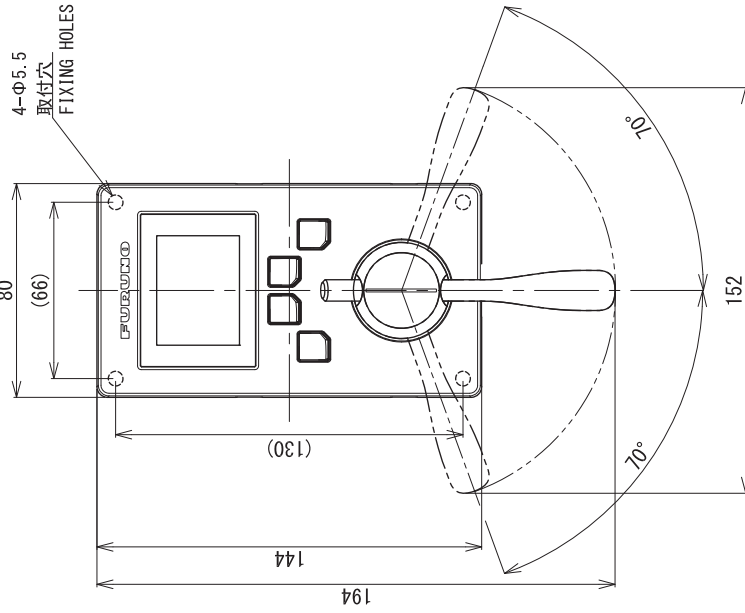
表 1 TABLE 1

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

フラッシュマウント用  
スポンジ  
FLUSH MOUNT SPONGE



A部 詳細 (尺度 1:1)  
DETAIL FOR A (SCALE 1:1)



取付穴寸法  
CUTOUT DIMENSIONS

信号ケーブル  
SIGNAL CABLE

通気孔  
AIR VENT

型式銘板  
NAMEPLATE

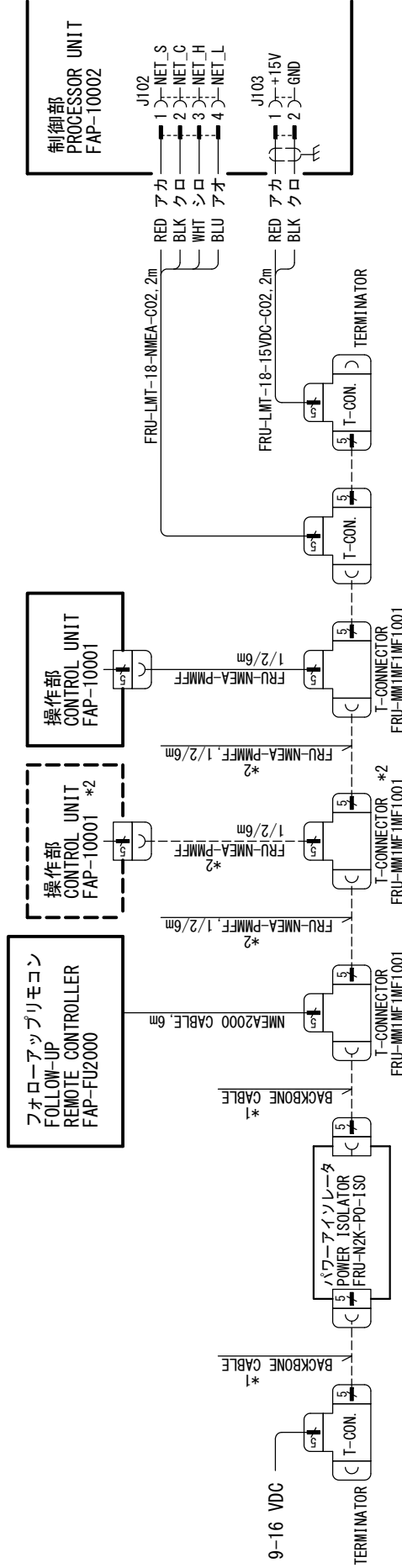
注 記

- 1) 指定外の寸法公差は表 1 による。
- 2) 取付用ネジはナベタッピンネジ呼び径 5 × 2.0 を使用のこと。

NOTE

1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. USE TAPPING SCREWS  $\phi 5 \times 2.0$  FOR FIXING THE UNIT.

DRAWN 26/Nov/2025 S. Han	TITLE FAP-FU2000
CHECKED 1/Dec/2025 A. Muraio	名称 フローアップリモコン
APPROVED 1/Dec/2025 A. Muraio	外寸図
SCALE D, 7.7 kg	質量は付属品 (化粧パネル等) を含みます。 MASS DOES NOT INCLUDE ACCESSORIES (PANEL COVER, etc).
DWG. No. C7289-604-A	REF. No. 64-035-2000-1
	OUTLINE DRAWING



注記

- \*1) 造船所手配。
- \*2) オプション。

NOTE

- \*1: SHIPYARD SUPPLY.
- \*2: OPTION.

DRAWN	19/Nov/2025	S. HAN	TYPE	FAP-FU2000
CHECKED	1/Dec/2025	A. Murao	名称	フォローアップリモコン
APPROVED	1/Dec/2025	A. Murao	相互結線図	
SCALE	MASS	kg	NAME	FOLLOW-UP REMOTE CONTROLLER
DWG. No.	C7289-C02-A		INTERCONNECTION DIAGRAM	

 FURUNO ELECTRIC CO., LTD.

