



Model: **MCU004**  
**New Remote Control Unit**

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The **MCU-004** is a new remote control unit for use with **NavNet TZtouch** (Models: **TZT9/14/BB**) and **TZtouch2** (Models: **TZTL12F/15F**). The MCU004 Features a large rotary knob with joystick. This new remote controller offers the expandability of a hardware key operation in addition to the multi touch operation of the TZT9/14/BB and TZTL12F/15F. This document describes the basic information, specifications, operations, and installation of the MCU-004.



Model: MCU-004



Screen Image from TZTL12F

# 1. Specifications

## 1-1 Comprising

The **MCU-004** comes with the following.

Name	Type	Qty
Remote control unit	MCU-004	1
Self-tapping screw	4x16 SUS 304	4
Screw cap	19-032-3508-3	4
Hard cover	19-032-3509-3	1
User's Guide (English)		1

## 1-2 Technical Specifications

Interface	USB2.0
Cable Length	3 m
Power	Consumption: 270 mA (max), power supply via USB port
Water Proof	Front : IP56 Rear : IP22
Operating Temperature	-15 to +55
Relative Humidity	93% or less at 40 (without internal fogging)
Mounting	Flush mount from the front side (See <b>Section 4-2</b> )

## 2. Operation – User Interface

### 2-1 Getting Started – NavNet TZtouch/2


The MCU-004 requires the following software versions.

TZT9/14/BB version 5.0 or higher. Expected to be out early 2017

TZTL12F/15F version 3.01 or higher. Released May 2016

### 2-2 Keys and Functions – Basic Operation

The MCU-004 consists of **10 hardware keys** to control the TZT9/14/BB and TZTL12F/15F as described below.

MCU-004	No	Keys	Descriptions
	1	STBY / AUTO	Sets the NAVpilot-700 to STBY or AUTO modes
	2	HOME & BRILL	Short press to access the Home page Long press to open the Brilliance control box
	3	Switch Disp.	Switches an active display
	4	FUNC	Acts as Function Gesture
	5	CURS / SCRL	Switches the joystick functions between Cursor and Scroll
	6	CENTER	Sets the ship in the center of the screen
	7	Rotary Knob	Acts as rotating RotoKey™
	8	Joystick	Moves the cursor in 8 directions
	9	Edge	TZT9/14/BB: Same as pushing RotoKey™ key TZTL12F/15F: Activates edge-swipe functions
	10	CANCEL & MOB	Short press to cancel Long press to enter an MOB point

## Differences from MCU-002

The MCU-004 keys work almost the same as the MCU-002 except for the following unique keys and features.

No	MCU-004 – Overview	MCU-004 vs. MCU-002
1	A buzzer is built in.	
2	The <b>[Switch Disp.]</b> key switches an active display when there are multiple MFDs in the network.	
3	A big rotary knob offers a friendly operation similar to the RotoKey™ of TZT9/14/BB.	
4	<p>The <b>[Edge]</b> key works differently between TZT9/14/BB and TZTL12F/15F.</p> <p><b>TZT9/14/BB</b></p> <p>It works the same as the <b>[ENT]</b> key of MCU-002 such as showing RotoKey™ menus and selecting the RotoKey™ or contextual menus.</p> <p><b>TZTL12F/15F</b></p> <p>It activates the edge-swipe functions. Instead of swiping the screen from the top, bottom, right, or left edge, press the <b>[Edge]</b> key and move the joystick in the same direction as you edge-swipe with your finger.</p> <p><b>[Edge] + Joystick [Up]</b> : Layer</p> <p><b>[Edge] + Joystick [Down]</b> : Quick Access page</p> <p><b>[Edge] + Joystick [Right]</b> : Data Box</p> <p><b>[Edge] + Joystick [Left]</b> : Universal setting options</p>	

### (1) Buzzer

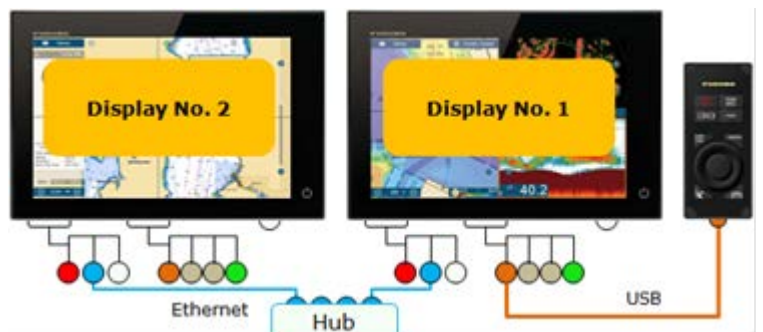
A buzzer is built in. When an alarm is generated on the display, the MCU-004 will emit the alarm as well.

### (2) Switch Disp.



The **[Switch Disp.]** key switches an active display when there are multiple MFDs in the network.

In the example at right, there are two (2) displays. The MCU-004 is connected to the Display No. 1. By default, the MCU-004 controls the Display No. 1. Pressing the **[Switch Disp.]** key, the MCU-004 can control the Display No. 2.



### (3) Large Rotary Knob & Joystick



The large rotary knob offers a friendly operation for zoom in/out similar to the RotoKey™ of TZT9/14/BB. The big joystick makes it easier to move the cursor. With the TZTL12F/15F v3.01, pushing the joystick selects the highlighted items in contextual menus, settings, Layer, etc.

### (4) Edge Key

The [Edge] key works differently between TZT9/14/BB and TZTL12F/15F.

#### TZT9/14/BB

It works the same as the [ENT] key of MCU-002 such as showing RotoKey™ menus and selecting the RotoKey™ or contextual menus.



#### TZTL12F/15F

(1) It activates the edge-swipe functions. Instead of swiping the screen from the top, bottom, right, or left edge, press the [Edge] key and move the joystick in the same direction as you edge-swipe with your finger.



(Sample Screen: Layer)

[Edge] + Joystick [Up] : Layer

[Edge] + Joystick [Down] : Quick Access page

[Edge] + Joystick [Right] : Data Box

[Edge] + Joystick [Left] : Universal setting options



(2) The [Edge] key also works to select the highlighted items in contextual menus, etc. like pushing the joystick.

#### Tip – TZTL12F/15F with MCU-002 for Edge Swipe



When the **MCU-002** is connected to the **TZTL12F/15F v3.01** or higher, the MCU-002 [ENT] key works the same as the MCU-004 [Edge] key. **Edge swipe** functions are accessible by pressing the MCU-002 [ENT] key and moving the joystick, up, down, left, or right.





## 2-3 Cross Cursor

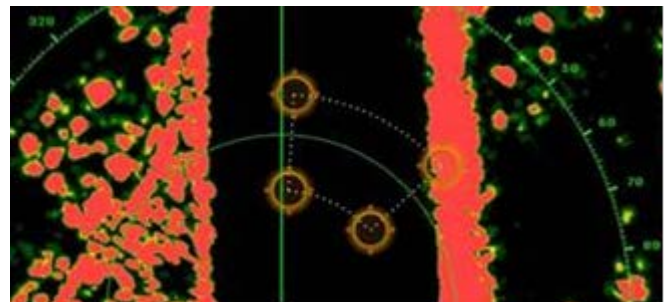
While the cursor is operated with the joystick, a cross cursor is shown on the screen.

Cursor Speed Adjustment	Cross Cursor on Screen
 <p>The cursor speed is adjustable in the menu.</p> <p>[Menu] (TZT9/14/BB) / [Settings] (TZTL12F/15F) – [General] – [Cross Cursor Speed]</p>	

## 2-4 General Limitations and Notes

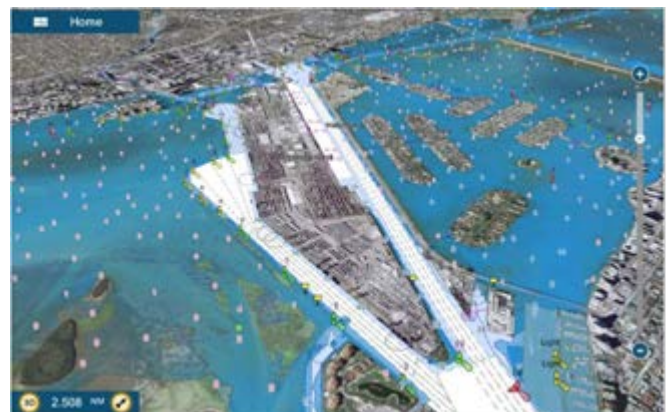
### (1) Limitation in Drag by Joystick

The joystick does not have a **“drag” function**. The guard zone setting of the Radar, which requires a “drag” function for adjustment, will not be available with the MCU-004 joystick. This operation should be made by touch operation (TZT1 or TZT2) or with a generic mouse/trackball unit (TZT1 only).



### (2) Limitation in 3D Mode – Pan/Tilt

You can turn the screen mode into the 3D mode by selecting [3D Mode] from the contextual menu. However, **you cannot pan/tilt the chart with the MCU-004** because sliding the screen with two fingers is the only way to pan/tilt it. The chart in 3D is always in the default angle as shown at right. Or if you have paned/tilted the chart with two fingers before, the screen will be in the previously set angle.



### (3) Note on Menu – Second Layer (TZT9/14/BB Only)

The first layer of the Menu can be scrolled using the RotoKey, but the second layer cannot. Press the arrow icons on the top and bottom of the layer be with the joystick to scroll the second layer.



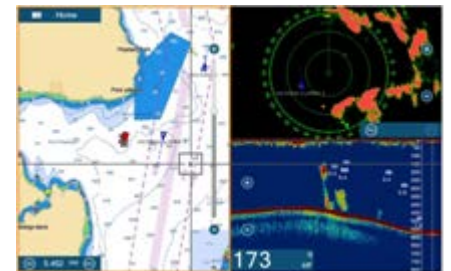
### (4) Note on Virtual Keyboard

To enter characters and numbers with a virtual keyboard, use the joystick: Place the cursor on a required key and push the joystick.



### (5) Note on Active Window

In the split screen mode, even if you place a cursor on a different screen, the window will not be active. Make sure to press any key, such as joystick, on the screen similar to how you tap the screen to activate it.



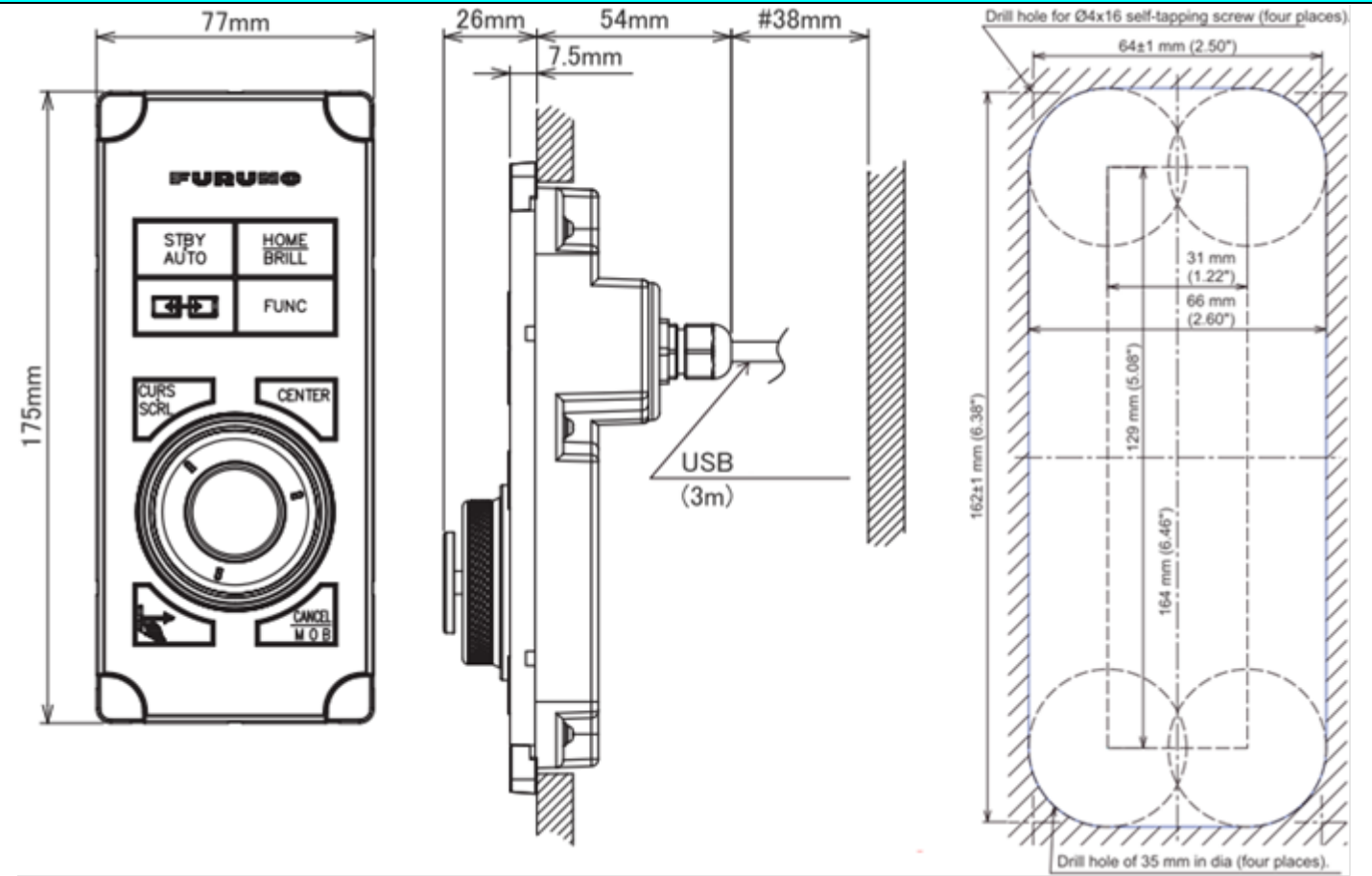
### (6) Note on Power On

It is not possible to turn on the display with the MCU-004. Make sure to press the power key of the TZT9/14/BB and TZTL12F/15F. However, the power can be turned off with the operation of **[HOME & BRILL]** key: Press **[HOME & BRILL]** key and select **[Power Off This Device]** or **[Power Off Network]** with the joystick or rotary knob.



# 3. Installing MCU-004

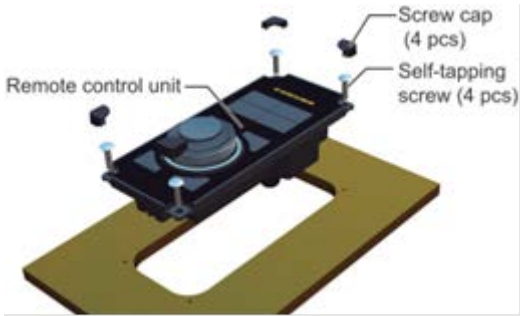
## 3-1 Dimensions



## 3-2 Flush Mounting

The MCU-004 can be **flush mounted** on a console from the **front side** as shown in the illustration at right.

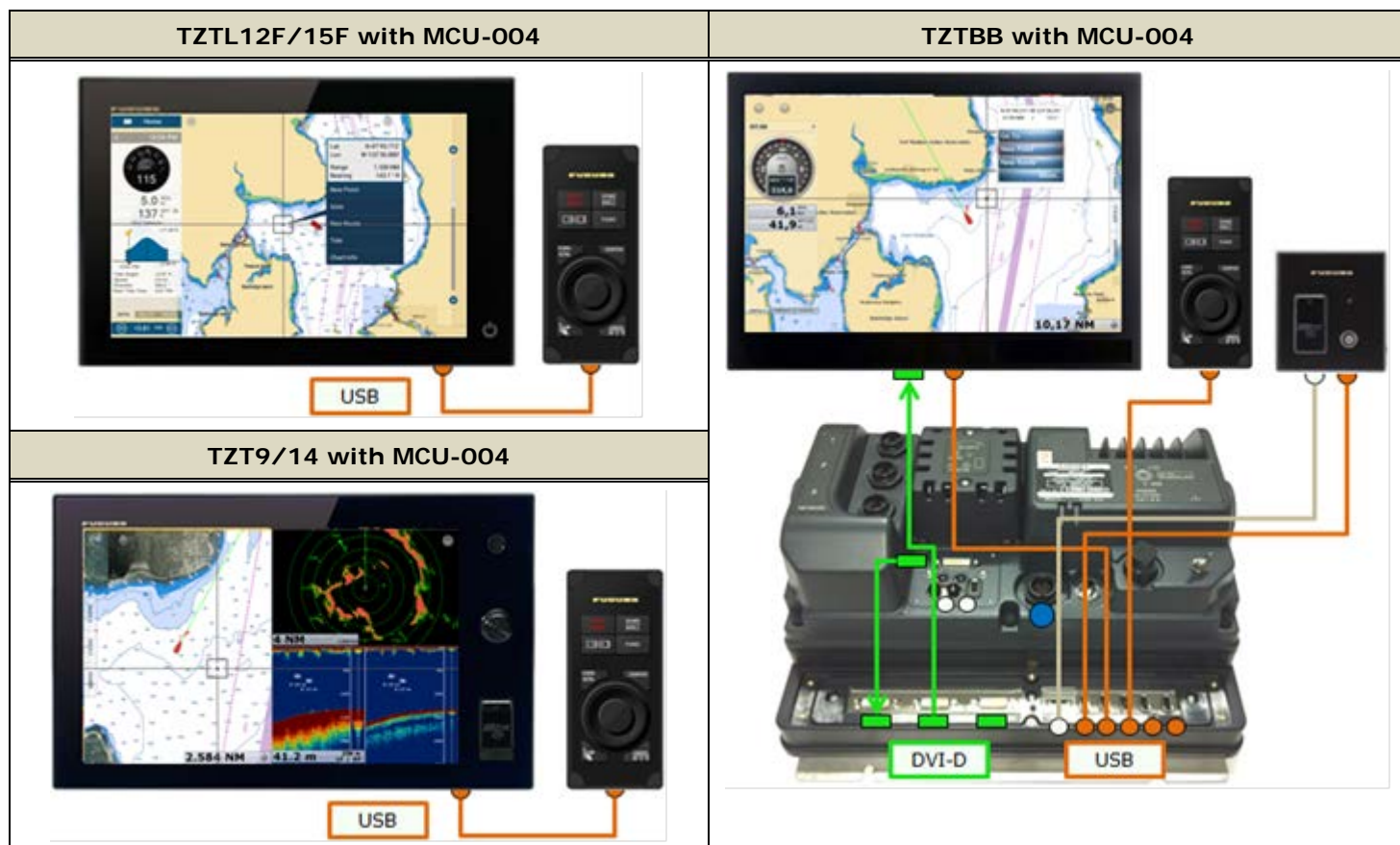
(Extracted from User's Guide)



## 3-3 Interconnection

The MCU-004 can be used with the TZT9/14/BB and TZTL12F/15F via a **USB** connection. Connect the MCU-004 to the USB port of the TZT9/14/BB and TZTL12F/15F as shown in the following examples.



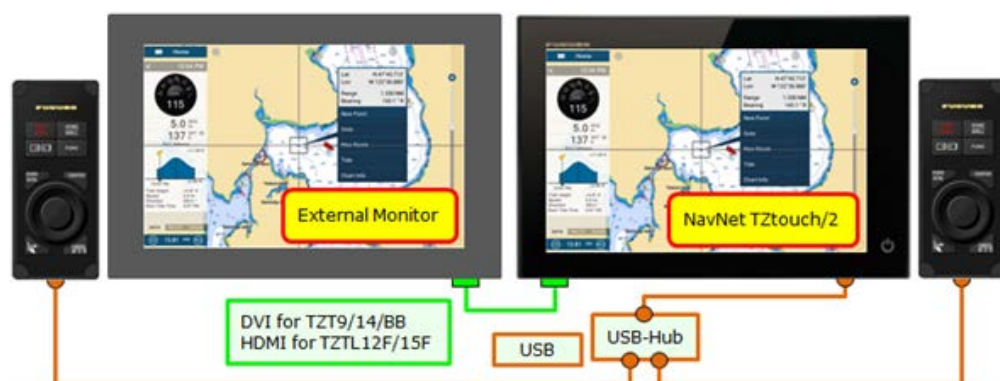


**Note:**

The maximum consumption current of this unit is 270 mA. To use a USB hub to connect multiple sets of MCU-004, select a USB hub considering its supply current.

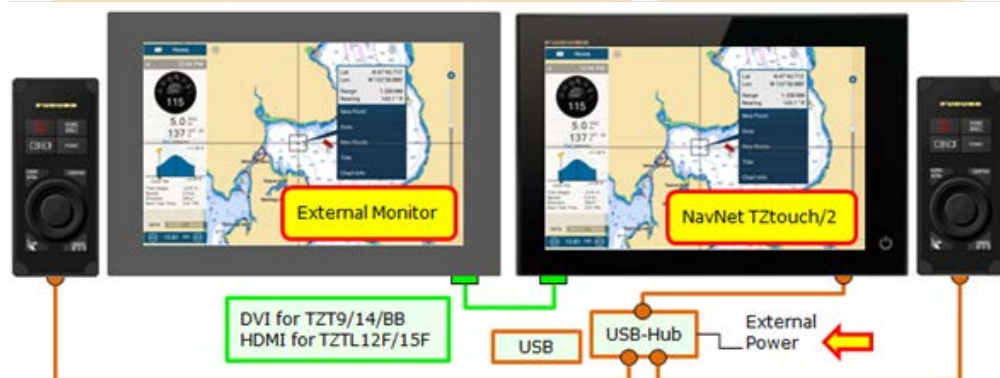
**Example 1**

A USB hub without external power supply may be used to connect multiple sets of MCU-004 when it has enough supply current for the connected units.



**Example 2**

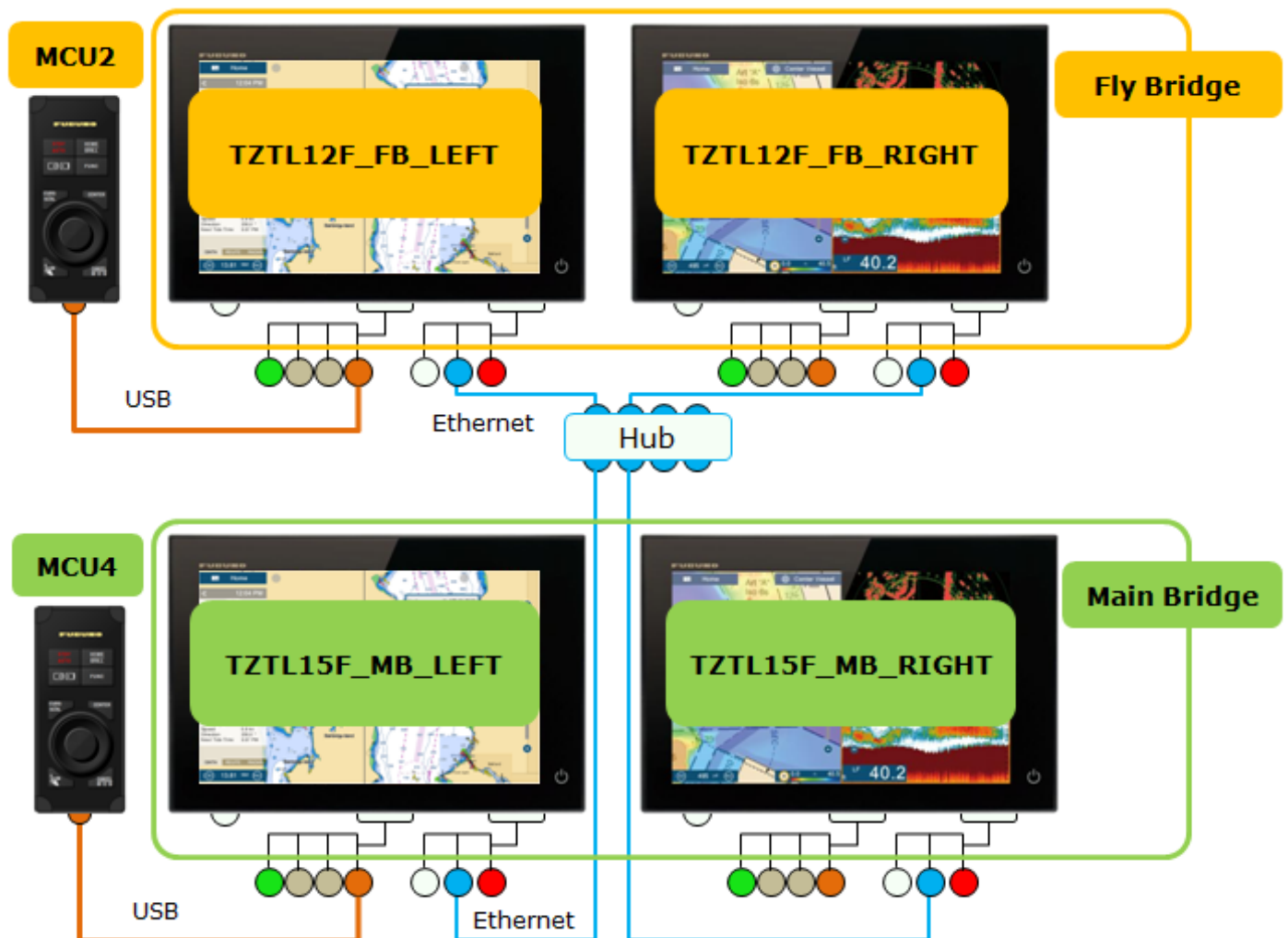
A USB hub with external power supply may be used to supply enough power to multiple sets of MCU-004.



## 4. Grouping MCU-004

With one (1) MCU-004 connected to one of the displays, the controllable display can be switched in the network. The TZTL12F/15F v4.01 or later has a function to set up a controllable group for the MCU-004. As an example, displays at the main bridge and fly bridge should be operated independently. In this case, displays should be separated in two (2) groups. This section describes how to group the controllable displays for the MCU-004.

In the following example, a total of four (4) sets of TZTL12F/15F displays are installed at the main and fly bridges and networked with each other. One each of MCU-004 is connected to the TZTL12F/15F at both bridges. The MCU-004 at the fly bridge will be set to control the displays at the fly bridge, while the MCU-004 at the main bridge will be set to control the displays at the main bridge.



## Preparation – Check in Advance

- (1) All the displays in the network are turned on.
- (2) All the MCU-004 units to be used are connected.
- (3) Unique nicknames are assigned to all the displays in order to identify the display location easily.

## Setting Procedures

- (1) Access [Settings] – [Initial Setup] – [**Remote Controller Configuration**].

With the MCU-004 detected, the [**Remote Controller Configuration**] setting will be available.

- (2) Select [**Remote Controller Configuration**] and see that the setup page shown at right appears.

- (3) Make settings referring to the table below.




No	Descriptions
1	[ <b>MCU Currently Used</b> ] represents the <b>MCU-004 that you are operating now</b> . The multiple MCU-004 units in the network will be assigned with unique numbers such as [ <b>MCU1</b> ], [ <b>MCU2</b> ], etc. In this example, [ <b>MCU2</b> ] is in use, but the indication will change as you operate a different MCU-004. When the MCU-004 is connected via a USB-hub, the numbering rule depends on the hub's specifications.
2	[ <b>MFD Currently Used</b> ] represents the <b>nickname of the own display that opens the [Remote Controller Configuration]</b> . In this example, this menu is opened on the [TZTL12F_FB_LEFT].
3	[ <b>MCU2 – TZTL12F_FB_LEFT</b> ] represents that the [ <b>MCU2</b> ] is <b>physically connected to the [TZTL12F_FB_LEFT]</b> .
4	With these setting options, the <u>controllable display(s) with the [MCU2]</u> , as well as the <u>switching order of active displays</u> can be set. You can see that all the nicknames of available displays in the network are listed. The numbers [ <b>1</b> ], [ <b>2</b> ]... represent the switching order of the active display when the [ <b>Switch Disp.</b> ] key is pressed. [ <b>Off</b> ] represents that the [MCU2] will <b>NOT</b> access the display(s). In this example, the [MCU2] is set to control two displays at the fly bridge, but no access to the other two displays at the main bridge. When the [ <b>Switch Disp.</b> ] key is pressed, the [MCU2] switches the active display in the order of [TZTL15F_FB_LEFT] first and [TZTL15F_FB_RIGHT] next.
5	You can see that the other MCU-004 named [ <b>MCU4</b> ] is <b>physically connected to the [TZTL15F_MB_LEFT]</b> .
6	In this example, the [MCU4] accesses the main bridge displays only and switches the active display in the order of [TZTL15F_MB_LEFT] first and [TZTL15F_MB_RIGHT] next.

- (4) Select [**Confirm**] to save the settings.

# 5. MCU-004 with TZT9/14/BB

Version 4.11/4.21

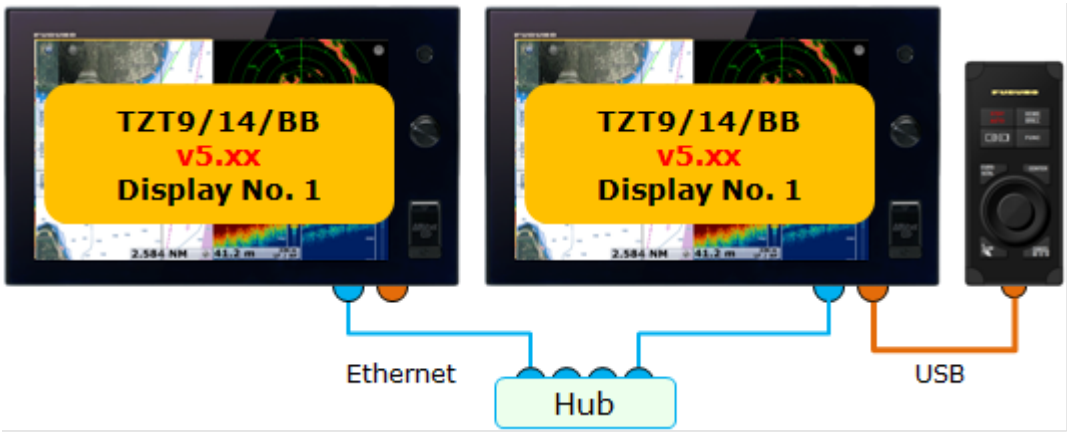
TZT9/14/BB with software versions 4.11 and 4.21 can be used with the MCU-004 to operate the TZT9/14/BB, but with the following two limitations.

No	Items
1	The buzzer sound from the TZT9/14/BB will <b>NOT</b> be generated from the MCU-004 built-in buzzer. (Only the buzzer sound from the TZT9/14/BB is available.)
2	Multi display control with the [Switch Disp.] is <b>NOT</b> available. The display with the MCU-004 connected can be controlled. <div></div>



Version 5.xx

The TZT9/14/BB v5.xx will have the buzzer and [Switch Disp.] key functions.



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