

FURUNO

NAVnet
TZ2
touch

12" MULTI FUNCTION DISPLAY
15" MULTI FUNCTION DISPLAY

Model **TZTL12F/TZTL15F**



TZTL12F/TZTL15F OPERATOR'S MANUAL

FURUNO ELECTRIC CO., LTD.

ECF

(Elemental Chlorine Free)

The paper used in this manual is elemental chlorine free.

FURUNO ELECTRIC CO., LTD.

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FURUNO Authorized Distributor/Dealer

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Printed in Japan

Z4 : Jan. 16, 2015

Pub. No. OME-44870-Z4

(DAMI) TZTL12F/TZTL15F



FURUNO ELECTRIC CO., LTD.

www.furuno.com

IMPORTANT NOTICES

General

- This manual has been authored with simplified grammar, to meet the needs of international users.
- The operator of this equipment must read and follow the descriptions in this manual. Wrong operation or maintenance can cancel the warranty or cause injury.
- Do not copy any part of this manual without written permission from FURUNO.
- If this manual is lost or worn, contact your dealer about replacement.
- The contents of this manual and equipment specifications can change without notice.
- The example screens (or illustrations) shown in this manual can be different from the screens you see on your display. The screens you see depend on your system configuration and equipment settings.
- Save this manual for future reference.
- Any modification of the equipment (including software) by persons not authorized by FURUNO will cancel the warranty.
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How to discard this product

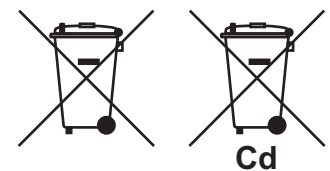
Discard this product according to local regulations for the disposal of industrial waste. For disposal in the USA, see the homepage of the Electronics Industries Alliance (<http://www.eiae.org/>) for the correct method of disposal.

How to discard a used battery

Some FURUNO products have a battery(ies). To see if your product has a battery, see the chapter on Maintenance. Follow the instructions below if a battery is used. Tape the + and - terminals of battery before disposal to prevent fire, heat generation caused by short circuit.

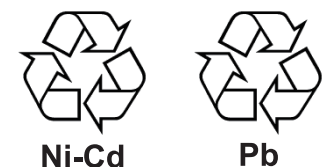
In the European Union

The crossed-out trash can symbol indicates that all types of batteries must not be discarded in standard trash, or at a trash site. Take the used batteries to a battery collection site according to your national legislation and the Batteries Directive 2006/66/EU.



In the USA

The Mobius loop symbol (three chasing arrows) indicates that Ni-Cd and lead-acid rechargeable batteries must be recycled. Take the finished batteries to a battery collection site according to local laws.



In the other countries

There are no international standards for the battery recycle symbol. The number of symbols can increase when the other countries make their own recycle symbols in the future.



SAFETY INSTRUCTIONS

Please review these safety instructions before you operate the equipment.



WARNING

Indicates a condition that can cause death or serious injury if not avoided.



CAUTION

Indicates a condition that can cause minor or moderate injury if not avoided.



Warning, Caution



Prohibitive Action



Mandatory Action



WARNING



The radar antenna emits electromagnetic radio frequency (RF) energy. This energy can be dangerous to you, especially your eyes. Do not look at the radiator or near the antenna when the antenna is rotating.

The distances at which RF radiation levels of 100 W/m² and 10 W/m² exist are shown in the table.

Antenna Model	Distance to 100 W/m ² point	Distance to 10 W/m ² point
DRS2D	N/A	0.4 m
DRS4A	N/A	1.2 m
DRS4D	0.1 m	1.4 m
DRS4DL	N/A	1.1 m
DRS6A	N/A	1.2 m
DRS12A w/XN12A	0.2 m	2.4 m
DRS12A w/XN13A	0.2 m	1.9 m
DRS25A w/XN12A	0.5 m	5.3 m
DRS25A w/XN13A	0.4 m	4.4 m



WARNING



Check that no person is near the radar antenna before you turn on the radar.

Serious injury or death can occur if a person is hit by a rotating radar antenna.



Turn off the power immediately at the switchboard if water leaks into the equipment or smoke or fire is coming from the equipment.

Failure to turn off the equipment can cause fire or electrical shock.







The front panel of the display unit is made of glass. Handle it with care.

Injury can result if the glass breaks.



Do not open the equipment.

Only qualified persons can work inside the equipment.







 WARNING	
	<p>Keep units other than the radar antenna away from rain and water.</p> <p>Fire or electrical shock can occur if water gets inside the equipment.</p>
	<p>Do not disassemble or modify the equipment.</p> <p>Fire or electrical shock can occur if the equipment is disassembled or modified.</p>
	<p>Do not operate the equipment with wet hands.</p> <p>Electrical shock can occur.</p>

Safety Labels

A safety label is attached to the display unit. Do not remove the label. If the label is missing or damaged, contact a FURUNO agent or dealer about replacement.



Name: Warning Label (1)
Type: 86-003-1011-3
Code No.: 100-236-233-10

 WARNING	
	<p>Do not depend on one navigation device for the navigation of the vessel.</p> <p>Always check your position against all available aids to navigation, for the safety of vessel and crew.</p>
	<p>A radar is an excellent anti-collision aid, but remember to keep watch for possible collision conditions.</p> <p>Always keep a watch while underway.</p>
	<p>Do not leave any objects near the radar antenna.</p> <p>Fire, electrical shock or injury can result if something gets caught in the radar antenna.</p>
	<p>Use the correct fuse.</p> <p>A wrong fuse can cause fire or serious damage to the equipment.</p>
	<p>Do not maneuver the vessel based on the depth indication alone.</p> <p>Grounding can occur.</p>

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 blink, however this is not an indication of malfunction.

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FOREWORD

A Word to the Owner of the TZTL12F, TZTL15F

Congratulations on your choice of the TZTL12F, TZTL15F Multi Function Display, members of the NavNet TZtouch2 family of multi-function displays. We are confident you will see why the FURUNO name has become synonymous with quality and reliability.

Since 1948, FURUNO Electric Company has enjoyed an enviable reputation for innovative and dependable marine electronics equipment. This dedication to excellence is furthered by our extensive global network of agents and dealers.

Your equipment is designed and constructed to meet the rigorous demands of the marine environment. However, no machine can perform its intended function unless properly installed and maintained. Please carefully read and follow the operation and maintenance procedures set forth in this manual.

We would appreciate feedback from you, the end-user, about whether we are achieving our purposes.

Thank you for considering and purchasing FURUNO.

Features

The NavNet TZtouch2, equipped with a touch screen with multi touch capacity, is a networked navigation system that gives you radar, plotter, fish finder, AIS receiver, etc. Information is transferred between NavNet TZtouch2 units through Ethernet or NMEA 2000. The plug-and-play format allows expansion and you can connect a maximum of four NavNet TZtouch2 units. Also, you can control the NavNet TZtouch2 units and display their data on an iPhone, iPod, iPad, or Android™ device.

Main features

- Intuitive touch control operation.
- Remote control, monitoring from smartphone, tablet. The NavNet TZtouch2 units can be controlled and monitored from the following applications*.

Application	Capability	iOS	Android™
NavNet Remote	Operate, monitor NavNet TZtouch2.	Operation: iPad only Monitor: Other iOS devices	Yes Operation: 4 inch or larger Monitor: 3.9 or smaller
NavNet Viewer	Display nav data, sounder picture.	Yes	Yes
NavNet Controller	Remote control of NavNet TZtouch2.	No	Yes

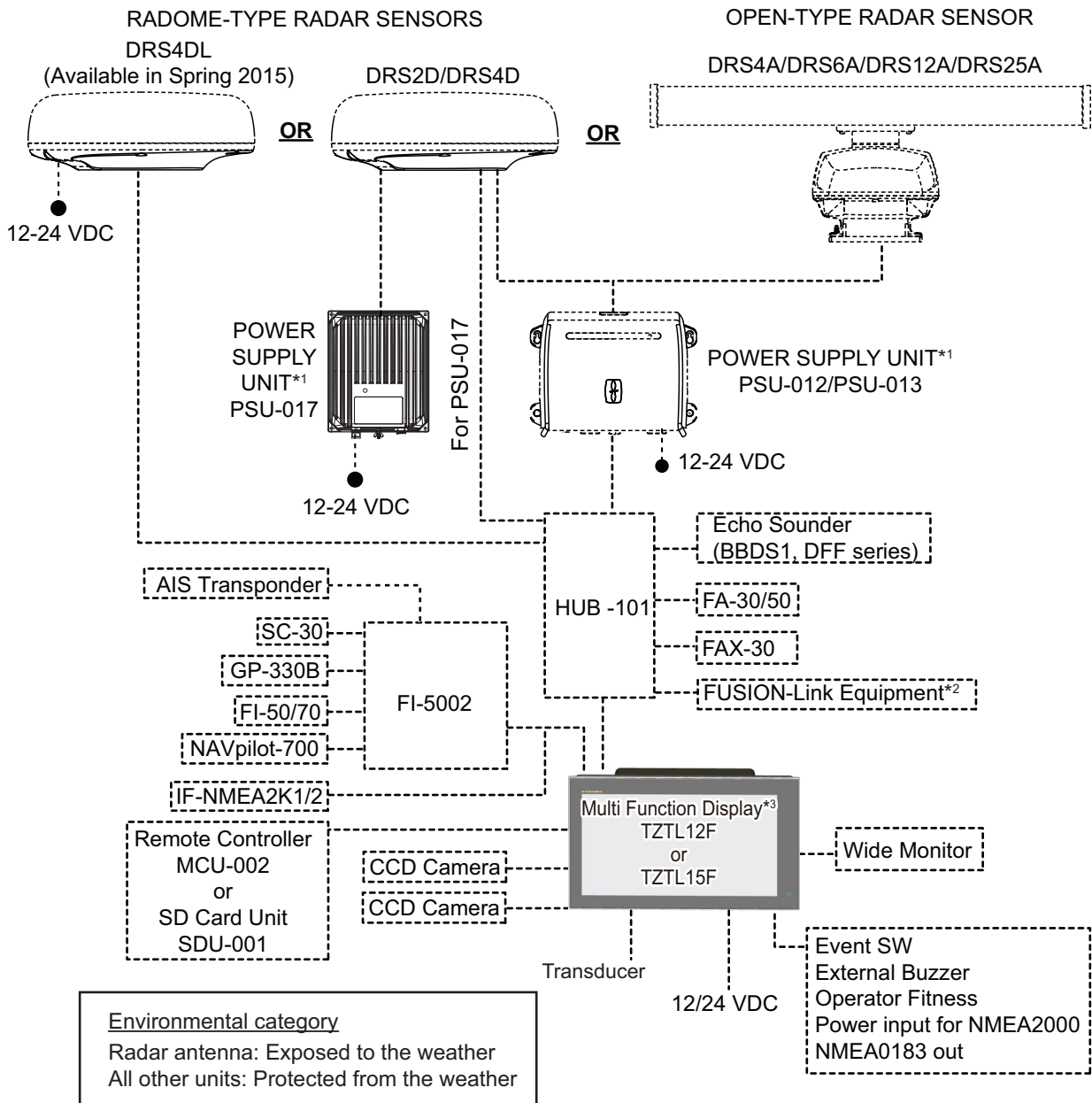
* Free applications from the App Store™, Google Play™ for Android™.

- Instrument display provides comprehensive navigation with connection of appropriate sensors.
- Built in wireless LAN to update program and download weather data via the internet. (NavNet TZtouch2 units sold in China do not have wireless LAN capability.)
- Points, routes, etc. are transferred and shared between NavNet TZtouch2 units via Ethernet.
- Large memory stores 30,000 track points, 30,000 points, and 200 routes (500 points per route).
- Optional Card Unit SDU-001 writes and reads data (points, routes, etc. on Micro SD cards).

- Built in GPS receiver and antenna
- Built in fish finder
- AIS function (requires connection of AIS transponder) receives AIS data from other vessels, shore stations and navigational aids and displays this data.
- ACCU-FISH™ provides at-a-glance estimation of length and depth of individual fish.
- Bottom discrimination display helps identify probable bottom composition with graphics and colors.
- Dual-range radar display for watch on short and long distances at the same time.
- DSC (Digital Selective Calling) message information feature provides the MMSI no. and position of vessels that have transmitted a DSC message to you. (Requires DSC capable radiotelephone.)
- Camera (FLIR™, OceanView™) monitors area around the vessel.
- Control audio of FUSION-Link™ equipment.
- HDMI output (type A receptacle)

SYSTEM CONFIGURATION

Basic configuration is shown with solid lines. Optional equipment is denoted with dashed lines.



*1 Radar sensor other than the DRS4DL requires a power supply unit.

*2 FUSION Electronics MS-700 series only (as of 12/2014).

*3 Max. 4 NavNet TZtouch2 units (Connected via Ethernet hub).

Note: When connecting an external monitor to the multi function display, use a monitor whose aspect ratio is the same as that of the multi function display (16:9). The pictures may be stretched or shrunk with a different aspect ratio. Output to an HPD (Hot Plug Detect) monitor is not possible.

1. SYSTEM INTRODUCTION

This chapter provides the information necessary to get you started using your system.

Standards used in this manual

- Key names are shown in boldface type. For example, **ENT** key (on the MCU-002).
- Menu items, on-screen indications and window names are shown in brackets. For example, the [Settings] menu.
- On-screen messages are shown in quotations. For example, "No Network Connected".
- The [Settings] menu is comprised of several sub menus. When you are asked to select one of its sub menus, "[Settings]" is followed by a hyphen and the sub menu name. For example, "Tap [Settings] - [General]".
- The colors mentioned in this manual are the default colors. Your colors may be different.
- Most of the screenshots in this manual are from the TZTL12F. The layout is slightly different on the TZTL15F.

1.1 Controls

The TZTL12F and TZTL15F are operated by a power switch and touch controls.

You operate the plotter, radar, fish finder, etc. with

- Touch control
- Menus, where you select options
- Pop-up menus and hidden functions, where you select options
- Lists, where you can edit items

Your unit has one key on its front panel, a power/brilliance controlling button. The micro SD card slot, which is used for chart data, is on the rear panel.




TZTL15F



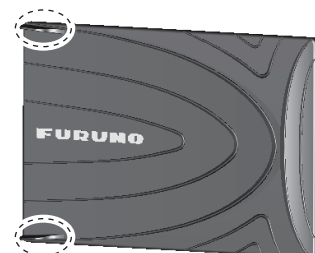
TZTL12F

TZTL multi function display units (shown in optional hanger)

No.	Item	Function
1	 (Power switch)	<ul style="list-style-type: none"> • Turns the power on. • Adjust the brilliance and hue of the display. • Turns the power off (device or network).
2	Micro SD card slot	Slot for chart micro SD chart cards.

About the soft cover



The supplied soft cover protects the LCD when the display unit is not in use. To remove the cover, grasp the cover at the locations circled in the right figure and pull forward.





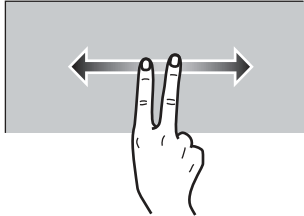
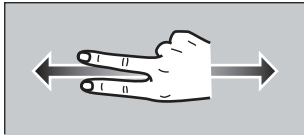

Touchscreen operations

The tables which follow outline the touchscreen operations.

Operation with a finger

	Operation with a finger	Function
Tap		<p><u>Short tap</u></p> <ul style="list-style-type: none"> • Select a menu item. • Select an object or position to display the corresponding pop-up menu. <p><u>Long tap</u></p> <ul style="list-style-type: none"> • Edit display icon (on home screen).
Drag		<ul style="list-style-type: none"> • Pan the charts. • Scroll the menu.

Operation with two fingers

	Operation with two fingers	Function
Pinch	 <p>Zoom in</p>  <p>Zoom out</p>	<ul style="list-style-type: none"> • Zoom in or out the display range in the 2D/3D modes or weather display. • Select radar range on the radar display.
Drag	 <p>or</p> 	Change 3D viewing point.
Tap		Do the function assigned to [Function Gesture], which is in the ([Settings] - [General] menu. See section 1.15.

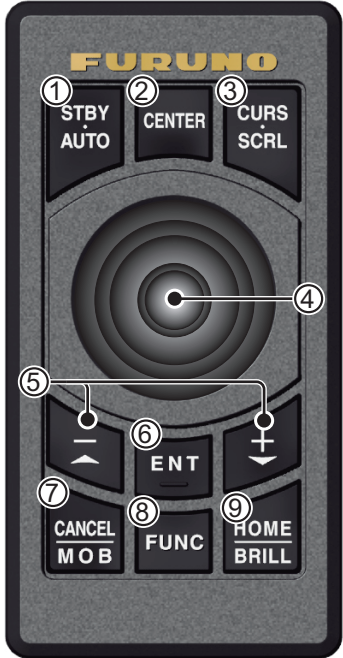
1. SYSTEM INTRODUCTION

Notes on touch control operations

- Waterdrops on the screen can cause mis-operation and slow touch response. Wipe the screen with a dry cloth to remove the water.
- This equipment uses a capacitive touch screen. Tap the screen with your fingertips directly. Do not use sharp objects (needle, pen, nail) or a stylus pen. Be careful not to scratch the screen.
- The touchscreen cannot be operated while wearing gloves.
- Do not put objects (adhesive-backed paper, etc.) on the screen. Objects attached to the screen can cause mis-operation.
- Keep the equipment away from a radio antenna, fluorescent light, solenoid valve and electronic devices to prevent unintended operation by noise.
- The front panel is made of glass. If the front panel is damaged, do not try to repair it yourself. Unauthorized repair will void the warranty. Contact your dealer about repair or replacement.

1.2 Remote Control Unit MCU-002 (Option)

The Remote Control Unit MCU-002 lets you operate the system without touching the screen.

	No.	Key	Function
	1	STBY•AUTO key	Switches the steering mode of the FURUNO NAVpilot-700 series Autopilot between the STBY and AUTO modes*.
	2	CENTER key	<ul style="list-style-type: none"> Returns own ship to the center of the screen (Plotter/Weather/Radar display). Cancels the echo history (Fish finder display).
	3	CURS•SCRL key	Switches the joystick gesture between the cursor mode and scroll mode.
	4	Joystick	<p><u>Short press:</u> Works same as tap gesture.</p> <ul style="list-style-type: none"> Opens the pop-up menu. Activates the item selected by the cursor. <p><u>Long press:</u> Works same as long tap gesture.</p> <ul style="list-style-type: none"> Opens the detail pop-up menu. <p><u>Operate the joystick:</u></p> <p><u>Cursor mode operation</u></p> <ul style="list-style-type: none"> Moves the cursor. <p><u>Scroll mode operation</u></p> <ul style="list-style-type: none"> Pans the display (Plotter/Weather/Radar display). Shifts the range and scrolls back the picture (Fish finder display).
	5	+, - key	<ul style="list-style-type: none"> Selects an item from the slide-out/main/pop-up menu. Zooms in (+) and out (-). Raises (+) and lowers (-) the brilliance on the [Power & Brilliance] window.
	6	ENT key	<ul style="list-style-type: none"> Activates a selected item. Opens the slide-out menu.
	7	CANCEL/MOB key	<p><u>Short press:</u></p> <ul style="list-style-type: none"> Closes the menu or dialog box. Stops the aural alarm. Ends the tool mode (End Route, End Move, etc.). <p><u>Long press:</u></p> <ul style="list-style-type: none"> Enters the MOB mark (at the own ship's position).
	8	FUNC key	Does the function set at [Function Gesture].
	9	HOME/BRILL key	<p><u>Short press:</u></p> <ul style="list-style-type: none"> Opens the home screen. <p><u>Long press:</u></p> <ul style="list-style-type: none"> Opens the [Power & Brilliance] window.

* When you switch the steering mode with the STBY.AUTO key, a beep sounds and then one of the messages shown below appears. The message does not appear on the home screen.

- STBY mode → AUTO mode: "NAVpilot is engaged."

- AUTO mode → STBY mode: "NAVpilot is disengaged."

1.3 How to Turn the Power On or Off

The power switch (⏻) on the front panel controls the power.



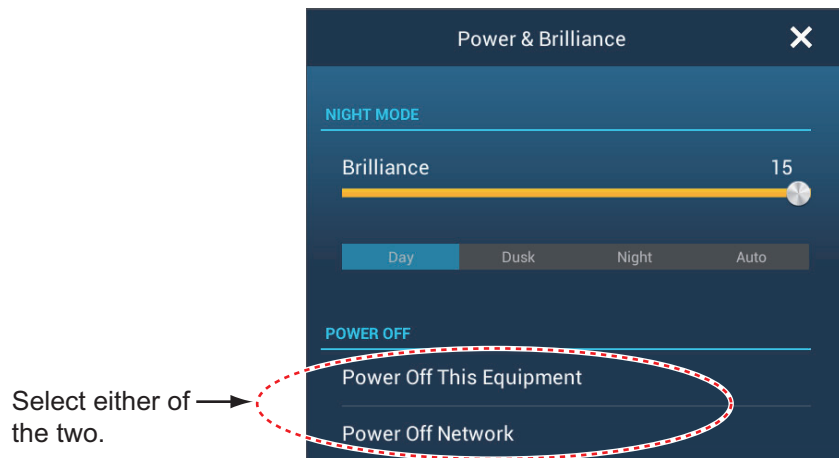
When you turn on the power, the equipment beeps twice and the start-up screen appears. After the startup process is completed, the [NAVIGATION WARNING] screen appears. Read the warning, then tap [OK]. The last-used display appears.

The color of the lamp in the power switch changes according to equipment state.

Green: Equipment is powered.

Orange: Equipment is not powered but power is flowing to the equipment.

To turn off the power, tap the power switch to show the [Power & Brilliance] window.




Tap [Power Off This Equipment] or [Power Off Network], then tap [OK]. 15 seconds after the screen goes blank, the power turns off. (The power is on for this 15 seconds.)

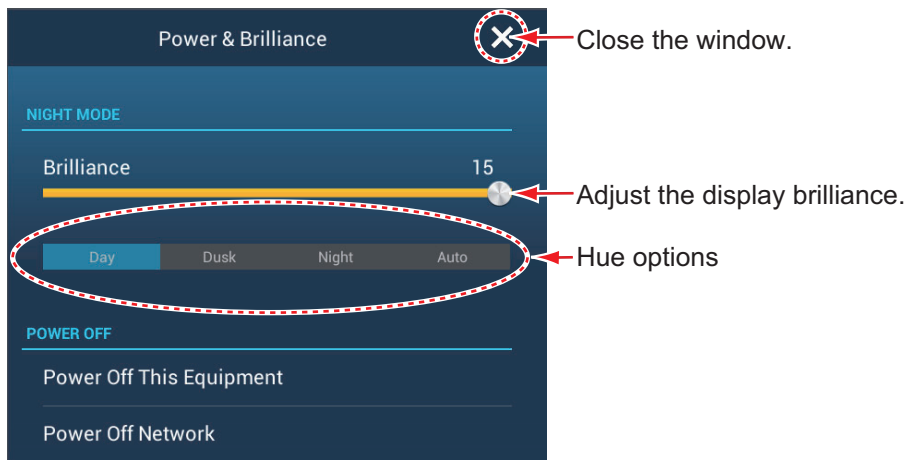
Note 1: If you cannot turn off the power as shown above or the display freezes, long push the power switch until the screen goes blank.

Note 2: Do not turn off the power during the start-up. Wait until the start-up is completed before you turn the power off.

Note 3: The screen refreshes slower in low ambient temperature.

1.4 How to Adjust the Brilliance of the Display, the Power Indicator and the Hue

With the power applied, press  to show the [Power & Brilliance] window.

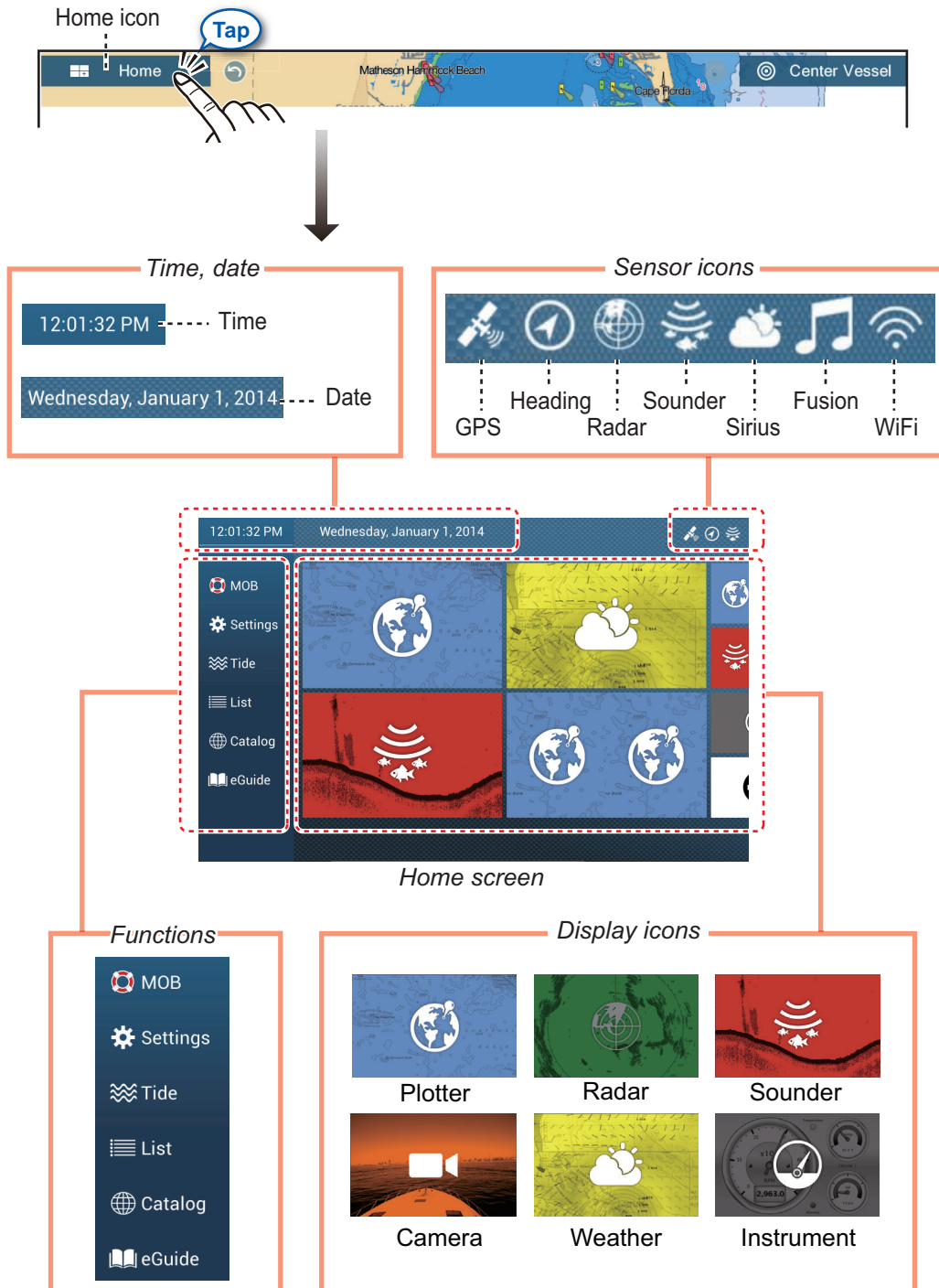


Drag the slider or tap the slider bar to adjust the brilliance of both the display and the power indicator.

The [Day], [Dusk], [Night] and [Auto] options (below the slider bar) set the hue according to selection. The [Auto] option automatically sets the hue according to time of day.

1.5 Home Screen

The home screen is where you access functions and menus, select displays and check sensor status. Tap the [Home] icon at the top left corner to show the home screen. The home screen is automatically closed, and the previous operation display restored, when no operation is detected for approx. one minute.



The **sensor icons** denote what sensors are connected in the system and their status. The color of an icon changes according to sensor status.

White: Sensor normal

Red: Sensor error

Gray: Sensor inactive (stopped)

The **functions** section provide the following features:

[MOB]: Puts the MOB mark (to mark man overboard location on the plotter and radar displays. See section 1.17.

[Settings]: Menus (plotter, radar, sounder, etc.) for customization of the system. See section 1.14.

[Tide]: Opens the tide graph.

[List]: Opens the routes, points, AIS and DSC lists.

[Catalog]: Opens the list of charts installed in your system.

[eGuide]: Opens the abbreviated operator's manual. You can get the latest version of the operator's manual by accessing the quick response code provided in the introduction section of the guide.

The **display icons** select corresponding displays. See the next section for details.

1.6 How to Select a Display

You have two methods from which to select a display, the quick page and the home screen.

1.6.1 How to select a display from the home screen

Tap the [Home] icon to show the home screen. Tap the applicable display icon. (It may be necessary to swipe the screen if you have programmed a number of display icons.)



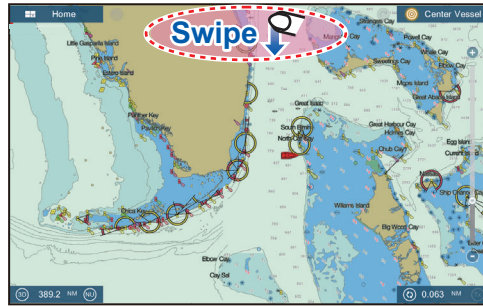
Display icons

1. SYSTEM INTRODUCTION

1.6.2 How to select a display from the quick page

The quick page, which carries all the “large size” display icons shown on the home screen, lets you select a display from the current display.

To show the quick page, swipe the top of the screen downward. Tap desired display icon to change the display. (It may be necessary to scroll the display icons if you have programmed some icons.)



Quick page