



This guide provides the basic operating procedures for this equipment. Connection of sensors required. For detailed information, see the Operator's Manual, available on our homepage. You can download it with the Quick Response code shown above, or from the URL which is shown below.

https://www.furuno.com/en/support/manuals/?pc=navnet_mfd

The brand, product names, trademarks, registered trademarks, or service marks mentioned in this document belong to their respective holders. The layout of the screen illustrations in this guide may differ depending on your system configuration and settings.

Safety Instrucions

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.



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 sends 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	100 W/m ²	10 W/m ²	Antenna Model	100 W/m ²	10 W/m ²
DRS2D-NXT	N/A	0.7 m	DRS6A-NXT (XN12A)*	N/A	0.6 m
DRS4D-NXT	N/A	0.7 m	DRS6A-NXT (XN13A)*	N/A	0.4 m
DRS4DL+	N/A	0.9 m	DRS12A-NXT (XN12A)*	0.2 m	1.9 m
DRS6A X-Class (XN12A)*	N/A	2.2 m	DRS12A-NXT (XN13A)*	0.15 m	1.8 m
DRS6A X-Class (XN13A)*	N/A	1.9 m	DRS25A-NXT (XN12A)*	0.3 m	2.8 m
DRS12A X-Class (XN12A)*	0.3 m	3.1 m	DRS25A-NXT (XN13A)*	0.2 m	2.65 m
DRS12A X-Class (XN13A)*	0.2 m	2.9 m	DRS4D X-Class	0.53 m	1.7 m
DRS25A X-Class (XN12A)*	0.8 m	7.7 m	DRS4DL X-Class	N/A	0.73 m
DRS25A X-Class (XN13A)*	0.7 m	6.8 m			

*: Not compatible with the TZMAP9/13.



Check that no person is near the open-type 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, metallic object or other foreign matter gets inside the equipment.

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



Do not open the equipment.

Only qualified service technicians are permitted to work inside the equipment.



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

Injury can result if the glass breaks.

WARNING

 **Keep the display unit away from areas subject to rain or water splash.**

Fire or electrical shock can occur if water gets inside the equipment.

 **Do not disassemble or modify the equipment.**

Fire or electrical shock can occur if the equipment is disassembled or modified.

 **Do not operate the equipment with wet hands.**

Electrical shock can occur.

 **Use the correct fuse.**

A wrong fuse can cause fire or serious damage to the equipment.

 **Do not rely solely on depth indication when navigating.**

Grounding can result.

 **This equipment provides various information useful for navigation. However, never rely solely on a single navigation method, for safety of vessel and crew. Use all available navigational equipment (radar, direction finder, etc.) and always maintain a vigilant watch while underway.**

 **Guard zone warnings help prevent collisions. However, their use does not exempt the navigator from following the relevant guidelines for preventing collision at sea.**

 **Do not leave any objects near the radar antenna.**

Fire, electrical shock or injury can result if something gets caught in the radar antenna.

 **The ARPA function is a valuable aid to navigation. However, the navigator must check all aids available to avoid collision.**

- The ARPA automatically tracks an automatically or manually acquired radar target and calculates its course and speed, indicating them with a vector. Since the data generated by the ARPA depends on the selected radar targets, the radar must be optimally tuned for use with the ARPA, to ensure required targets will not be lost or unnecessary targets, like sea returns and noise, will not be acquired and tracked.

- A target is not always a landmass, reef, ship, but can also be returns from the sea surface and from clutter. As the level of clutter changes with the environment, the operator must correctly adjust the sea and rain clutter controls and the gain control so that the target echoes do not disappear from the radar screen.

CAUTION

 **Do not insert or remove the microSD card while the power is on.**

The contents of the microSD card may be damaged.

 **The fish finder picture is not refreshed when the picture advance setting is "OFF".**

It is dangerous to maneuver the vessel while referring to the depth indication in this condition.

 **Do not use high-pressure cleaners to clean this equipment.**

This equipment has the waterproof rating outlined in the specifications, at the back of the Operator's Manual. However, the use of high-pressure cleaning equipment can cause water ingress, resulting in damage to, or failure of, the equipment.

The plotting accuracy and response of this ARPA meets IMO standards. Tracking accuracy is affected by the following:

- Tracking accuracy is affected by course change. One to two minutes is required to restore vectors to full accuracy after an abrupt course change. (The actual amount depends on gyrocompass specifications.)
- The amount of tracking delay is inversely proportional to the relative speed of the target. Delay is approx. 15-30 seconds for the higher relative speed; approx. 30-60 seconds for the lower relative speed. The following factors can affect accuracy:
 - Echo intensity
 - Radar transmission pulse length
 - Radar bearing error
 - Gyrocompass error
 - Course change (own ship and targets)

 **Be sure to attach caps to all unused connectors.**

The unit may be damaged. Electrical shock can result.

 **Do not connect/disconnect the cables connected to the unit while the power is turned on.**

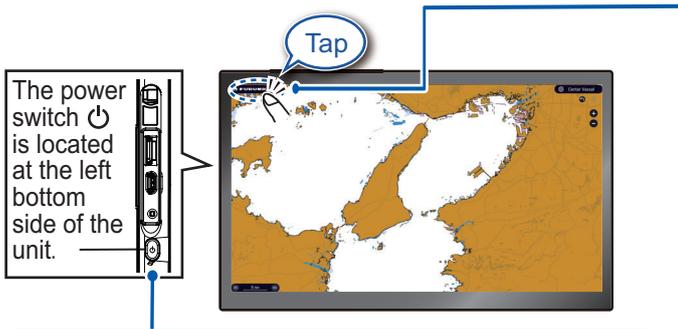
The unit may be damaged.

About the TFT LCD

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

Operational Overview

Icon (home/displays), power switch operations



[FURUNO] icon
Displays the home page.

Display icons (max. 32 on Home page)

"eGuide" provides an abbreviated operator's guide.



Home page

Power off

Device: Powers off this unit.
Network: Powers off all NavNet TZtouch series* units in network.

Power switch

- Turns on power.
- Shows [Quick Access] window.

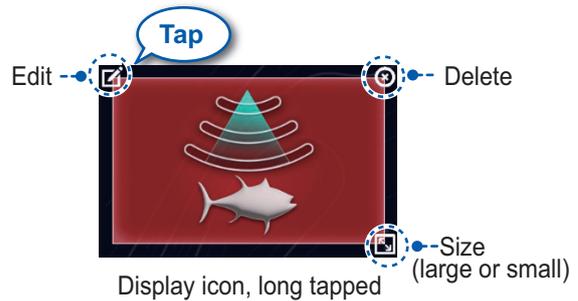


Brilliance, Hue



How to edit a display icon

Long-tap a display icon to resize, delete or change its contents, then tap to confirm. You can also rearrange the icons by long-tapping and dragging.



*: The TZMAP9/13 cannot be connected to NavNet TZtouch series. Also, multiple TZMAP9/13 units cannot be connected in the same network.

How to select a display

- Tap a display icon on the Home page (see illustration above).
- Tap a display icon on the Quick page.



Touchscreen operations

Tap



- Select an item on a menu.
- Tap the display or an object to show the corresponding Pop-up menu.

Drag, swipe



- Move the chart.
- Scroll the menu.
- Show Slide-out menu, Layers menu.

Pinch



Zoom in Zoom out

- Zoom in, zoom out the chart plotter and weather displays.
- Change the range on the radar and fish finder displays.

Range buttons



For the slider bar, drag the slider bar thumb, or tap the slider bar.

Two finger (long) tap



Does the function assigned to [Two Finger (Long) Tap Function] in the [Settings] - [General] - [This Display] menu.

Two finger drag



Change the viewpoint position on the 3D display.

Menu operation

Pop-up menu

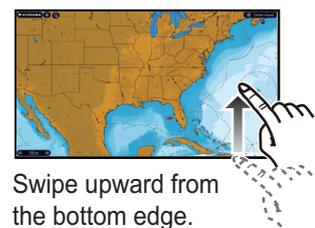


Tap screen (applicable point, object, etc.).



Tap the required function. (">" indicates additional options.)

Layers menu



Swipe upward from the bottom edge.



Tap the required function. (To switch between menus, swipe or tap applicable tab.)

Slide-out menu



Swipe leftward from the right edge.



Tap the required function.

Icon color and function state
Yellow: ON, White: OFF

Settings menu

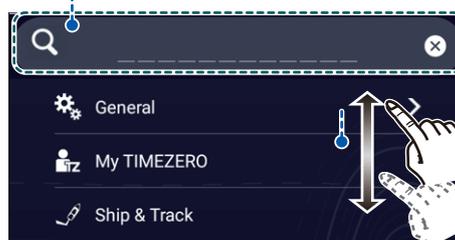


Tap the [FURUNO] icon.

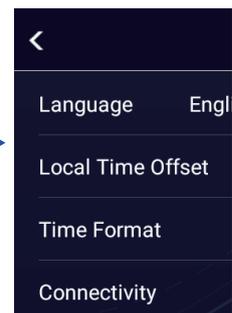


Tap [Settings].

Menu search bar

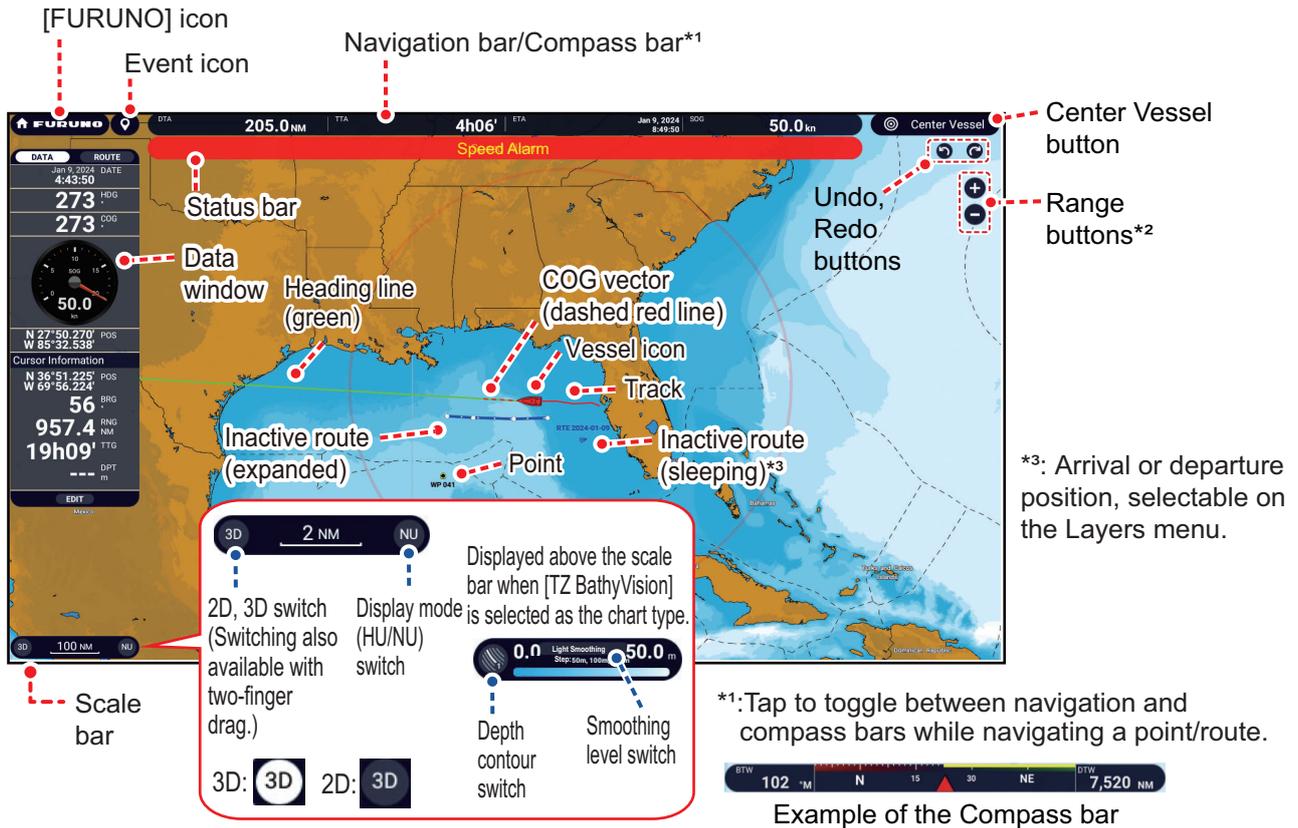


Drag to find required menu, then tap item.



Tap the required menu item.

Chart Plotter



Data Window

Swipe from the left edge of the screen rightward to show the Data window, which shows nav data at the left edge of the screen. To hide the window, swipe the box leftward or tap the [NavData] indication (yellow) in the Slide-out menu.

Data window settings



Tap [Edit] to show [Edit NavData] display.

To add nav data:

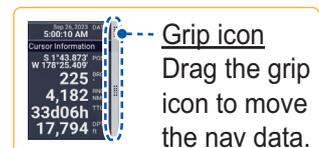
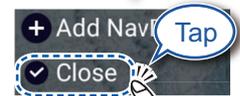


To remove a data box, or change the displayed data:



1 Tap the nav data to remove or change. 2 Remove nav data: Tap [Remove]. Change data: Tap data to display.

Tap [Change Type] to change the data display method, among Graphic (analog), Numeric (digital), and Graph.



Points/Boundaries

Points can be entered on the chart plotter display (radar, fish finder, multi beam sonar (TZT9E/13E only), and weather displays also) to mark important locations such as a good fishing spot. Point attributes (position, symbol type, color, etc.) are recorded to the Points list. Also, boundaries can be set at the position desired (net position, area to avoid, etc.).

How to enter a point

Tap where to enter a point.

Depth
New Point
Goto

The point is entered on the screen.

How to set a point as destination

On-screen point

Tap a point or the location to set as destination.

New Point
Goto
Fish-It

If a point was tapped.

On-screen point Selected location

Destination point

Purple line (with arrow): Indicates course to go to the destination.

Yellow line: Shortest course from own ship to the destination.

Points list

Sort the list by date, name, icon, color, range.

Charts
Smart Search
Lists

Points
Routes

Points list with columns: Date, Name, Icon, Color, Range, Add Point

ACTIONS
Add to new R
Goto
Fish-It
Find On Chart
Delete

Tap the point to set as the destination.

Point filter

You can show/hide points on the screen by using the filter function.

Open [User Objects] tab on the Layers menu.

Point Filters
Filter by Icon
Filter by Color
Filter by Age
Filter by Name

Turn the "Point Filters" to on and set the filter by icon, color, age, or name. For icon or color, when MARK is selected no filter is applied. For age, when Off is selected, no filter is applied.

How to set a boundary

Tap the place where to set a boundary.

Create a Mooring
New Boundary
Tide

Area
Circle
Line

Tap the shape to use for the boundary.

[Area]/[Line]: Tap necessary points to complete the boundary, referring to "Route" on the next page.

[Circle]: Drag icons to adjust the size and position, and then tap [End Boundary].

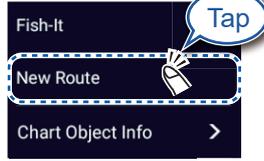
Routes

A route is comprised of a series of waypoints leading to a destination. Routes are saved to the Routes list.

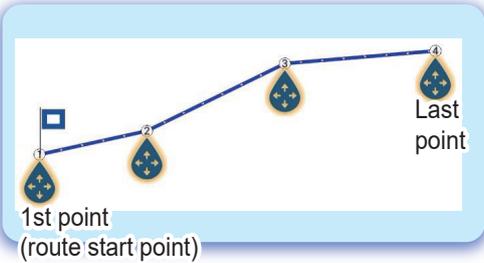
How to create a new route



Tap the first point for the route.



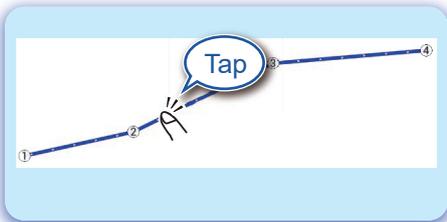
Select [Manual] or [AI Routing]*. Then tap the next point for the route. Repeat this operation to complete the route.
*: For [AI Routing], if you tap two points, the start point and the final point, the system automatically creates a route that it deems navigable.



Enter a name for the route, then tap [✓].

How to follow a route

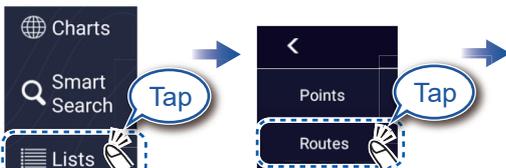
On-screen route



Tap a leg of the route.



Routes list



Home page



Tap the route to navigate.

Smart Search function

Use the Smart Search function to search for points, routes, etc.

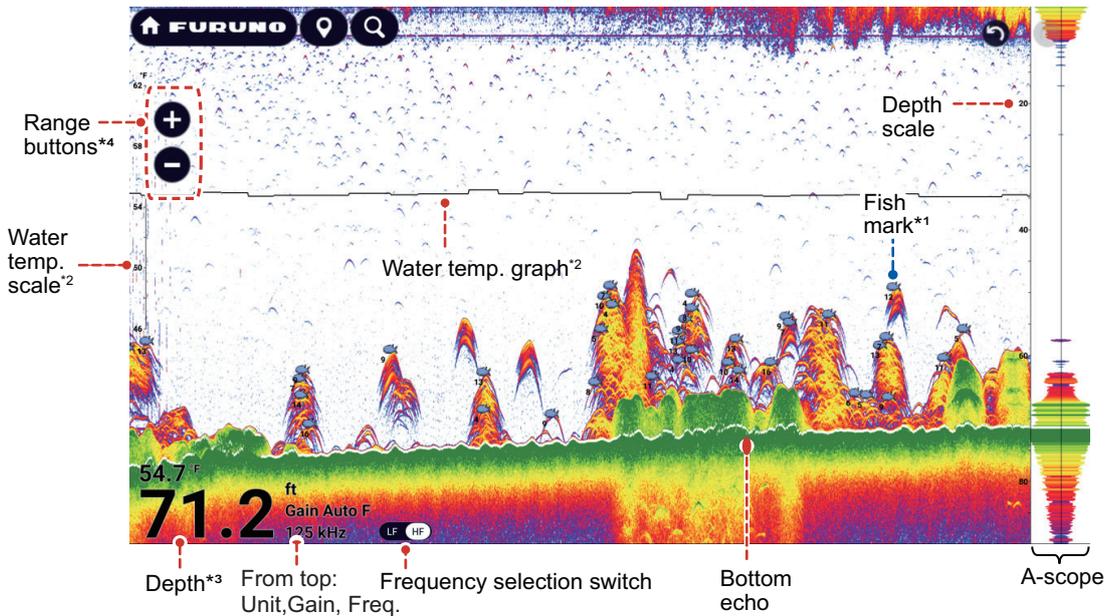


Or
Tap left corner

If you have a specific category (routes, points, etc.), tap the category first, then tap the search bar.

A software keyboard appears. Enter at least three characters or numbers to show a list of related items. Tap the desired item to show the details of the item.

Fish Finder



- *1: Requires ACCU-FISH™ compatible transducer on the network.
- *2: Requires water temperature sensor.
- *3: For full screen, you can adjust the depth font size in Home page → [Settings] → [Fish Finder] → [User Settings] → [Digital Depth Size] menu.
- *4: When the [Show Range Slider] setting is turned on, the slider bar appears between the zoom icons.

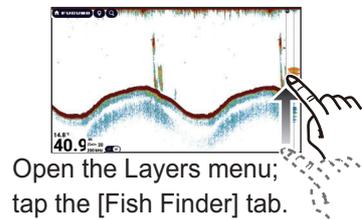
Note 1: Names of menu items may be different depending on the transducer connected on the network.

Note 2: TZT9E/13E: Compatible with built-in or network fish finders.

TZMAP9/13: Compatible with built-in fish finder only.

How to select a frequency

Low frequency: For "normal" use.
 High (Middle) frequency: For detailed observation of schools of fish.
 Dual frequency: Show both the low and high frequency pictures.

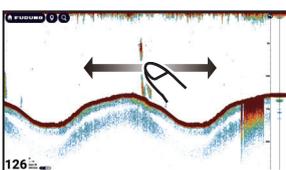


Open the Layers menu, tap the [Fish Finder] tab.



Note
 [TX/STBY] toggles between TX and standby.

How to show past echoes (echo history)



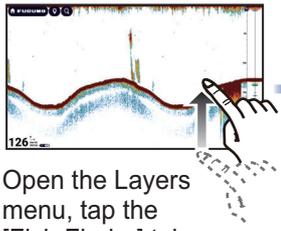
Swipe leftward or rightward to show past echoes.



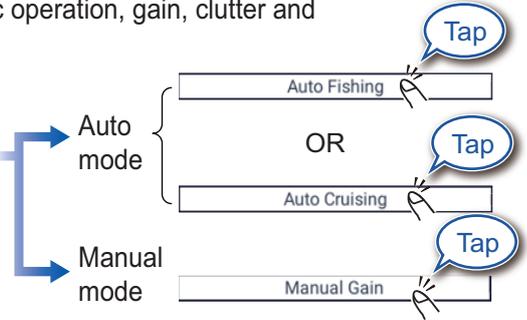
Return to normal display.

How to select the operating mode

The fish finder is available in automatic and manual operation. For automatic operation, gain, clutter and TVG are automatically adjusted.

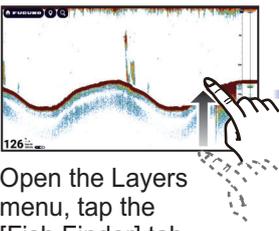


Open the Layers menu, tap the [Fish Finder] tab.

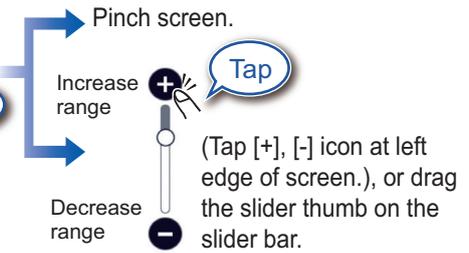


Manual mode

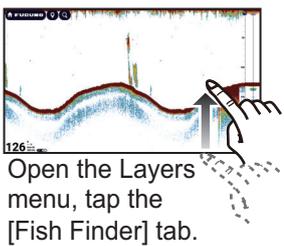
How to change the range



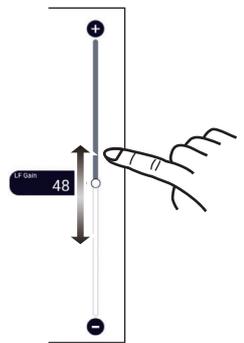
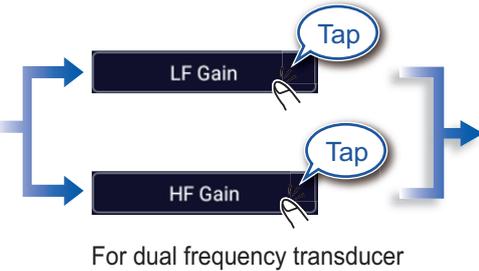
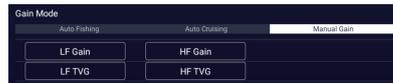
Open the Layers menu, tap the [Fish Finder] tab.



How to adjust the gain



Open the Layers menu, tap the [Fish Finder] tab.

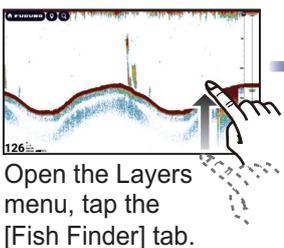


Drag the slider bar to set the gain. (Gain can also be adjusted by tapping the slider bar or +/- buttons.)



(Top right corner)

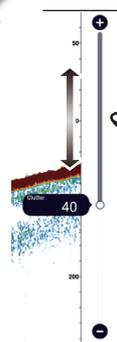
How to reduce clutter



Open the Layers menu, tap the [Fish Finder] tab.



The larger the value, the more the clutter is reduced.

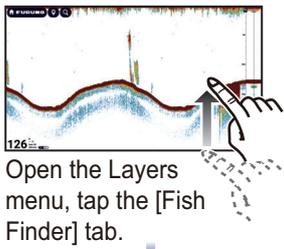


Drag the slider bar to set the range. (Range can also be adjusted by tapping the slider bar or +/- buttons.)



(Top right corner)

Zoom display



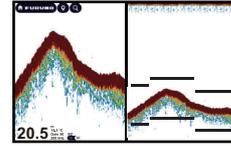
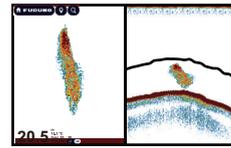
Bot. Lock
Search for bottom fish.



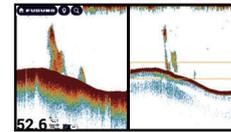
Bot. Zoom
Find bottom contour and hardness.



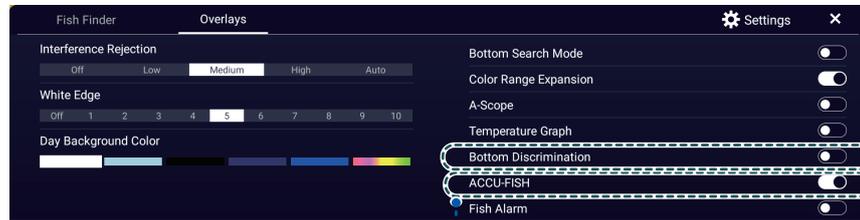
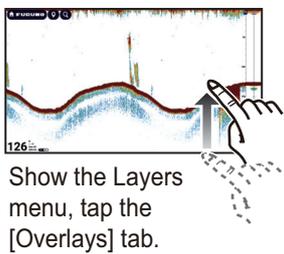
Mark. Zoom
Help determine the size of a school of fish in the middle layer.



- Short tail indicates soft bottom.
- Long tail indicates hard bottom.

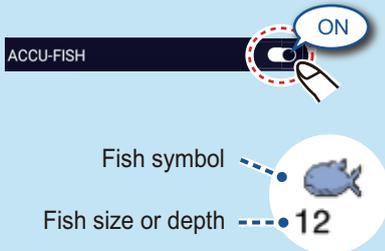


ACCU-FISH™/Bottom Discrimination



ACCU-FISH™

Detected fish can be marked with a fish symbol. (Requires ACCU-FISH™ capable transducer on the network.)

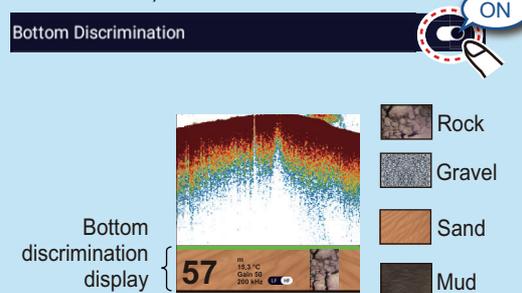


Notice

You can select fish symbol type, and fish size or depth indication from the menu - Home page → [Settings] → [Fish Finder] → [ACCU-FISH].

Bottom Discrimination

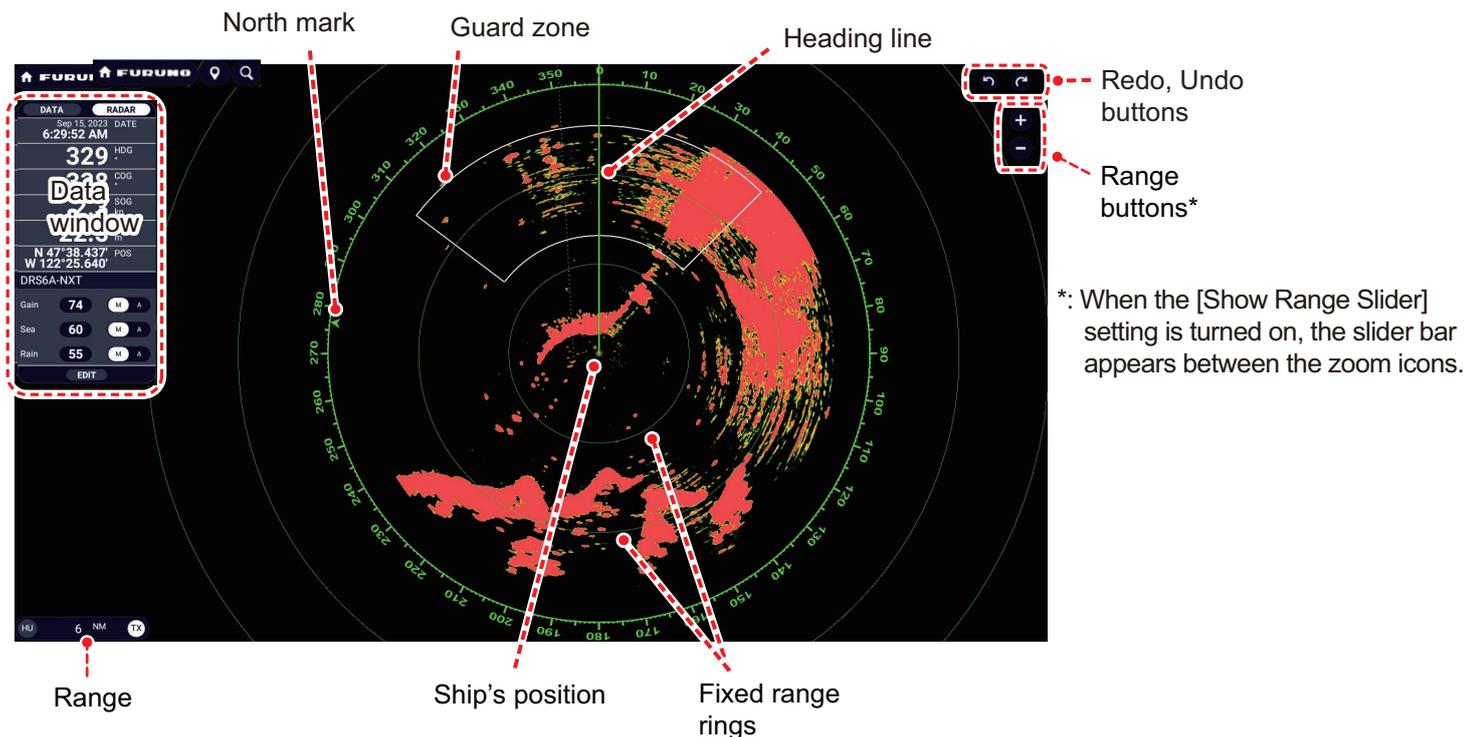
Show probable bottom hardness. (Requires bottom discrimination capable transducer on the network.)



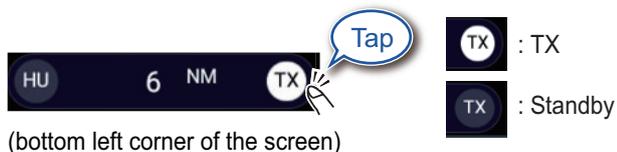
The most probable bottom material.

Radar

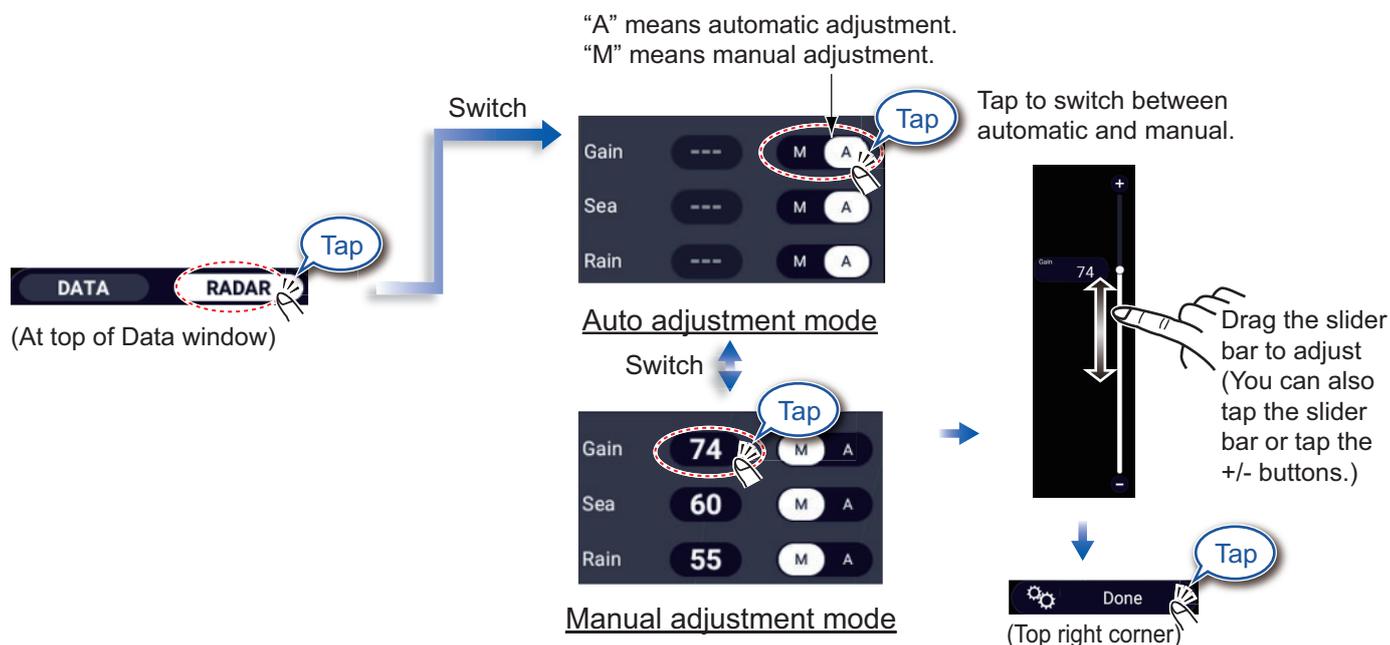
The TZMAP9/13 is compatible only with radome-type radars. The TZT9E/13E is compatible with both radome-type and open-type radars.



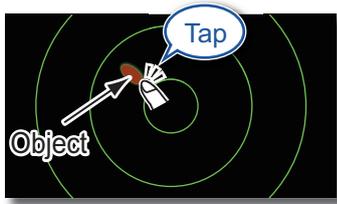
How to switch between standby and TX



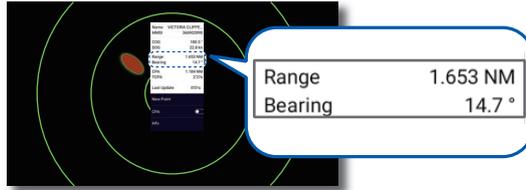
How to adjust the gain / sea clutter / rain clutter



How to measure the range, bearing from own ship to an object

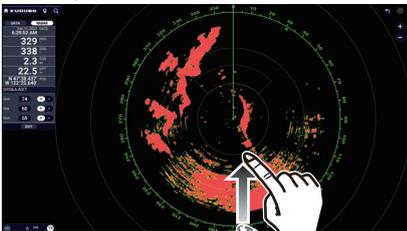


Tap an object to show its range and bearing from own ship.

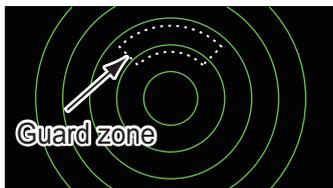
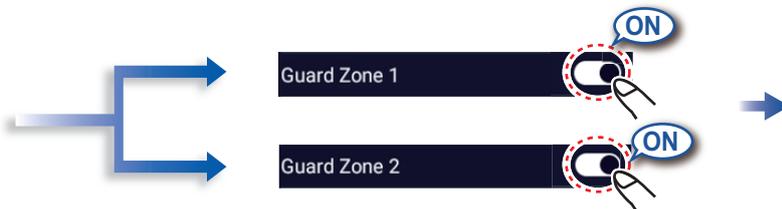


How to set a guard zone

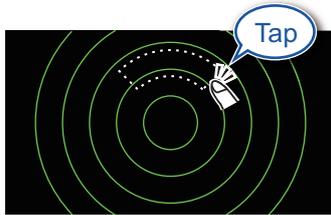
A guard zone alerts you (with aural and visual alarms) when an object (ship, island, reef, etc.) enters the area you specify.



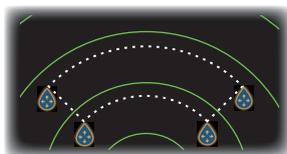
Open the Layers menu, tap the [Overlays] tab.



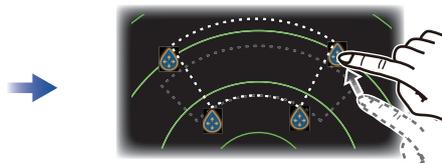
The guard zone appears in dashed lines.



Tap dashed line on guard zone.



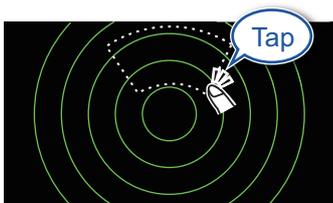
An icon appears at each corner of the guard zone.



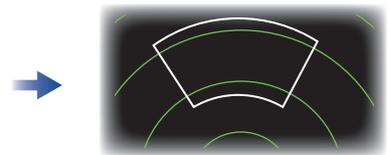
Drag the icons to set guard zone.



(Top right corner)



Tap the guard zone again.

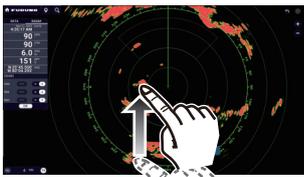


The dashed lines change to solid lines, indicating the guard zone is active.

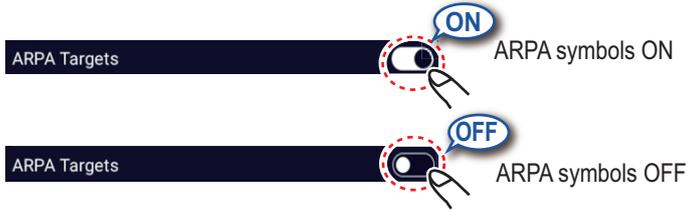
ARPA Operation

ARPA is an anti-collision aid that tracks the movement of other ships to help prevent collision. ARPA not only tracks other ships but also provides their navigation data. Targets can be acquired manually, automatically, or both automatically and manually.

How to show, hide ARPA symbols



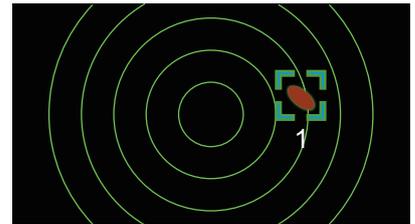
Open the Layers menu, tap the [Overlays] tab.



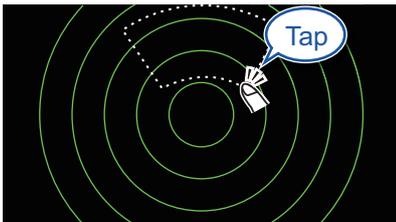
How to manually acquire a target



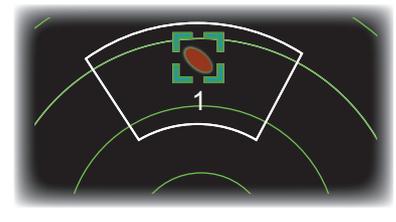
Tap the target to acquire.



How to automatically acquire a target



Set a guard zone, then tap the guard zone.



The dashed lines change to solid lines, indicating the guard zone is active.

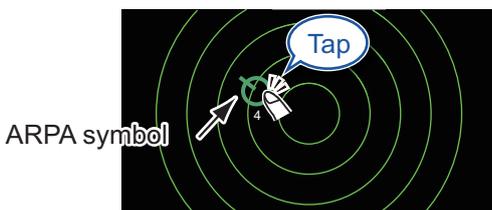
Note

When [Full Auto Tracking Sea Condition] (TZA9E/13E only) is activated from the [Radar] tab in the Layers menu, targets within 3 NM from your ship are automatically acquired when connected to a DRS-NXT series radar.

ARPA symbols



How to display target data



ARPA symbol

Tap an ARPA target to show its data.



ID	68
COG	206.9 °
SOG	5.8 km
Range	1.432 NM
Bearing	262.9 °
CPA	466 m
TCPA	-6'13s

AIS (Automatic Identification System)

How to show or hide AIS target symbols



Open the Layers menu, tap the [Overlays] tab.



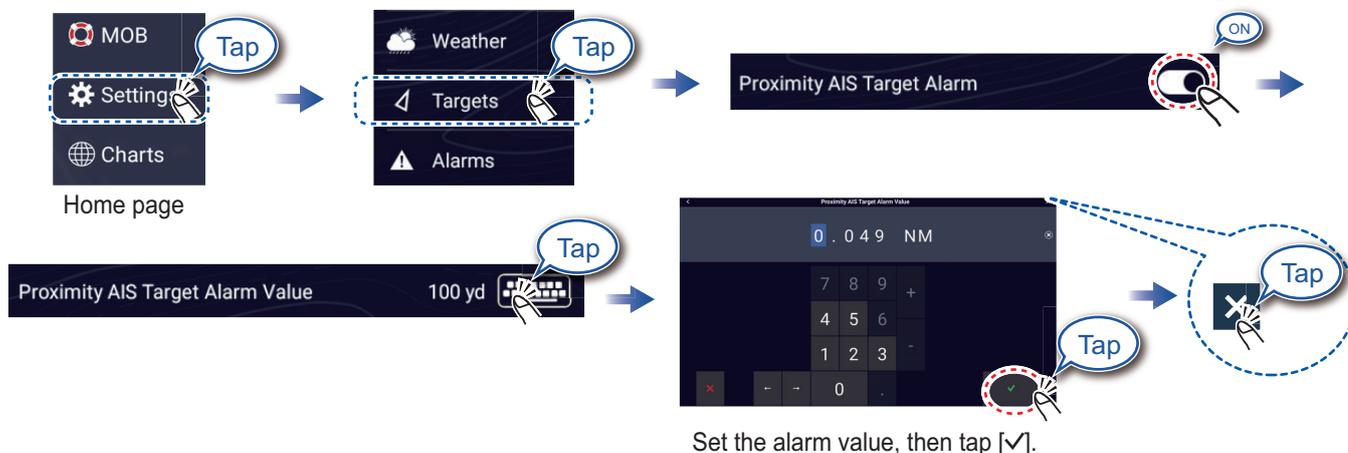
AIS target symbols

	Class A AIS	Class B AIS	BFT* AIS
Activated target	SOG and COG vector Color: Blue	SOG and COG vector Color: Green	SOG and COG vector Color: Blue (filled)
Dangerous target	Color: Red		
Lost target	Color - AIS target: Blue - Cross: Red	Color - AIS target: Green - Cross: Red	Color - AIS target: Blue (filled) - Cross: Red

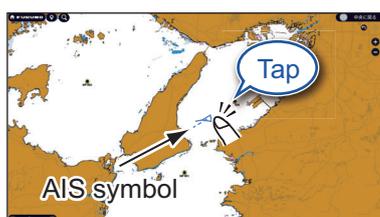
*: Blue Force Tracking

Proximity AIS target alarm

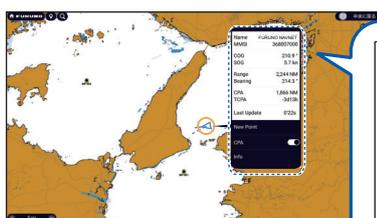
The proximity AIS target alarm releases aural and visual alarms when the distance between own ship and an AIS target is near the alarm value.



How to show AIS target data



Tap AIS symbol.



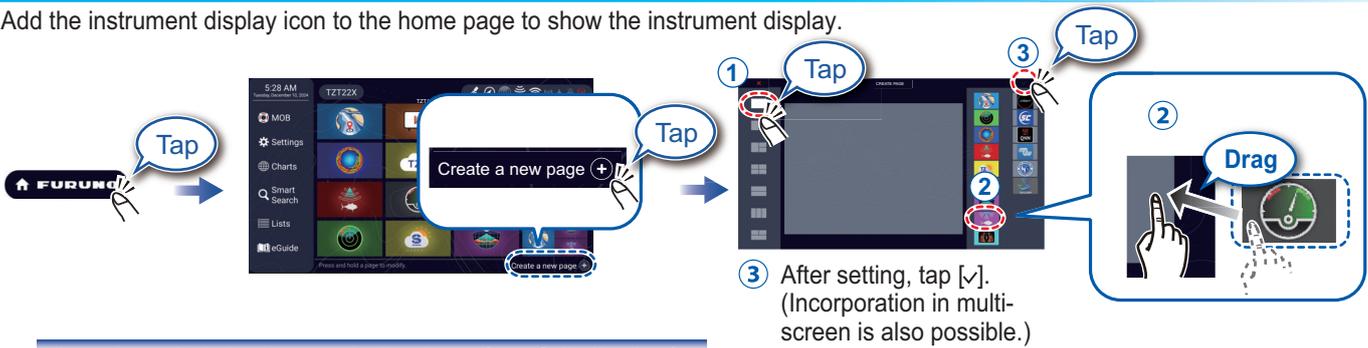
Name	FÖRÜNÖ NAVNET
MMSI	368007000
COG	210.9 °
SOG	5.7 kn
Range	2,244 NM
Bearing	214.3 °
CPA	1,866 NM
TCPA	-3d13h
Last Update	0'22s

Instrument Display

With connection of appropriate sensors, the instrument display shows various navigation data.

How to enable the instrument display

Add the instrument display icon to the home page to show the instrument display.



How to switch instrument displays (ex. full display)



Swipe rightward or leftward to switch between displays.



How to pin the instrument display

When the instrument screen icon is tapped on the home screen, the pinned instrument display is shown. Tap the icon at top right corner of the instrument display to set the pin.



: Pinned



: Pin released

How to edit the instrument display



Long tap the instrument display, then select [Edit Page] on the Pop-up menu.



A white line surrounds each indication.

In the edit mode, you can remove, change, add, rearrange indications.

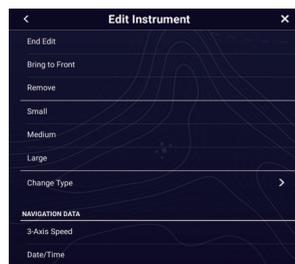
To end the edit mode

Tap the screen, then select [End Edit] on the Pop-up menu.

How to remove or change an indication



In the edit mode, select the indication to remove or change.



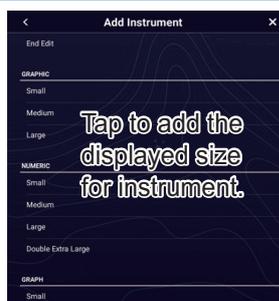
- Remove indication: Tap [Remove].
- Change size: Tap [Small], [Medium], [Large], [Double Extra Large]*.
- Change type: Tap [Change Type], then tap desired size.
- Change indication: Tap indication in [NAVIGATION DATA], [ROUTE INFORMATION], [WIND AND WEATHER], and [ENGINE].

*: Numeric displays only

How to add an indication



In the edit mode, tap a location not occupied by an instrument display.



Select a size in desired category.



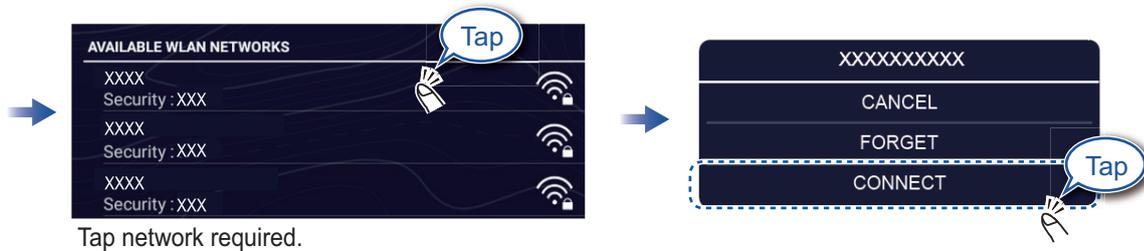
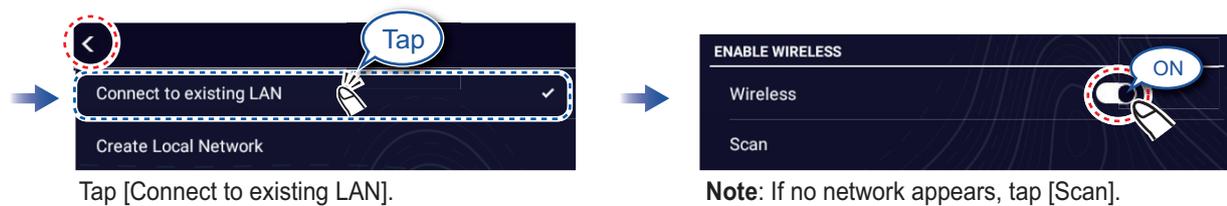
Tap added instrument display to change displayed data (see above).

Wireless LAN Settings

You can connect to the internet with the wireless LAN signal to download weather information, update the software, purchase and update chart license, and to download chart data.

How to connect to an existing LAN

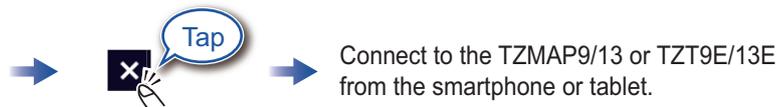
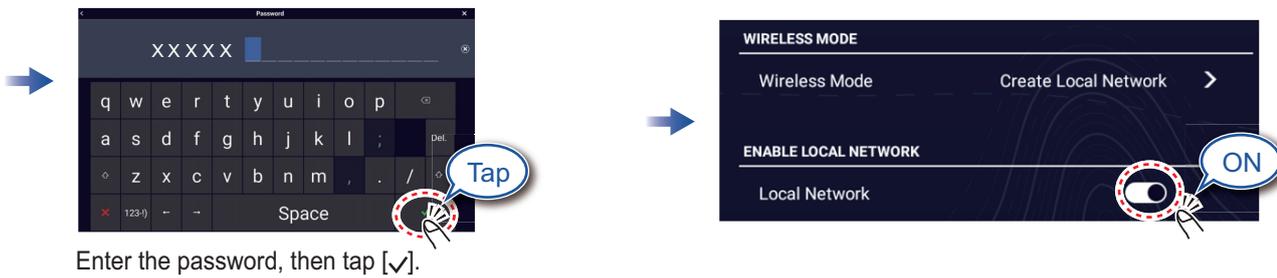
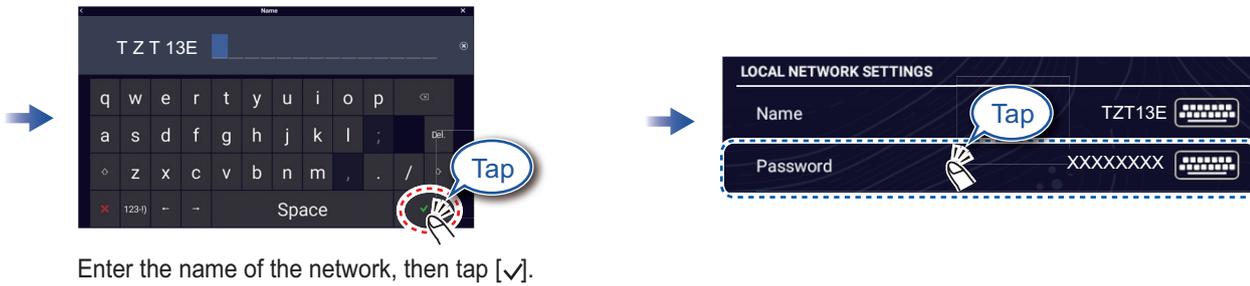
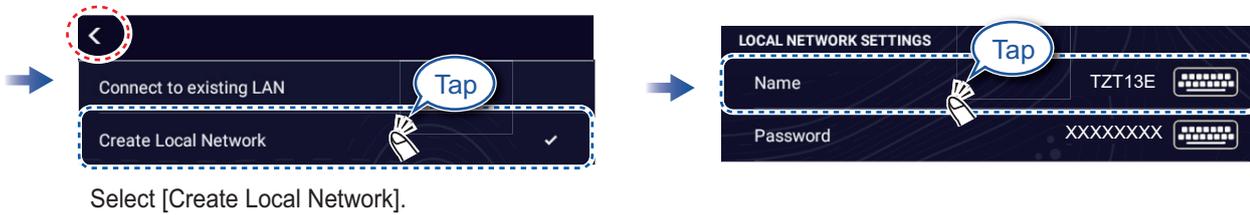
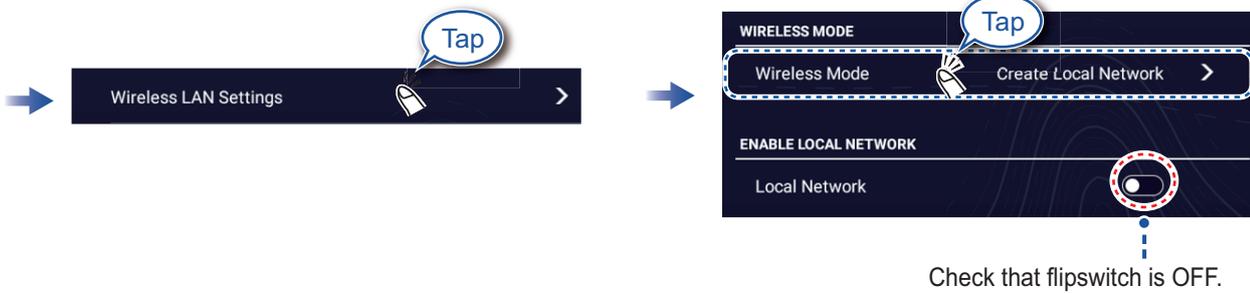
Connect to the existing LAN to download weather data or update the software.



Enter the password, then tap [OK].

How to create a local wireless network

Create a local wireless network to enable operation, monitoring of the TZMAP9/13 or TZT9E/13E from a smartphone or tablet.



 FURUNO ELECTRIC CO., LTD.



MQTZFU00AE



00010118720