

[ID]: Point no. in the route

[CTS]: Course to steer to go to waypoint

[SPEED]: Speed to use to go to waypoint

[DISTANCE]: Distance from preceding waypoint

[TOTAL]: Total distance from start to the waypoint

[TTG]: Time to go to the waypoint, using speed shown in [SPEED] column.

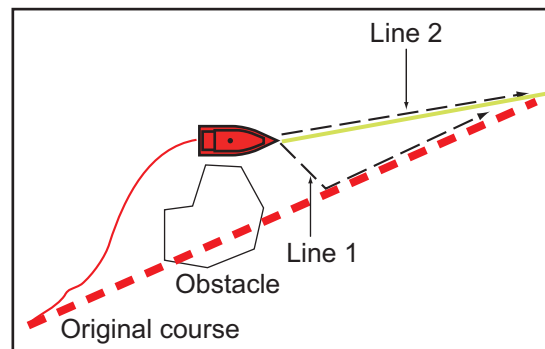
[TOTAL]: The time from start to the waypoint.

4.12 How to Restart or Cancel Navigation to a Point

4.12.1 How to restart navigation to a point

When you go to a point, you can restart the navigation to the point from the current location.

When you steer to keep away from an obstruction or the ship drifts, you go off course as shown in Line 1 in the figure. If you do not need to return to the original course, you can go to the point from the current position as shown in Line 2 in the figure.



1. Tap the red dashed line or the yellow line of the route to display the pop-up menu.
2. Tap [Restart]. The route start position for the route moves to the current position.

4.12.2 How to cancel navigation to a point

1. Tap any part of the route to display the pop-up menu.
2. Tap [Stop Nav].

The red dashed line, yellow line, XTE lines and arrival area circle are erased from the screen.

4. POINTS

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5. ROUTES

5.1 What is a Route?

A route is a series of route points entered in the order to use for navigation. A route can contain up to a maximum of 500 route points, and this equipment stores 200 routes.

Note: When connecting NavNet 3D units on the LAN network, a route can contain up to a maximum of 100 route points.

You create a route by selecting geographical positions on the screen. These positions are marked with blue squares.

You can follow a route that you have created, with the [Go To] feature. When you follow a route, the current leg is shown as a red dashed line and the previous leg is shown as a light gray line.

The routes on the screen can be edited from the pop-up menu. With this pop-up menu, you can

- Insert route points in a route
- Move route points in a route
- Delete route points from a route
- Extend a route
- Split routes
- Find information about a route
- Delete a route
- Set a route as destination
- Follow a route in the reverse direction
- Ignore a route point when following a route

Note: Active routes can be shared with other NavNet TZtouch2 units via LAN. Data is shared automatically; no operation is required.

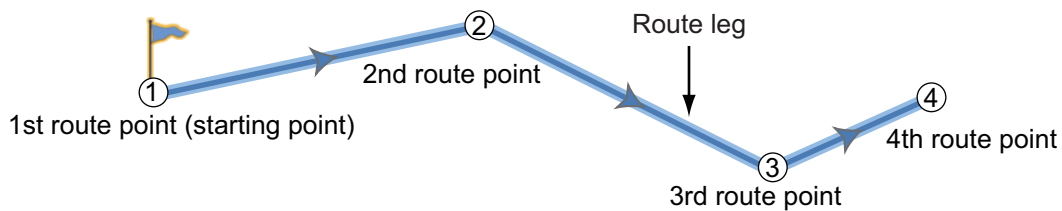
5.2 How to Create a Route

5.2.1 How to create a new route from the plotter screen

1. Tap a location on the screen for the 1st point in the route to display the pop-up menu.
2. Tap [New Route]. The flag mark appears on the selected position.
3. Tap the next route point in the route. A light-blue line with arrow runs between the previous route point and the next route point. The arrow points in the direction of route flow.

5. ROUTES

4. Tap the next route point in the route.
Repeat this step to enter all route points. Each route point is numbered.



5. At the last route point, tap [End Route] at the top right-hand corner of the screen to complete the route.
6. The window for entering route name appears. Enter route name then tap ✓ to confirm.

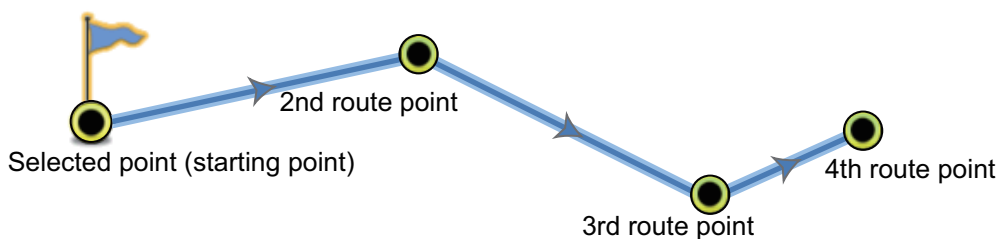
5.2.2 How to create a new route from a point

You can create a route from a point.

1. Tap a point to display the pop-up menu.
2. Tap [New Route]. The flag mark as below appears on the point.



3. Tap the next route point in the route. A light-blue line with arrow runs between the previous point and the next route point. The arrow points in the direction of route flow.
4. Tap the next route point in the route.
Repeat this step to enter all route points. Each route point is numbered.



5. At the last route point, tap [End Route] at the top right-hand corner of the screen to complete the route.
6. The window for entering route name appears. Enter route name then tap ✓ to confirm.

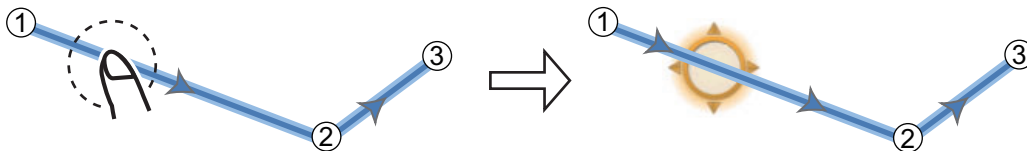
5.2.3 How to create a route from the points list

Open the points list. Tap the point to be the first point in the route then tap [Add to Route]. Repeat to add all required points. The route is drawn on the plotter display screen, where you can select the route to name it.

5.2.4 How to insert a route point on a route

You can insert a new route point on a route leg.

1. Tap a position on a route leg to insert a route point.
2. Tap [Insert] on the pop-up menu. The compass symbols marks the position selected. The route point is numbered according to its position in the route, and the succeeding route points are renumbered.

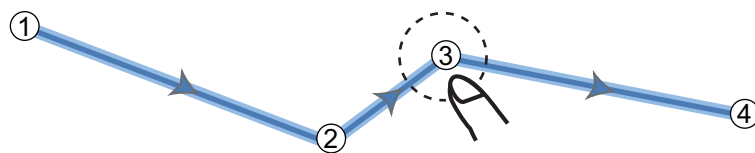


3. Tap [End Move] at the top right-hand corner of the screen.

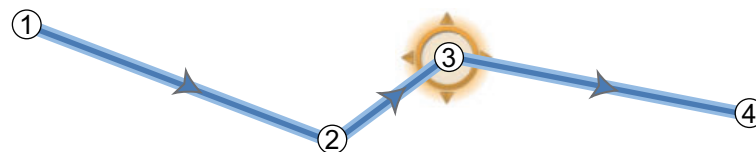
5.2.5 How to move a route point on a route

You can move a route point on a route.

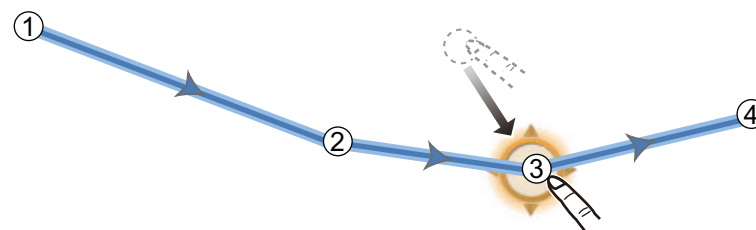
1. Tap a route point on a route to display the pop-up menu.



2. Tap [Move]. The selected route point is highlighted.



3. Move the route point to the new position by dragging the route point or tapping the new position.



4. Tap [End Move] at the top right-hand corner of the screen.

5.2.6 How to delete a point or route point on a route

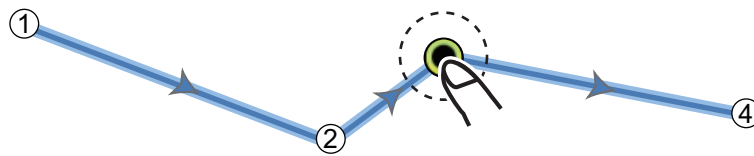
You can delete a point or route point on a route.

1. Tap the point or route point to show the pop-up menu.
2. Tap [Delete]. The selected point or route point is deleted, and the succeeding route points are renumbered.

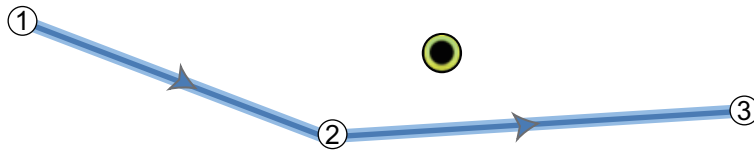
5.2.7 How to remove a point from a route

You can remove a point from a route.

1. Tap the point to remove to show the pop-up menu.



2. Tap [Remove]. The selected point is removed from the route, and the succeeding route points are renumbered.



5.2.8 How to extend a route

You can extend a route from the last route point on the route.

1. Tap a route leg to display the pop-up menu.
2. Tap [Extend].
3. Tap a position. A light-blue line with arrow runs from the last route point to the selected position.
4. Repeat step 3 to enter more route points, if necessary.
5. At the last route point, tap [End Route] at the top right-hand corner of the screen to complete the route and save the route to the routes list.

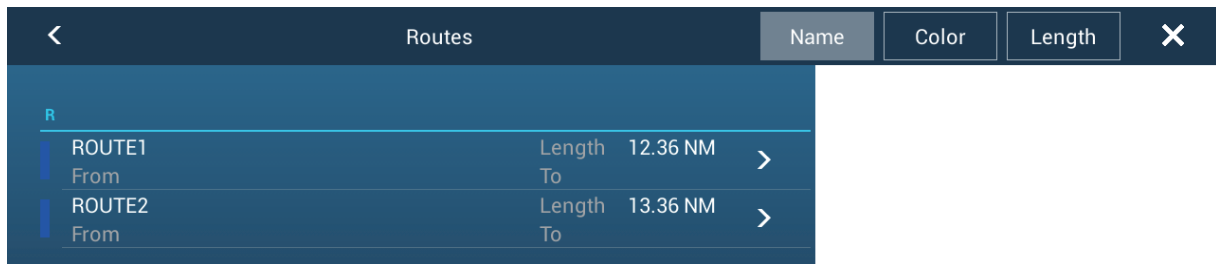
5.3 Routes List

The created routes are stored in the routes list, where you can edit or see the route data. The list stores the following route data for each route (the number for each item below has links to the number in the figure at step 3):

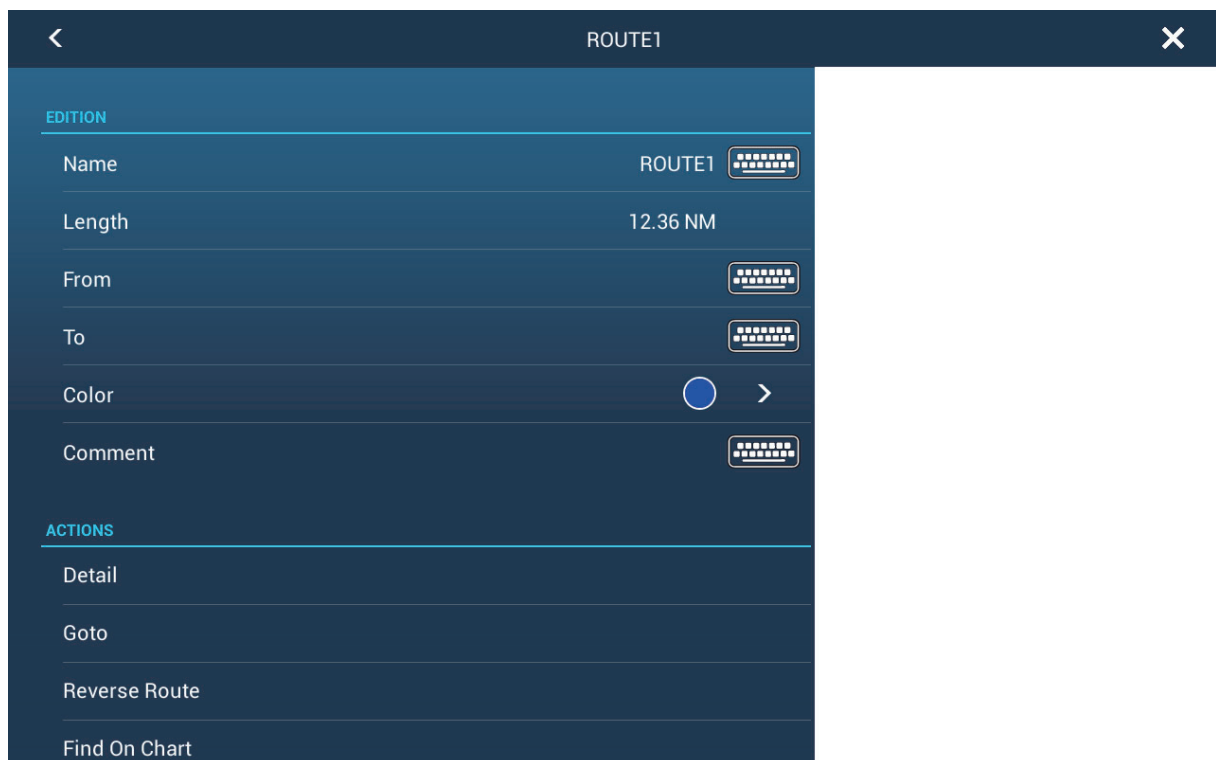
- 1) Name of route
- 2) Length of route
- 3) Names of starting route point and last route point (Enter them with the software keyboard.)
- 4) Color of route
- 5) Comment for route
- 6) Each number of each route point
- 7) Bearing to steer
- 8) Planning route speed (see section 5.10)
- 9) Distance between legs and total distance
- 10) TTTG between legs and total TTTG

To open the routes list:

1. Open the home screen, then tap [List].
2. Tap [Routes] to open the routes list.



3. Tap the route to view. (You can sort the list by name, color or length, with the similarly named buttons at the top right corner of the list.)



4. You can edit the name, from point, to point color and comment for the route.
5. To find details about the route, tap [Detail] to show the [Edit] screen.

Route Detail		Route Speed	Departure Date: 12:07:44 PM Wednesday, January 1, 2014					
ID	CTS	SPEED	DISTANCE	TOTAL	TTG	TOTAL		
1	0.0 °	5.0 kn	0 yd	0 yd	0'00s	0'00s	>	
ID	CTS	SPEED	DISTANCE	TOTAL	TTG	TOTAL		
2	86.1 °	5.0 kn	3.188 NM	3.188 NM	38'15s	38'15s	>	
ID	CTS	SPEED	DISTANCE	TOTAL	TTG	TOTAL		
3	171.1 °	5.0 kn	2.285 NM	5.472 NM	27'25s	1h06'	>	
ID	CTS	SPEED	DISTANCE	TOTAL	TTG	TOTAL		
4	265.4 °	5.0 kn	3.911 NM	9.383 NM	46'56s	1h53'	>	
ID	CTS	SPEED	DISTANCE	TOTAL	TTG	TOTAL		
5	296.5 °	5.0 kn	2.981 NM	12.36 NM	35'47s	2h28'	>	

The colored bar at the left side of the screen is the route color.

[ID]: Waypoint number

5. ROUTES

[CTS]: Course to steer to go a waypoint.

[SPEED]: The speed set with [Default Planning Route Speed] in the [Routes] menu.

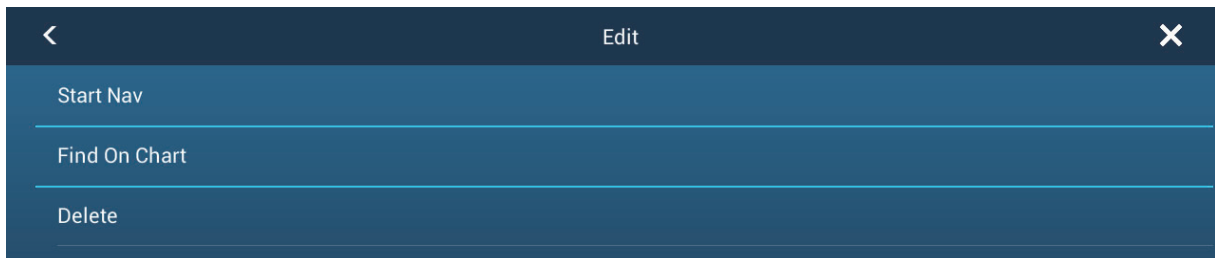
[DISTANCE]: Distance between adjacent waypoints.

[TOTAL]: Cumulative distance.

[TTG]: Time to go between adjacent waypoints.

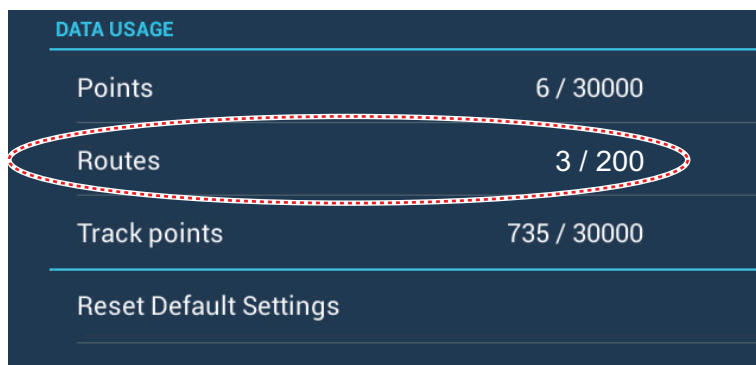
[TOTAL]: Cumulative time in route.

6. From the [Edit] screen, you can start navigating the route, find the route on the chart, or delete the route. Tap a route waypoint to show the [Edit] screen. Tap [Start Nav].



5.4 How to Find Number of Routes Created

Open the home screen, then tap [Settings] - [General]. Find [Routes] in the [DATA USAGE] section. In the example below, 3 routes out of 200 have been created.



5.5 How to Find a Route on the Chart

You can easily find the location of a route from the routes list. The selected route is put at the center of the active plotter display.

1. Open the home screen, then tap [List].
2. Tap [Routes] to open the routes list.
3. Tap a route then tap [Find On Chart] from the options. The menu closes then the selected route is put at the center of the plotter display.

5.6 How to Delete a Route

You can delete routes individually or collectively. An active route cannot be deleted.

5.6.1 How to delete a route on the screen

Tap a route leg of a route to delete to show the pop-up menu, then tap [Delete].

5.6.2 How to delete a route from the routes list

1. Open the home screen, then tap [List] - [Routes].
2. Tap the route to delete then tap [Delete]. The route disappears from both the screen and the routes list.
3. Tap the close button to close the window.

5.6.3 How to delete all routes

1. Open the home screen, then tap [List] - [Routes].
2. Tap [Delete All Points & Routes] menu.
3. You are asked if you are sure to delete all routes (and points). Tap [OK].
4. Tap the close button to finish.

5.7 How to Show or Hide All Routes

All routes can be shown or hidden. An active route cannot be hidden from the screen unless route following is stopped.

Open the [Layers] menu, the turn [Routes] on or off.

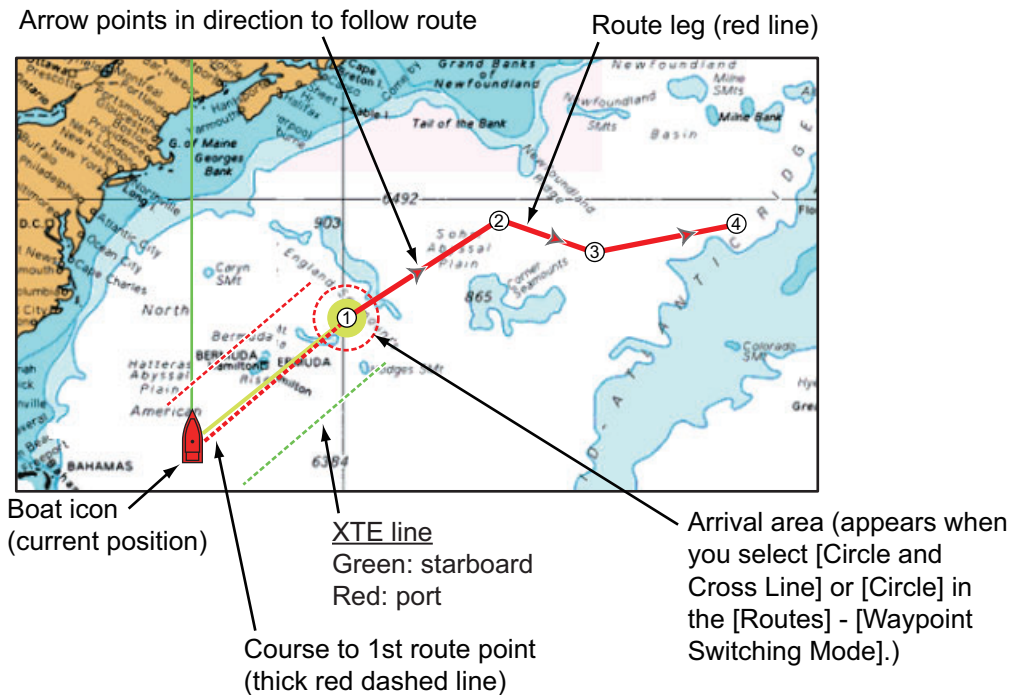
Note: Inactive routes can be placed at either the arrival or departure location. Open the Layers menu, then activate [Departure] or [Arrival] (below the [Routes] flipswitch).

5.8 How to Follow a Route

Before you follow a route, make sure that the path to the route is clear. Make sure to zoom your chart to check for hazards that do not appear on a smaller scale.

5.8.1 How to follow an on-screen route

1. Tap a route leg of the route to follow to show the pop-up menu.
2. Tap [Start Nav].



The following occurs:

- The line for the selected route turns red.
- The go to point (1st route point) is highlighted.
- A thick red dashed line and a yellow line run between the current position and the 1st route point of the selected route. The thick red dashed line is the course to follow to get to the 1st route point. The yellow line is the shortest course from the current position to the go to point.
- The go to point is numbered "1" and the position where the [Go To] function starts is numbered "0".
- The arrival area marker appears if activated on the menu (see paragraph 5.9.5).
- The XTE lines, red for port side, green for starboard side, appear. You can show or hide these lines and set their width with [Display XTE Lines] and [XTE Value] respectively in [Routes] menu.

Note: If you want to be notified when you reach a go to point, turn on [Waypoint Crossing Notification] on [Routes] of the menu (see paragraph 5.9.8). Then the message "Waypoint Crossing" appears when you reach a go to point. For the arrival timing, see paragraph 5.9.5.

5.8.2 How to follow a route selected from the routes list

1. Open the home screen, then tap [List] - [Routes].
2. Tap the route to follow then tap [Goto] from the options.
3. Tap the close button to finish.

The following occurs:

- The line for the selected route turns red.
- The go to point (1st route point) is highlighted.
- A thick red dashed line and a yellow line run between the current position and the 1st route point of the selected route. The thick red dashed line is the course to follow to get to the 1st route point. The yellow line is the shortest course from the current position to the go to point.
- The go to point is numbered "1" and the position where the [Go To] function starts is numbered "0".
- The arrival area marker appears if activated on the menu (see paragraph 5.9.5).
- The XTE lines, red for port side, green for starboard side, appear. You can show or hide these lines and set their width with [Display XTE Lines] and [XTE Value] respectively in [Routes] menu.

Note: If you want to be notified when you reach a goto point, turn on [Waypoint Crossing Notification] in the [Routes] menu (see paragraph 5.9.8). Then the message "Waypoint Crossing" appears when you reach a goto point. For the arrival timing, see paragraph 5.9.5.

5.8.3 How to start navigation from a route point

Tap the route point of the route from where to start navigation, then tap [Start Nav] on the pop-up menu.

In the above example, the following occurs:

- The route point "3" is selected to start navigation from, and is highlighted.
- The current position is numbered "2" and the numbers of the previous route points decrease one by one.
- The line from "3" to the route point "5" for the selected route turns red and the legs for "0" and "1" turn gray.
- A thick red dashed line and a yellow line run between the current position "2" and the "3" route point. The thick red dashed line is the course to follow to get to the route point "3". The yellow line is the shortest course from the current position to the route point "3".
- The arrival area marker appears if activated on the menu (see paragraph 5.9.5).
- The XTE lines, red for port side, green for starboard side, appear. You can show or hide these lines with [Display XTE Lines] in the [Routes] menu.

Note: If you want to be notified when you reach a goto point, turn on [Waypoint Crossing Notification] in the [Routes] menu (see paragraph 5.9.8). Then the message "Waypoint Crossing" appears when you reach a goto point. For the arrival timing, see paragraph 5.9.5.

5.8.4 How to show the detailed information about a route

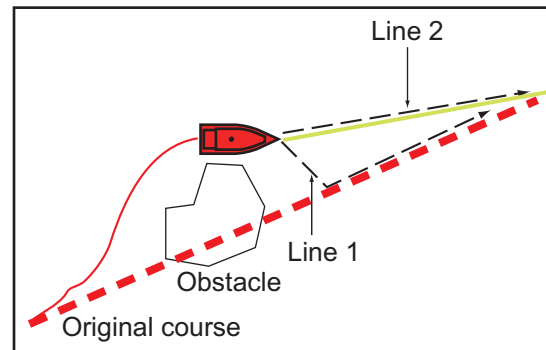
Tap a route leg of the route, then Tap [Detail] to show the [Route Detail] window.

5.9 Operations When You Follow a Route

5.9.1 How to restart navigation

When you follow a route, you can re-start the navigation to the next route point on the route from current location.

When you steer to keep away from an obstruction or the ship drifts, you go off course as shown in Line 1 in the figure. If you do not need to return to the original course, you can go to the route point from the current position as shown in Line 2 in the figure.



Tap a route leg, the red dashed line or the yellow line of the route to display the pop-up menu. Tap [Restart]. The route start position for the route moves to the current position.

5.9.2 How to follow a route in the reverse direction

You can follow a route in reverse order. This helps you return along the same path.


Note: This function is not available for an active route.

Tap a route leg to display the pop-up menu, then tap [Reverse]. The arrows on the route legs are in reverse direction and the numbers of the route points are in reverse order.

5.9.3 How to stop following a route

Tap a route leg, a route point or a thick red dashed line on an active route to display the pop-up menu, then tap [Stop Nav]. The arrival area, XTE lines, set course (thick red dashed line) and yellow line are erased from the screen. The red line for the route turns the default color you set.

5.9.4 How to skip a go to point on a route

There are times when you do not need to follow all legs in an active route. You can skip a go to point  (highlighted) as shown in the procedure below. After you tap the go to point to skip, the skipped route leg turns from red to gray.

- **Tap the go to point of the active route:** Tap [Skip] on the pop-up menu. The selected go to point is skipped then the next route point is marked as the go to point.
- **Tap a route leg of the active route:** Tap [Skip Wpt] on the pop-up menu. The go to point on the route is skipped then the next route point is marked as the go to point.

5.9.5 Waypoint switching mode

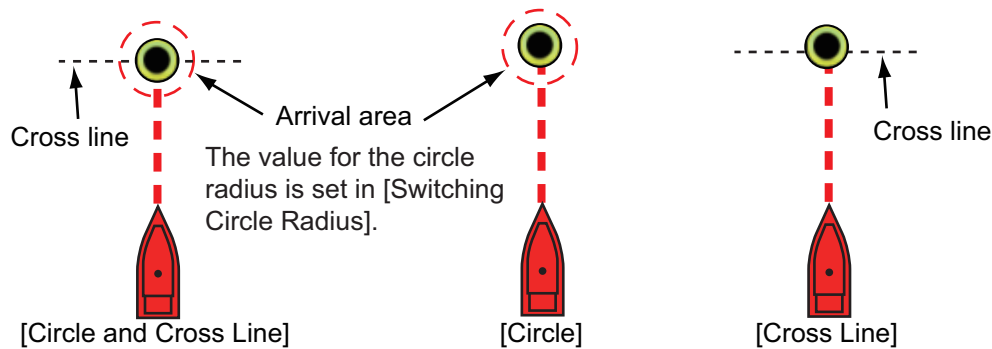
When you arrive to a route point, your unit automatically changes to the next route point according to the waypoint switching mode selected on the menu.

[Cross Line]: Change the waypoint when the ship moves through an imaginary cross line (vertical line) that passes through the center of the destination point.

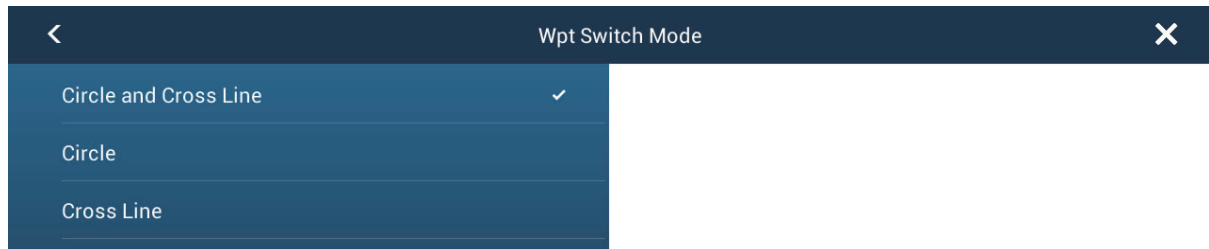
[Circle]: Change the waypoint when the ship comes within the circle.

[Circle and Cross Line]: Change the waypoint when one of the above two conditions is met.

A red dashed circle appears when you tap [Circle and Cross Line] or [Circle].



1. Open the home screen, then tap [Settings] - [Routes].
2. Tap [Wpt Switch Mode].



3. Tap [Circle and Cross Line], [Circle] or [Cross Line]. For [Circle and Cross Line] or [Circle], go to the next step. For [Cross Line], go to step 6.
4. Tap [Switching Circle Radius] to display the software keyboard.
5. Set the arrival area (circle radius) then tap ✓ confirm.
6. Tap the close button to finish.

5.9.6 Route auto zoom

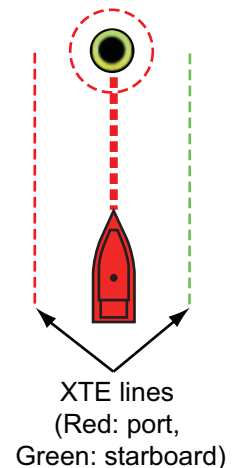
You can get automatic range change after you have moved past the go to point. Use this feature to find the next go to point in the route when the next go to point is not within the current display range.

1. Open the home screen, then tap [Settings] - [Routes].
2. Turn [Route Auto Zoom] on or off as required.
3. Tap the close button to finish.

5.9.7 XTE lines

The color of the XTE line is red for the port side, green for the starboard side. You can show or hide these lines and set their distance from own ship as follows.

1. Open the home screen, then tap [Settings] - [Routes].
2. Turn [Display XTE Lines] on or off as required. For [ON], go to the next step. For [OFF], tap the close button to finish.
3. Tap [XTE Value] to display the software keyboard
4. Set the distance of the XTE lines from your ship then tap ✓. The XTE alarm sounds (if active) when your ship veers off course by the amount set here.
5. Tap the close button to finish.



5.9.8 Waypoint arrival notification

The waypoint arrival notification feature releases audio and visual notifications when your ship reaches a go to point. For the arrival timing, see paragraph 5.9.5. The notification message "Waypoint Crossing" appears. Activate or deactivate this feature as follows.

1. Open the home screen, then tap [Settings] - [Routes].
2. Turn [Waypoint Crossing Notification] on or off as required.
3. Tap the close button to finish.

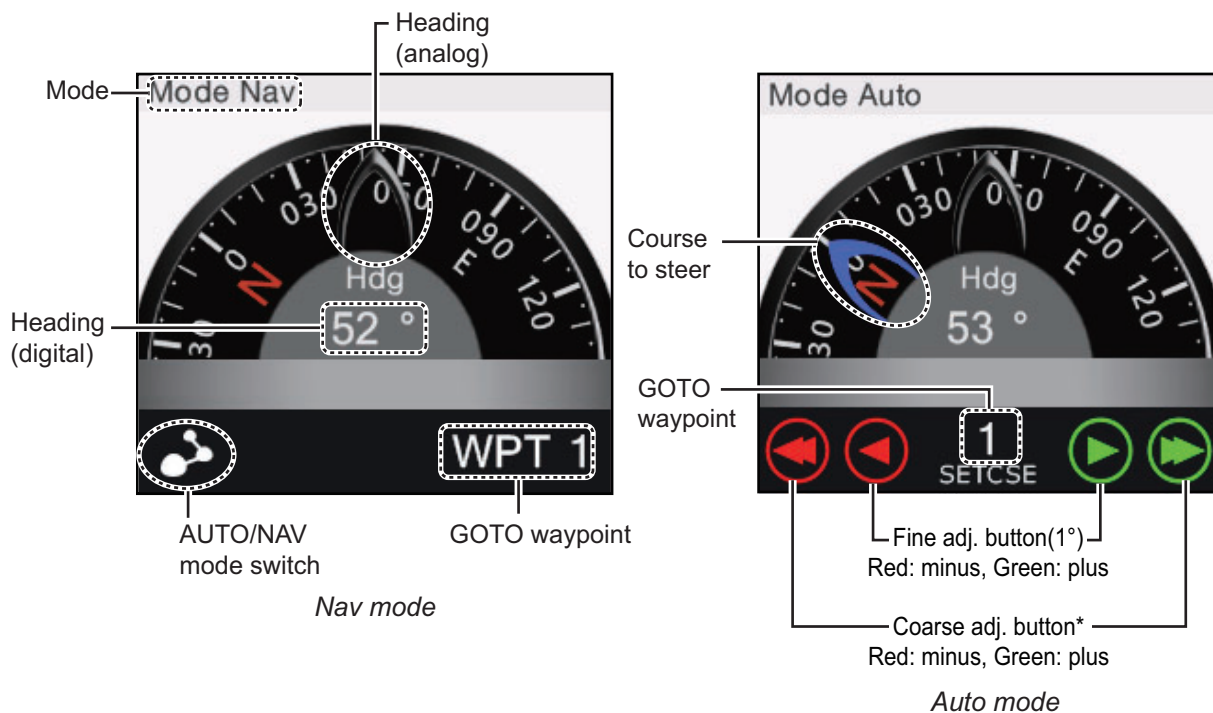
5.9.9 End of route notification

The end of route notification feature releases audio and visual notifications when your ship reaches the end of a route. For the arrival timing, see paragraph 5.9.5. The notification message "End of Route" appears. Activate or deactivate this feature as follows.

1. Open the home screen, then tap [Settings] - [Routes].
2. Turn [End of Route Notification] on or off as required.
3. Tap the close button to finish.

5.9.10 Steering a route with the NAVpilot

The NAVpilot can be used to steer a route, from the Navpilot control box in the data area. The figure belows shows the Navpilot control box in the Nav and Auto modes. See paragraph 4.11.4 for details.



5.10 Routes Menu

This section provides descriptions for the items in [Routes] menu not previously mentioned.



[Default Route Color]: Select the color of the routes. The options are red, blue, green, yellow, magenta, orange, cyan, or black & white.

[Route Thickness]: Select the thickness of the routes.

[Ask to Enter Route Name]: Show the software keyboard to enter route name after you create a route.

[Great Circle Navigation]: Great circle is the shortest line that joins two points on the surface of the earth. Tap the [ON] icon to automatically enter the waypoint with great circle line when you create the route.

[Maximum Dist. Between Waypoints]: Set the maximum distance between route points when [Great Circle Navigation] is [ON].

[Intelligent Route Waypoint Centering]: When you create a route, center a route point each time it is selected on the screen.

[Default Planning Route Speed]: Set the planning route speed (see section 5.3).

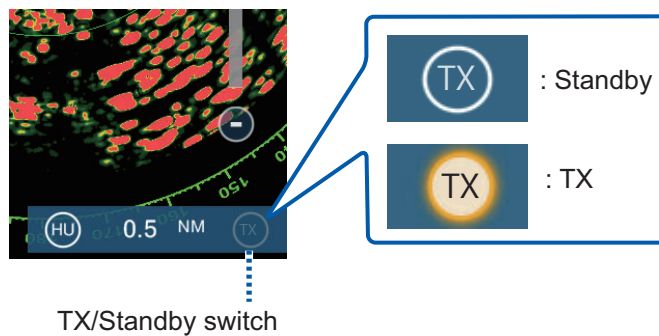
[Reset Default Settings]: Select this menu item to restore default settings for the [Routes] menu.

6. RADAR

This chapter provides the information necessary for radar operation.

6.1 How to Transmit, Set the Radar in Stand-by

Tap the [TX] icon at the bottom right corner of the screen to put the radar in transmit or standby state. The icon is filled in white when the radar is in transmit state. (Transmit, standby can also be controlled from the pop-up menu with [TX/STBY].)



If you do not require the radar for some time, set the radar in stand-by to save the magnetron from unnecessary use.

6.2 Tuning

In default, the radar receiver is tuned automatically after the radar is set to transmit. If you require fine tuning, do the following to tune manually:

1. Open the home screen, then tap [Settings] - [Radar].
2. The default tuning method is automatic. Turn off [Auto Tuning] to enable manual tuning.



3. Drag the slider at [Manual Tuning] to set the value.



4. Tap the close button to finish.

6.3 How to Adjust the Gain

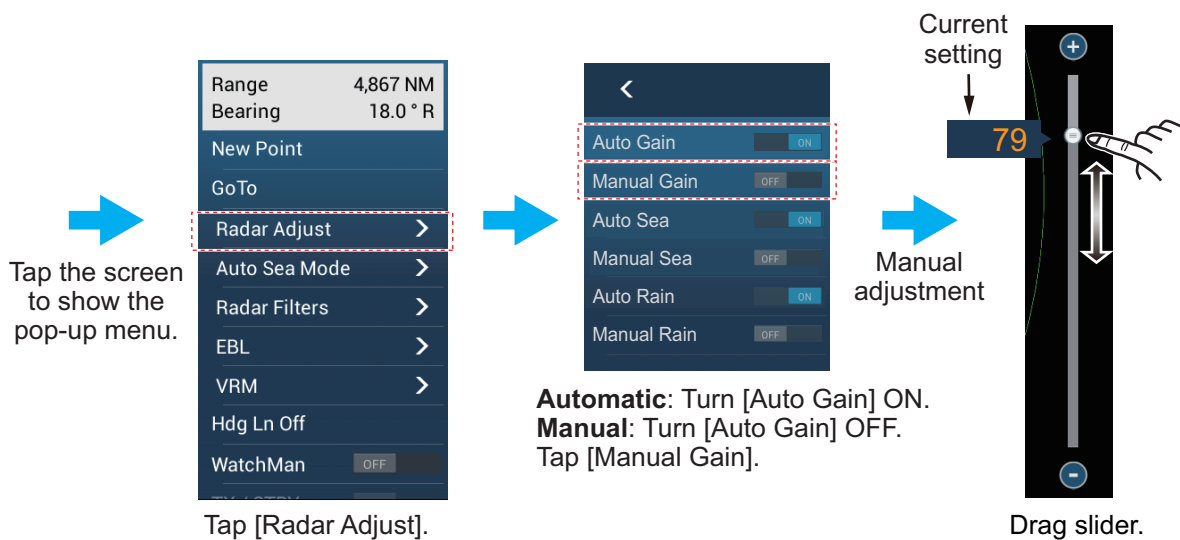
You can adjust the gain (sensitivity) of the radar receiver. The correct setting shows some background noise on the screen. If you do not use enough gain, weak echoes are erased. If you use more gain than necessary, the background noise hides both weak and strong targets.

The gain can be adjusted from the data area or the pop-up menu.

Method 1: Pop-up menu

Tap the screen to show the pop-up menu then tap [Radar Adjust]. Turn [Auto Gain] on for automatic adjustment.

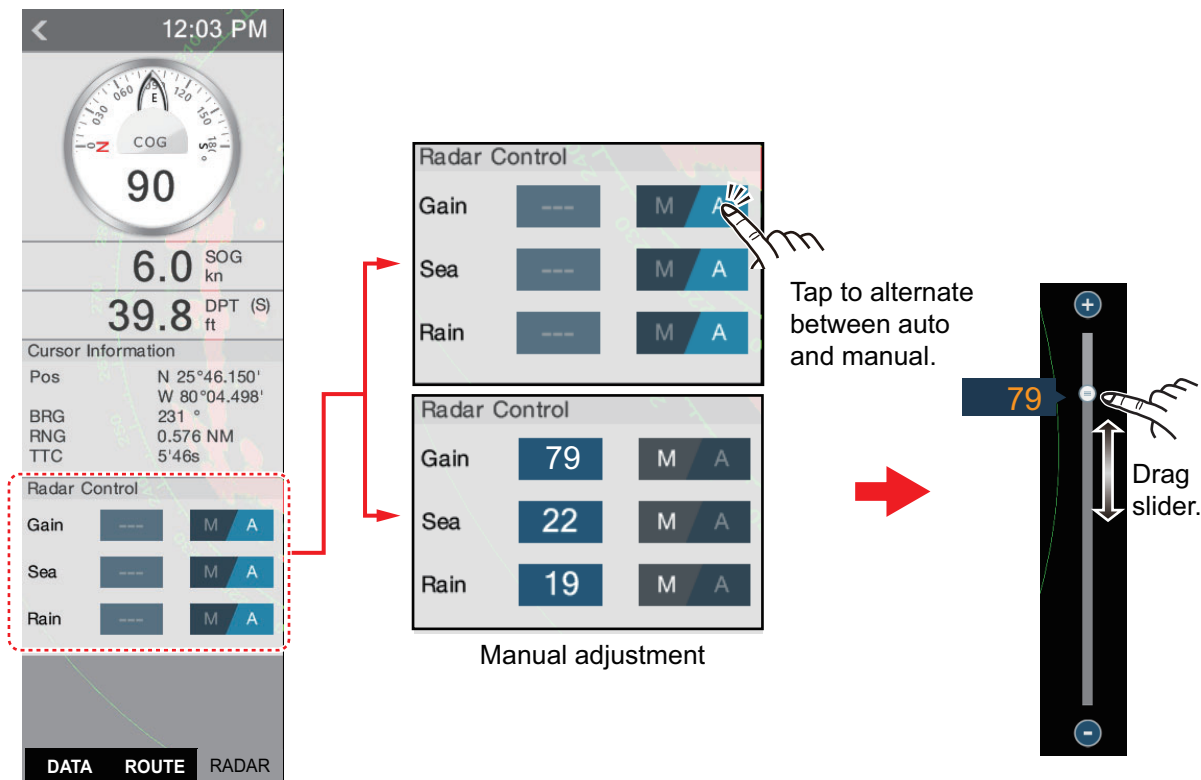
For manual adjustment, turn off [Auto Gain], tap [Manual Gain] then adjust the gain with the slider. Tap the screen to finish.



How to adjust the gain

Method 2: Radar Control data box in data area

The gain can be adjusted from the data area if the Radar Control data box is available. On the box, tap the [A] part of the [Gain] flipswitch to switch between manual and automatic adjustment. For manual adjustment, drag the slider to adjust. Tap the screen to finish.

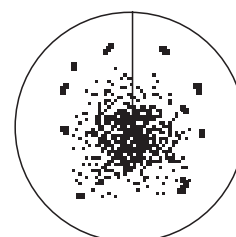


6.4 How to Reduce the Sea Clutter

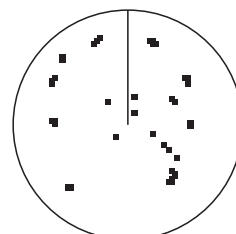
The reflected echoes from waves appear at the central part of the screen and have the name "sea clutter". The sea clutter increases in width as the height of waves and the height of the antenna above the water increase. If the sea clutter is strong, targets can be hidden inside the clutter, like in the left-hand figure shown below.

When the sea clutter hides targets, adjust the sea control (automatically or manually) to reduce the clutter. After the sea clutter is gone, turn off the sea control to prevent the loss of targets. Like with gain, sea clutter can be adjusted from the pop-up menu or data area. See the procedures in section 6.3.

For automatic sea clutter suppression, there are two methods: [Advanced] and [Coastal]. [Advanced] provides for standard suppression of sea clutter and is intended for normal use. [Coastal] suppresses sea clutter further than does [Advanced] and paints land and target echoes thicker. Use [Coastal] when you are cruising along a coastline. To select an automatic sea clutter suppression method, open the pop-up menu, tap [Auto Sea Mode] then turn on [Advanced] or [Coastal].



Sea clutter at screen center



Sea control adjusted; sea clutter suppressed