USER MANUAL

Updated to the software version 5.9.xR

(where “x” indicates all versions of 5.9 software)

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1. Introduction

The plotter is a computerized electronic chart system, designed as a navigation aid. This manual describes the core functionality of the software for marine plotters and is valid for different plotter families, including controllers as well as 9" and 12".
The plotter integrates GPS data with digital charts stored on a micro SD card and can display additional information from AIS, Fish Finder, and other sensors. Navigating through the plotter pages is possible using either keyboard, touchscreen or the remote controller.

1.1 Conventions used

Plotters can be controlled using hardware keys (located on the plotter or the remote controller) or both hardware keys and touchscreen operations.
In order to distinguish between hardware keys, menu items, buttons, icons, touchscreen and key operations, the following mapping is used:

- [POWER], [MENU] - hardware keys are given capitalized and enclosed in square brackets;
- "General Settings", "OK" - menu items and buttons (displayed on the screen) are enclosed in quotes;
- The words "press", "release" mean operation with hardware keys, located on plotters;
- The words "tap", "swipe" mean operation with menu items, buttons, lists, icons on touchscreen plotter;
- The word "select" means choosing an item in two ways:
  1. using a joystick/joypad or a rotor wheel to highlight an item and [ENTER] key to select it;
  2. using tap gestures for touchscreen plotters.

1.2 Keyboards

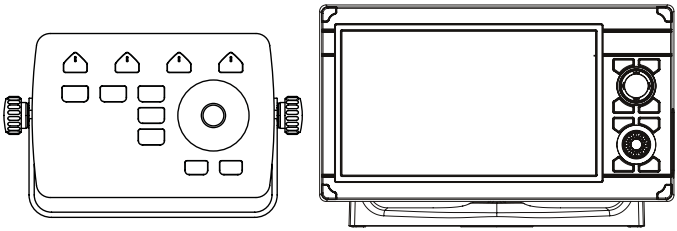


Figure 1.2 – Example of controller and touchscreen plotter

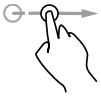
Different plotter families have varied set of hardware keys.
Some keys are common for all plotters; you can see their description below.

- The joystick/joypad can move the cursor around the map (pan the map) or through menu items. Press [UP], [DOWN], [LEFT] or [RIGHT]. From now on we refer in a generic way to joystick also to indicate the joypad;
- Function keys like [F1] are special keys. Each key can perform two functions. A short press performs the fixed function (it can be labeled on the unit face). A long press (press a key and hold it) executes a second function that can be customized by the user. This gives you a wider scope of

functions that can be executed by pressing function keys. See Par. 7.2 to learn how to customize the function keys;
- [MOB] is a special key dedicated to man-over-board situation. Pressing “MOB” places a MOB mark on the current boat position and starts navigation to that place;
- [MENU] opens the main menu if pressed on one of the main pages (“Map”, “Fish Finder”, “GPS Status”, “Engine Monitor Display”). Also, from a listing page, such as “Marks”, “Routes”, “Tracks”, etc., pressing MENU moves the cursor to the control buttons located at the top bar of the page;
- [ENTER] is used to confirm an action or a selection. When on the “Map” page, pressing [ENTER] opens the contextual menu of a map object;
- [CLEAR]* exits from the current menu or, if you are on the “Map” page and the cursor is away from the boat position, centers the map on the boat position (home mode);
- [POWER] turns the plotter on/off when pressed and held in. Short press allows switching day/night mode of the screen or change the brightness and disable touchscreen, depending on the plotter family.

*[CLEAR] may also refer to [BACK] or [CLR].

1.3 Touchscreen gestures

	Tap (touch the screen for less than 1 second and release your finger): Perform action corresponding to touch area of the screen: select, activate button, etc.
	Long tap (touch the screen and hold your finger for more than 1 second): Open editable item, e.g. databox.
	Pan (touch the screen on the “Map” page, keep your finger pressed and move in any direction): Pan the map.
	Pinch in / Pinch out (touch the screen with two fingers simultaneously, then move fingers closer or further): Zoom-in / zoom-out on the “Map” page or change the range on the “Fish Finder” page.
	Rotate (touch the screen with two fingers simultaneously and move them clockwise or counterclockwise): Rotate the map.
	Scroll up-down or left-right (touch the screen and move your finger to the sides): Scroll through the lists or through Fish Finder echogram history.
	Swipe (touch the top edge of the screen with one finger, keep it pressed and move quickly to the bottom): Open page selector.
	Two finger drag up and down: Change from 2D to perspective mode and adjust angle, and back to 2D with C-Map MAX or C-Map 4D cartography. For using this option with Navionics select 3D chart mode in the “Quick Settings” menu.

1.4 Software interaction

Your plotter will display various interface elements, such as icons, buttons, switchers, sliders and radio buttons while operating the device, and these allow you to set and control it. Interacting with these interface elements differs slightly between touchscreen devices and controllers.

Icons
Icons, such as “Back”, “Home”, “Close”, help to ease navigation amongst menus and dialog windows. On controllers, the [CLEAR] button is used to return one step backwards or to close a menu / popup, whereas on touchscreen devices, you can tap the needed icon directly.

Buttons
Buttons, such as “OK”, “Save”, “Cancel” are displayed in dialog windows and during user data edit mode.
On controllers, button selection is performed with the joystick and [ENTER] button: the desired button can be targeted with the joystick, while pressing [ENTER] confirms the selection.
On touchscreen devices, the tap gesture, directly on the desired button, performs both targeting and confirmation actions at once.

Switchers
On controllers, enabling or disabling switchers can be done using joystick to target the item and pressing [ENTER] to enable or disable the switcher.
On touchscreen devices, the tap gesture, directly on the desired item, switches between enabled and disabled states.

Sliders
Sliders help to select and change numeric settings. Values can be changed using the slider itself, or by opening the virtual keyboard to enter the value manually.
On controllers:

1. Use the joystick to target the slider;
2. Press [ENTER] to activate the slider knob: it will change the color to blue;
3. Move the slider knob with the joystick or the rotor wheel to change the value;
4. Press [ENTER] again to confirm the value;

or

5. Press [CLEAR] to cancel.

To open the virtual keyboard, target to the slider and long press [ENTER].
On touchscreen devices:

1. Tap the slider bar to move the knob and change the value;

or

2. Tap the knob, and keep your finger pressed, moving right or left to change the value;

or

3. Tap the numeric value to open the keyboard.

Radio buttons
Almost all the submenus consist of radio button groups. Only one radio button per group can be selected. On controllers, selection is performed with joystick and [ENTER] buttons.
On touchscreen devices simply tap the needed item to select it.

1.5 Remote Keyboard

You can operate on some of the plotters using the optional remote controller. It connects to the plotter via radio signal. Check that one AAA battery is plugged into the remote controller before using it.
To pair the remote controller to the plotter:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Remote Keyboard”;
3. Set “Enabled” to ON;
4. Select the “PIN” tab and enter the PIN code given on the backside of your remote controller;
5. Push the joystick of the remote controller to activate it.

Now you can operate on the plotter also using the remote controller.
The battery status can be seen on the “Remote Keyboard” page if it is connected to the plotter.

2. On Board user manual

This user manual is built into the plotter software.
You can find it as the last item in the main menu of each page:

1. Open the main menu by pressing [MENU];
2. Select “User Manual”.

How to read the manual

1. Press [UP-DOWN] or use scroll gesture to scroll the page;
2. Press [LEFT-RIGHT] to go to the previous or the next page;
3. Press [ZOOM IN-ZOOM OUT] use rotor wheel or pinch in / pinch out gestures to zoom the page;
4. Press [ENTER] or use long tap gesture to find a page by number;
5. Press [CLEAR] or tap the “Home” icon to close the manual.

How to search a keyword:

1. Press [MENU] to highlight the “Search” icon and [ENTER] to call a virtual keyboard, or tap the “Search” icon;
2. Type a keyword in the keyboard: use [UP-DOWN] and [LEFT-RIGHT] to highlight a letter and [ENTER] to confirm selection, or tap the letters. After entering the keyword, move the cursor over “Done” and press [ENTER] button, or tap it;
3. The first page with the chosen keyword will be presented and the keyword highlighted;
4. Press [LEFT-RIGHT] to go to the previous or the next page containing the keyword;
5. Press [CLEAR] or tap the “Clear Search” icon to close the search view.

3. Getting started

3.1 Switching on

Before powering the plotter on, check for the correct voltage (10-35) and the correct connections with other instruments. Press and hold [POWER] to turn on the plotter.

3.2 Switching off

Press and hold [POWER] to switch the plotter off. A countdown timer appears on the screen. If you release [POWER] before the countdown timer reaches zero, the plotter will remain switched on.

3.3 Initial Settings

When turning the plotter on for the first time, you can change main settings on “Initial Settings” page (“Language”, “Units”, “Formats and References”, “Date and Time”, “Engine Setup” and “Ship Profile”). “Initial Settings” page will be also displayed after restoring to factory default settings (Par. 7.1). This page allows selecting software language, units, date and time format, position format and engines number:

1. Switch the plotter on and wait for the “Initial Settings” page to appear on the screen;
2. Select the preferred item by pressing [DOWN] / [UP] or tap with your finger. It is possible to keep the default value;
3. Press [ENTER] or tap to confirm the selection;
4. Press [CLEAR], tap “Back” icon of the submenu or tap outside the submenu to return to “Initial Settings” items list;
5. After introducing all desired changes, select “Confirm”;
6. On the “Warning – LIMITATIONS ON USE” page press [DOWN] or scroll to read the limitations on use;
7. Press [ENTER] or tap “OK” when you reach the end of the text to accept the limitations on use.

NOTE: You must accept all the limitations specification on the “Warning – LIMITATIONS ON USE” page in order to use the plotter.

3.4 Selecting the software language

To set the main language of software:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Language”, then select the preferred language.

3.5 Selecting the chart language

To change the language of the map information, for example, names of geographical objects:

With C-MAP 4-D and C-MAP MAX default cartography:

1. Open the main menu by pressing [MENU];
2. Select “Map Settings” > “Chart Settings” > “Language”, then select the chart language from the list.

With Navionics default cartography:

1. Open the main menu by pressing [MENU];
2. Select “Map Settings” > “Chart Language”, then select the chart language from the list.

3.6 Setting units, time zone and time format

To change units:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Units”;
3. Select an option for each set of units.

To change time zone:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Date and Time”;
3. Choose between “UTC” or “Custom” (can be adjusted after “UTC” set to OFF).

If you chose “Custom:

1. Select the desired zone from the “Custom” submenu;
2. Select “Daylight Saving Time” (it must be enabled/disabled manually).

To change date and time format:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Date and Time”;
3. Choose the date format and the time format.

4. Controlling the display

The plotter displays 10 main pages:

- "Map" (Par. 4.2);
- "Fish Finder" (Par. 4.3);
- Instruments (Par. 4.4)
- "Engine" (Par. 4.5);
- "Radar" (Par. 4.6);
- Split "Map / Fish Finder" page (Par. 4.7);
- Split "Map / Radar" page (Par. 4.7);
- Split "Instruments / Map " page (Par. 4.7);
- Split "Instruments / Fish Finder " page (Par. 4.7);
- Split "Instruments / Radar" page " page (Par. 4.7).

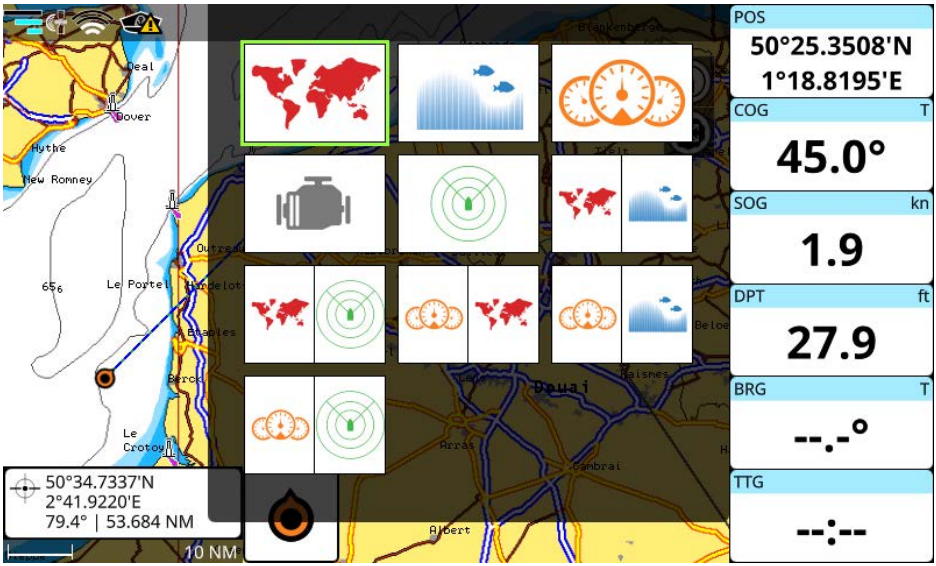


Figure 4 - Pages widget popup

To change the displayed page:

1. Open the main menu by pressing [MENU];
2. Select "Page";
3. In the widget popup, select the desired page using a joystick or tap the needed one.

NOTE: Changing pages on the touchscreen plotters can be done also by vertical swipe (from the top) to call a page widget.A quicker way to switch between pages is to set one of the function keys (Par. 7.2) to "Page". As well, some models of plotter can also have a [PAGE] key for switching pages.

4.1 Status bar

The status bar appears in the upper left part of the screen on every page. It can display various icons:

- GPS: connection status and three levels of satellite data quality;
- Heading: warns if valid heading data is missing;
- WiFi: connection status and wireless signal strength;
- Track recording status;
- Captain Cloud: connection status.
- Remote Controller: connection status;
- Software Update: download status;
- BarentsWatch service connection status.



Figure 4.1 - Status bar

4.2 Onscreen buttons

Onscreen buttons are available in the upper-right hand corner of MAP and RADAR screens.

- Map/Radar orientation button calls the menu and allows selection between North-Up, Heads-Up or Course-Up map orientation mode;
- Knob mode button calls the menu and allows selection between Zooming, Rotation or Tilting mode (with Navionics cartography available in 3D chart mode);
- Radar Tx button turns radar antenna transmission ON or OFF;
- MOB button places MOB (Man Over Board) at the current fix position (Par. 13).



Figure 4.2 - Onscreen buttons

4.3 The “Map” page



Figure 4.3.a - Map page

The “Map” page includes map, cursor box, databoxes map mode switch icon and wheel mode switch icon.

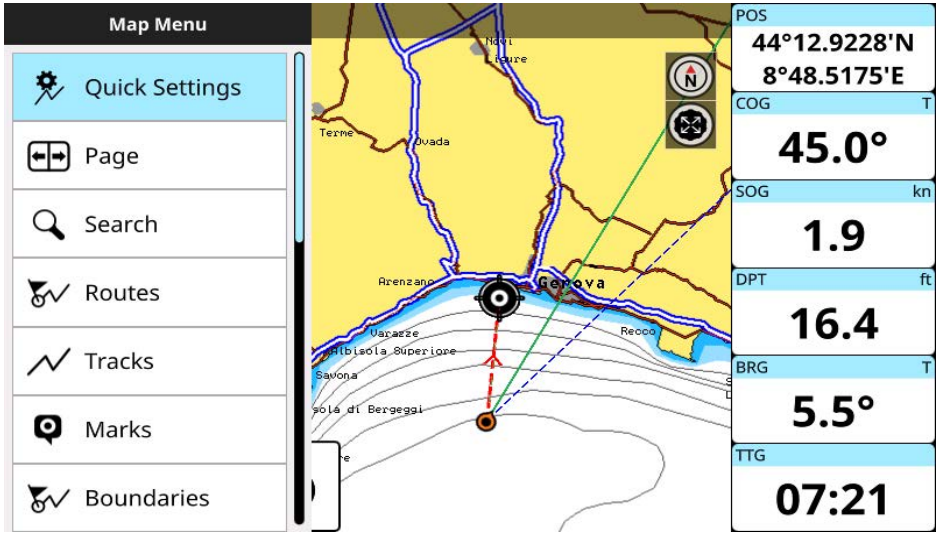


Figure 4.3.b - Map page menu

The cursor box appears on the bottom left of the map and shows the Lat/Lon in home mode, additionally it shows DST and BRG when in cursor mode.
The databoxes are displayed on the right part of the screen, its content can be customized (Par. 4.7).

Press [ENTER] or long tap the map to open the cursor contextual menu, and [CLEAR] or tap elsewhere to close it.
Press [MENU] to open the main menu of the “Map” page.

4.4 The “Fish Finder” page

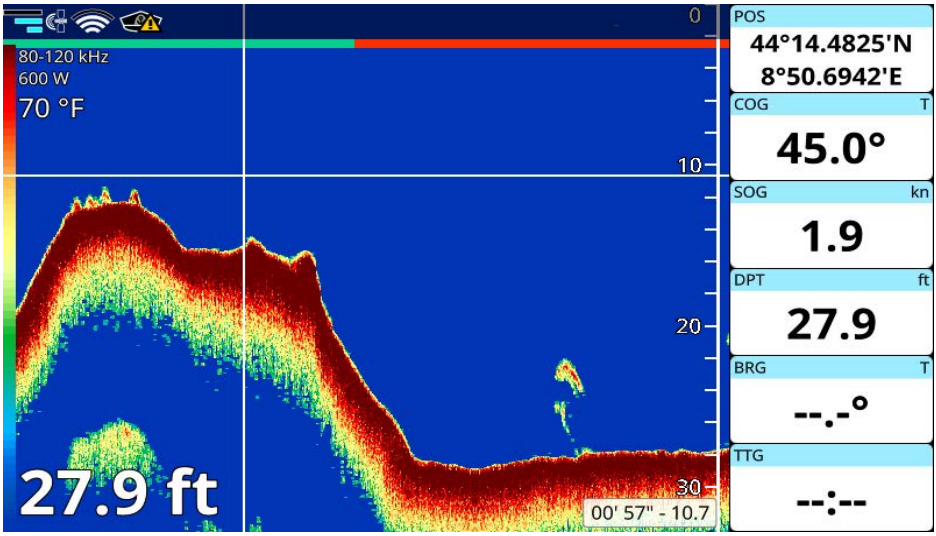


Figure 4.4.a - Fish Finder page (simulation mode)

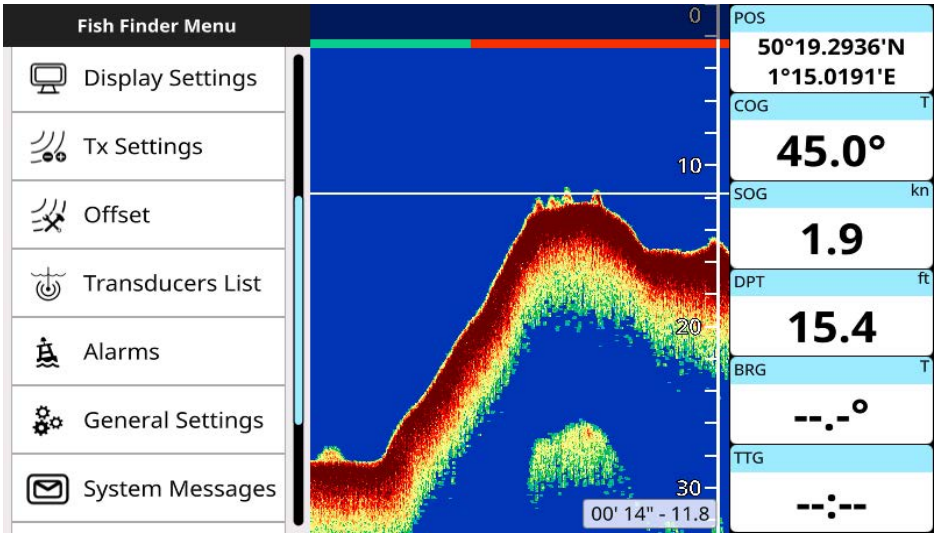


Figure 4.4.b - Menu on the Fish Finder page

The “Fish Finder” page can be available:

- If a Black Box Fish Finder accessory is connected to the plotter;
- Without other connections in case of combo plotters.

For more details about the Fish Finder see Par. 20.
Press [MENU] to open the main menu of the “Fish Finder” page.

4.5 The “Instruments” page

With the connection of appropriate sensors (such as CAN bus to compatible NMEA 2000 engine(s), weather instruments, gyrocompasses, etc...), you can view the following vessel and situational widgets: 3D Road, Rate Of Turn, Rudder, Timer, Single and Multiple databoxes, Temperature, Wind, Roll Pitch, Compass, Speed, Depth Graph and Engine information.

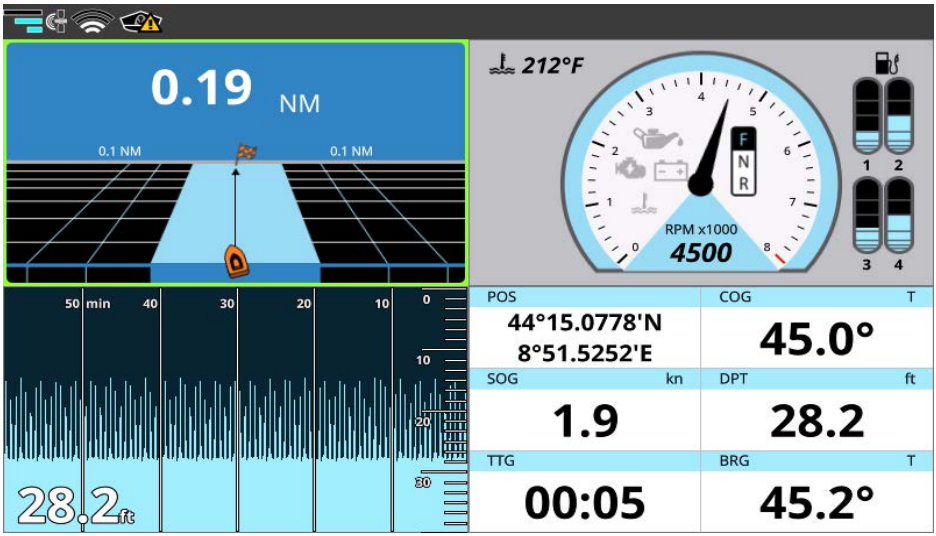


Figure 4.5.a - Instruments page

The “Instruments” page settings are located on “Quick Settings” menu:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings”.

You can view 4 different instruments on the full Instruments page or 2 instruments on a split page (with MAP, FF or RADAR).
To change Instruments shown on the page,

1. Press [Menu]
2. Select “Quick Settings”
3. Select Instrument number you want to change
4. Select desired Instrument from the list of instruments.

Many Instruments may have their own setting options, but not all do.
To view and change settings,

1. Tap on an instrument or select an instrument with the joystick (so that its border is highlighted) and press [Enter]
2. Make desired changes to setting options.

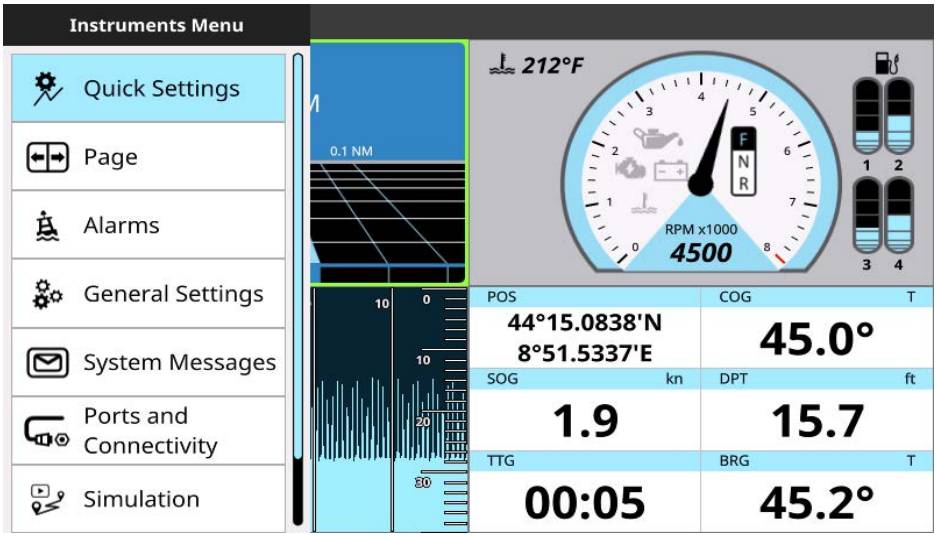


Figure 4.5.b - Menu of the Instruments page

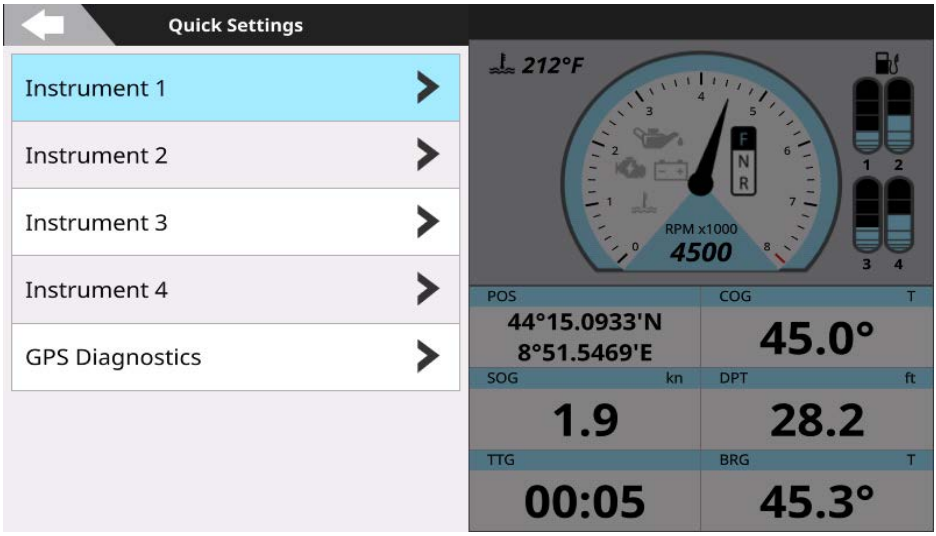


Figure 4.5.c - Quick Settings of the Instruments page

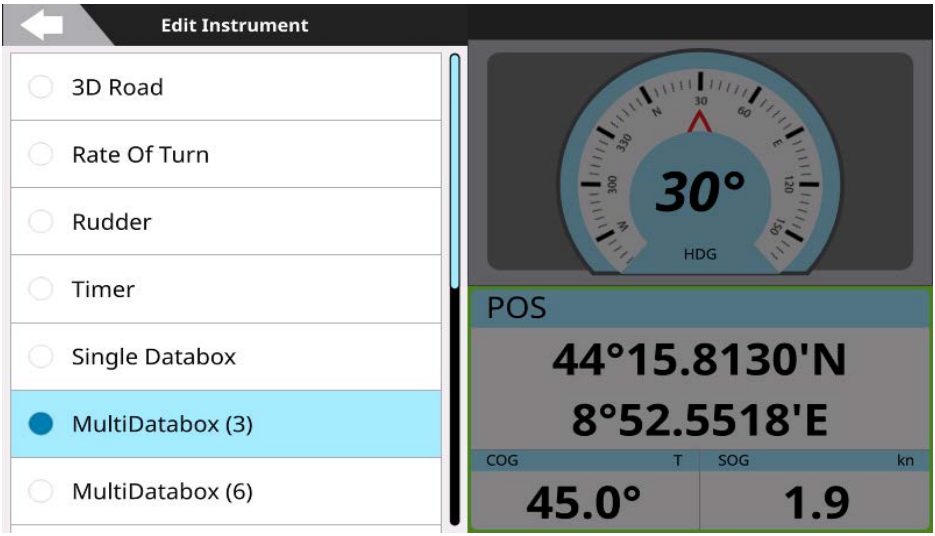


Figure 4.5.d - Edit Instrument menu

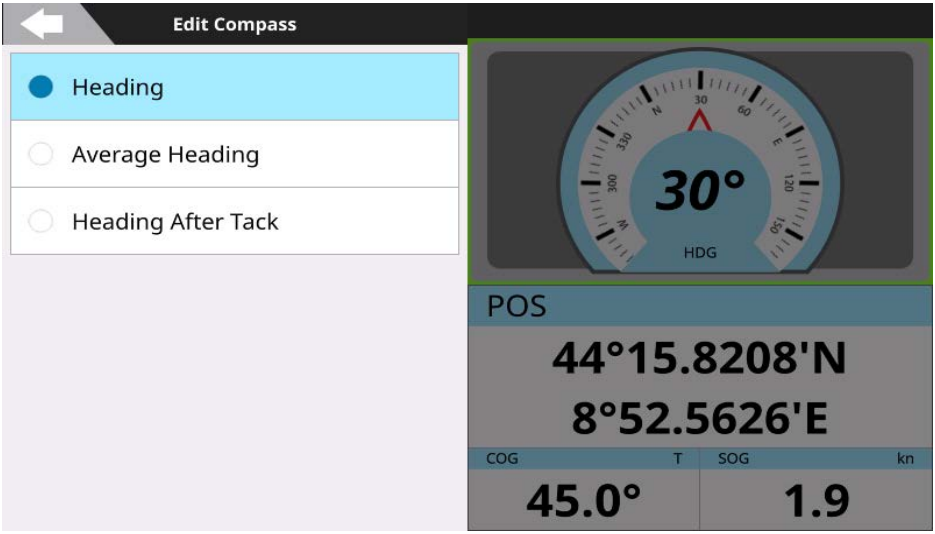


Figure 4.5.e - Edit Instrument's information menu

4.6 The “Engine” page

The plotter can be connected through CAN bus to compatible NMEA 2000 engine(s), to display engine state and performance.

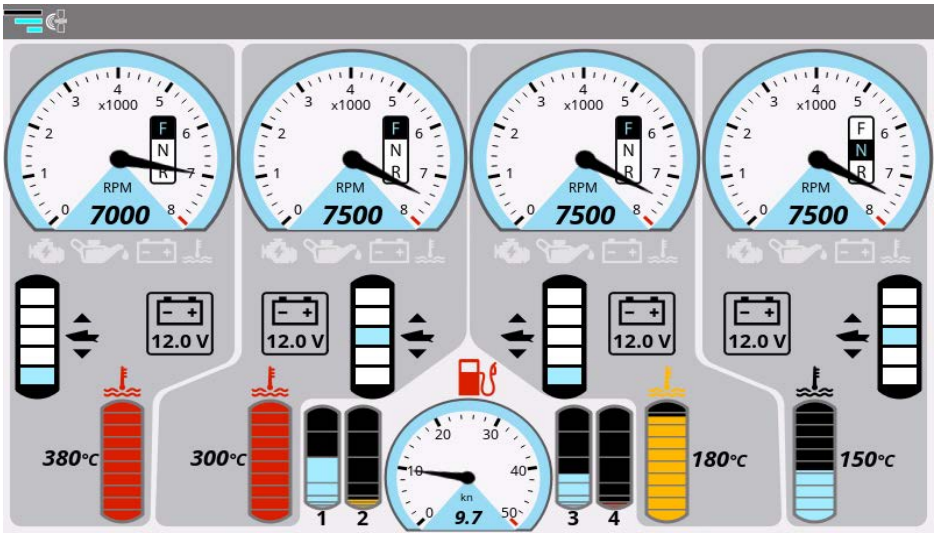


Figure 4.6 - The Engine page

Depending on the number of engines, the “Engine” page will look differently. For each engine detected, the page displays engine RPM gauge, engine temperature, fuel tanks, tilt/trim and alternator potential data.

The “Engine” page settings are located on “Quick Settings” and “General Settings” pages:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” > “Engine Setup”;

or

3. Select “General Settings” > “Engine Setup”.

From the “Engine Setup” menu you can:

- set the number of engines, to be displayed on the page;
- set max RPM value – this setting will be applied as a limit for engine RPM gauge.
- set min and max Engine Temperature;
- set min and max Oil Temperature;
- set min and max Gear Oil Temperature.

In case of engine alarms the following notifications may appear:

Engine Alarm Level 1 (The message cannot be mute or dismissed.)
Over-heated (in case of 'Over Temperature' alarm)
Low Oil Pressure
Engine Alarm Level 2 (Touch the bar to mute the alarm. The message stays on the screen until the notification condition is over.)
Low Battery Voltage
Check Engine
Battery Charge
Water In Fuel
Rev Limit Exceeded
Engine Emergency Stop Mode

NOTE: A Level-1 Engine Alarm can be ignored but not mute. An audible alarm is active for a Level-1 Engine Alarm, even if the buzzer is set OFF in the alarm settings.

NOTE: the SOG gauge limit cannot be set from this menu. It depends on the vessel type: for each type the SOG limit is different. You can change the vessel type in "Ship" settings (Par. 7.5).

4.7 The "Radar" page

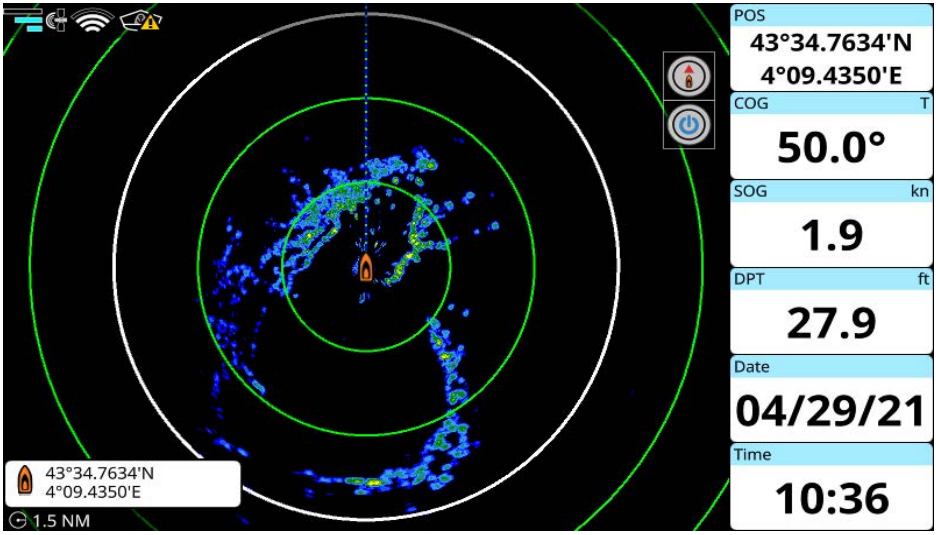


Figure 4.7 - The Radar page

The “Radar” page displays the echo from the radar, if a compatible antenna is connected to the plotter.

The “Radar” page settings are located in the main menu of the page. For more details see Par. 21.

4.8 Split pages

A split page presents two independent views onscreen simultaneously. The view highlighted with the selection border is the active view and all commands and menus are referred to that view.
In order to switch active view to the other side of the split screen, press [MENU] twice or tap the needed part of the page. To change the active view with the remote controller:

1. Press [MENU] twice;

or

2. Long press [SWITCH WHEEL].

To open the contextual menu on the “Map” view, press [ENTER] or tap (on touchscreen) while the map view is active.
To open the contextual menu on the “Fish Finder” or “Radar” view, press [ENTER] or tap (on touchscreen) on the echogram.
To open an instrument’s setting menu on the “Instruments” view, press [ENTER] on the selected instrument or tap it (on touchscreen). To select a different instrument, use the joystick or tap it (on touchscreen).

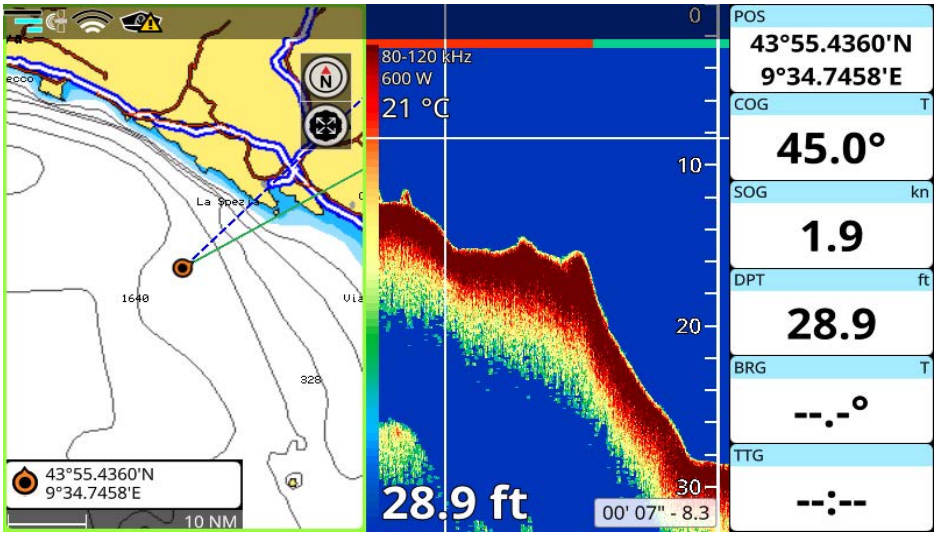


Figure 4.8.a - Example of the split Map / Fish Finder page

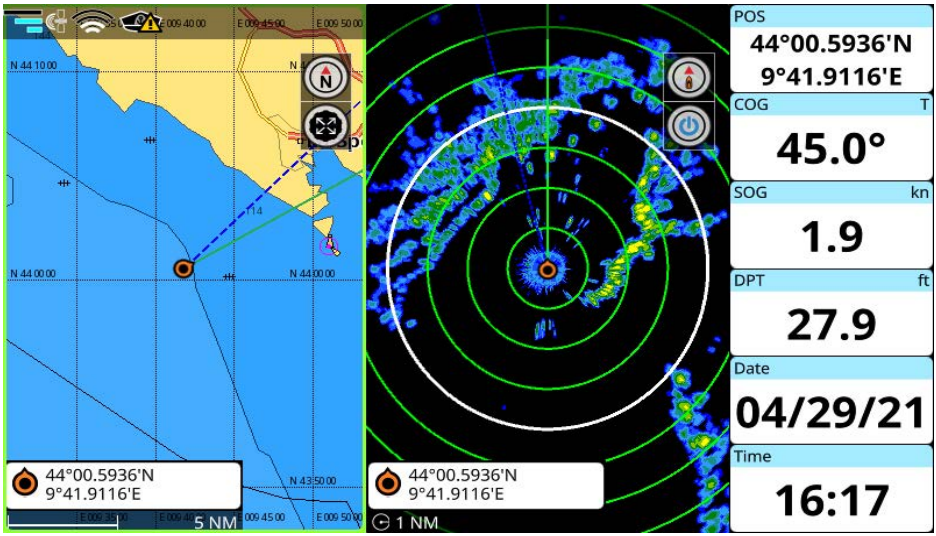


Figure 4.8.b - Example of the split Map / Radar page



Figure 4.8.c - Example of the split Instruments / Map page

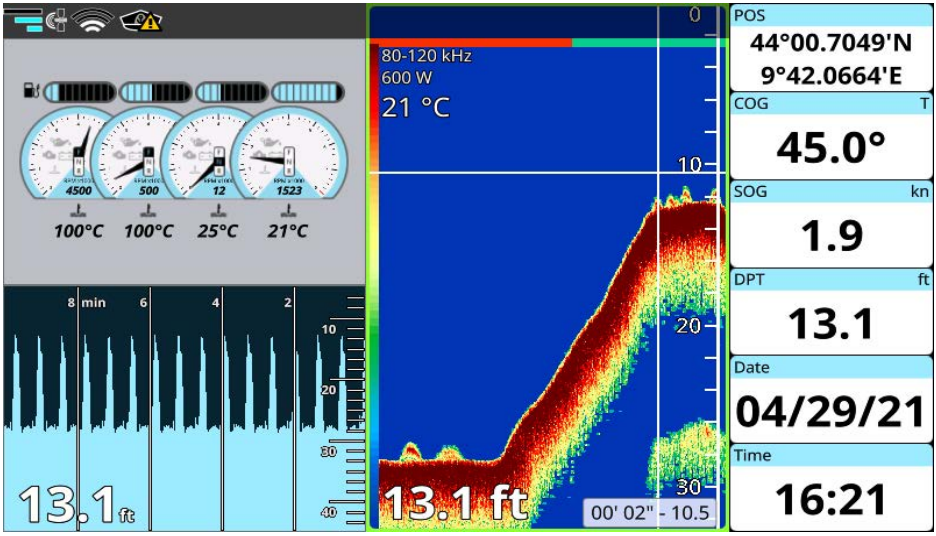


Figure 4.8.d - Example of the split Instruments / Fish Finder page

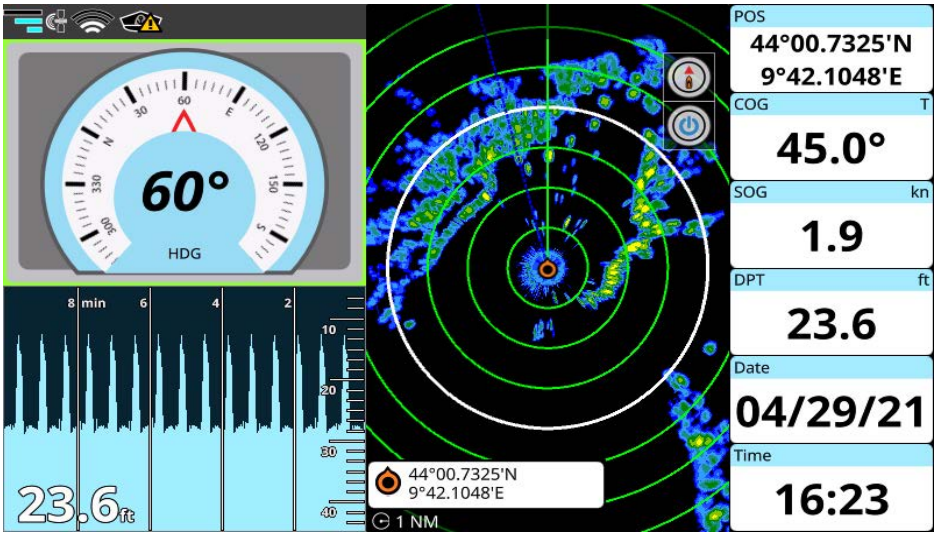


Figure 4.8.e - Example of the split Instruments / Radar page

4.9 Databoxes customization

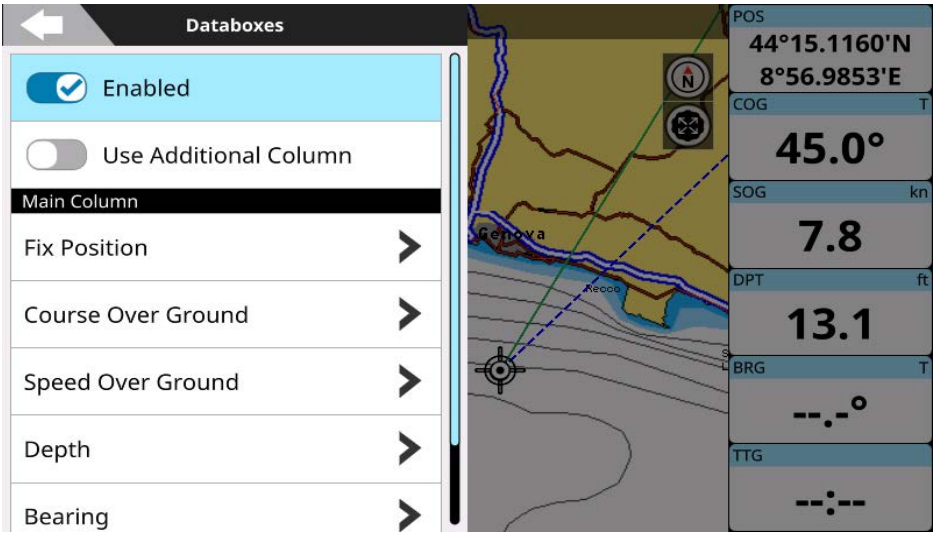


Figure 4.9 – Databoxes menu on the Map page

The data window is a set of customizable databoxes. It is present on the “Map”, “Fish Finder” and “Radar” pages. The boxes may be set up to display various sensor data. In “Quick Settings” you can select to enable or disable data boxes and customize the number of columns and databoxes content.

To customize databoxes content on “Map”, “Fish Finder” or “Radar” pages:

1. Long tap the databoxes;

or

2. Open the main menu by pressing [MENU] and select “Quick Settings” > “Databoxes”;
3. Enable “Use Additional Column” to display two columns of databoxes;
4. Select the databox from main and additional column and choose the preferred option from the list;
5. Press [CLEAR] or tap “Back” icon to return to the databoxes list;

or

6. Tap elsewhere or long press [CLEAR] to exit databoxes editing.

5. Maps: Using C-Map 4D, C-Map Max, Navionics or POLARIS Charts

The plotter has a built-in world background map, but for use as an aid to safe navigation, C-Map, Navionics or POLARIS Charts detailed maps are required. The plotter is compatible with C-Map MAX, C-Map 4D, Navionics and POLARIS Charts map formats on micro SD card. Detailed maps may be purchased on micro SD cards from. either C-Map, Navionics or POLARIS Charts authorized resellers. To use C-Map (4D or MAX), Navionics or POLARIS Charts detailed maps, insert the micro SD card with chart data into the micro SD slot of your plotter.

NOTE: After inserting the C-Map, Navionics or POLARIS Charts micro SD card, the plotter may ask for a restart to enable chart usage.

5.1 Moving around the map

The map can be explored in different ways. Wheel mode switch button, located on the top right of the screen near the map mode switch button, shows which mode is active now: zoom, rotate or tilt.
To change the mode on the plotters without touchscreen, the remote controller has to be connected:

1. Connect the remote controller (Par. 1.5);
2. Change the mode using [SWITCH WHEEL].

To change the mode on the touchscreen plotter, tap wheel mode switch icon to choose the preferred mode.

Depending on the plotter, touchscreen gestures, keyboard or remote controller can be used to move around the map.



Zoom mode
Use joystick or pan gesture to pan the map.
Use [ZOOM IN] and [ZOOM OUT], rotor wheel, remote controller wheel or pinch in and pinch out gestures to change the map scale so that a smaller or larger area is shown on the Map page.



Rotate mode
Use rotor wheel, remote controller wheel or rotate gesture to rotate the map.



Tilt mode
Use rotor wheel, remote controller wheel or two fingers swipe to tilt the map. While the map is tilted, ship icon displayed as an arrow. (Available with Navionics cartography in 3D chart mode.)

Rotor wheel and remote controller wheel actions depend on the wheel mode switch icon status.
On the touchscreen plotters, you can pan, zoom in, zoom out, tilt and rotate the map with touchscreen gestures in each of the modes.
The plotters with keyboards allow to pan, zoom in and zoom out the map using hardware keys despite the wheel mode switch icon status.

5.2 Finding your boat position

The most common use of the plotter is to show your boat's current location.
You can home the cursor to the boat using [CLEAR]. This would center the map view on the boat position and update the display as the boat moves.
On touchscreen plotters you can also use "Back to Fix" icon, located near the cursor box on the bottom left part of the screen.

The "Own Ship Offset" function helps to keep the majority of the area in front of the vessel's position, so if you turn on this function, the plotter will take into account your course to locate the boat at the most comfortable position on the map relative to the actual course.
To turn screen amplifier on/off:

1. Open the main menu by pressing [MENU];
2. Select "General Settings" > "Ship";
3. Enable/disable "Own Ship Offset" option.

Use the joystick or tap gesture to move the cursor away from the boat's current position and exit the home mode.
The "Back to Fix After Timeout" function gets back to home mode, centering ship on the map after 30 seconds time-out. You can switch this function on/off:

1. Open the main menu by pressing [MENU];
2. Select "General Settings" > "Navigation";
3. Enable/disable "Back to Fix After Timeout"

5.3 Chart Info and Quick Info

The detailed map has a database of information about map objects, which may be helpful for navigation. To read map full information, press [ENTER] or long tap over the desired point on the map and select "Chart Info" in the contextual menu.
There is also "Quick Info" popup appearing automatically when you place the cursor over any of the map objects. Automatic "Quick Info" popup can be turned off:

1. Open the main menu by pressing [MENU];
2. Select "Quick Settings";
3. Disable "Chart Tooltip".

NOTE: On touchscreen plotters, you can tap the "Quick Info" popup to open the "Chart Info" page.

To leave the "Chart Info" page and get back to the map press [CLEAR] or tap the "Home" icon on the top right of the screen.
The "Chart Info" page lists information about the selected object or map area. "Depth area" tab is present on the "Chart Info" page of the majority of objects and presents information about minimal and maximal depth. Other useful navigation information is present on this page. The "Chart Info" page contains "Locate on Map" and "Go To" buttons.

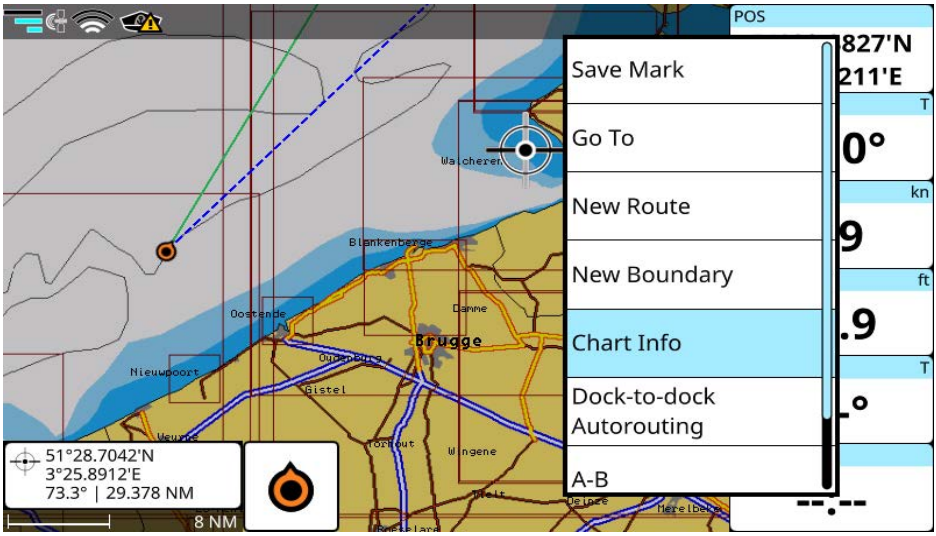


Figure 5.3 - Object's Quick Info popup and Chart Info contextual menu on the Map page

5.4 Overzoom

This option is available only with C-Map MAX and 4D Maps.

If you want to overzoom the map in areas without the detailed coverage, you can enable the overzoom mode. This will allow you to zoom-in to your user data closer. This feature may be useful if you need to navigate to a user point (for example, mark or waypoint) with close zoom-in on areas outside the detailed map.

To turn the "Overzoom" function ON:

1. Open the main menu by pressing [MENU];
2. Select "Map Settings" > "Chart Aspect Mode";
3. Enable "Overzoom".

The warning message "No cartography" could appear in the overzoom mode in the bottom right part of the screen. Pay attention that no map is available in the overzoom mode - the screen background will be always blue, without visible land or sea.

NOTE: Overzoom mode is less useful in areas with detailed map coverage because detailed maps provide zoom levels, on which overzoom would hide the map. Therefore, "Overzoom" is turned off by default and should be enabled only in case you want to operate in areas without detailed map coverage.

6. Quick Settings

"Quick Settings" is the first item in the main menu of every page. It contains some useful actions, which may vary depending on the page in use and the default cartography selected.

6.1 Quick Settings with C-Map (4D or MAX)

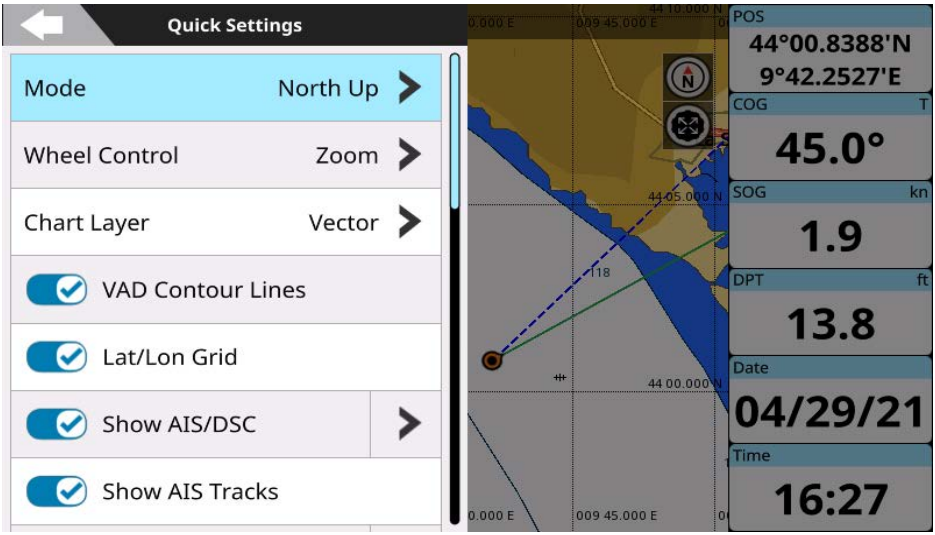


Figure 6.1.a – Quick Settings menu on the Map page

"Quick Settings" menu item on the "Map" page includes such settings:

- Map mode (Par. 16.3);
- Wheel control function setting (Par. 5.1);
- Chart layer type: depending on the cartography, vector, shaded relief, satellite or raster chart types can be available;
- Enable or disable VAD contour lines displaying on map;
- Hide or show latitude and longitude grid;
- AIS and DSC displaying, menu button opens submenu for quick access to related List and Settings;
- AIS tracks displaying;
- ARPA displaying, menu button opens submenu for quick access to related List and Settings;
- ARPA tracks displaying;
- Fishing Gear displaying, menu button opens submenu for quick access to related Lists and Settings – applied only when BarentsWatch data has been imported (Par. 22.3);
- Enable or disable user data (tracks, routes, marks and boundaries) drawing on map, menu button opens submenu for quick access to related List and Settings (Par. 9);
- Hide or show radar;
- Hide or show radar rings;
- Hide or show radar range;

- Chart Tooltip option enables or disables the quick info box for map objects;
- Set up databoxes (Par. 4.9);
- Find a place on map by entering its position: selecting “Lat/Lon Position” menu item opens a keyboard for entering the coordinates. After pressing “Done” the map will reposition at the indicated position;
- Open “GPS Diagnostics” page: the “GPS Diagnostics” page displays navigational data and geometric interposition of satellites with respect to the receiver.
- Background Charts menu item opens list of background charts which you can select for use.

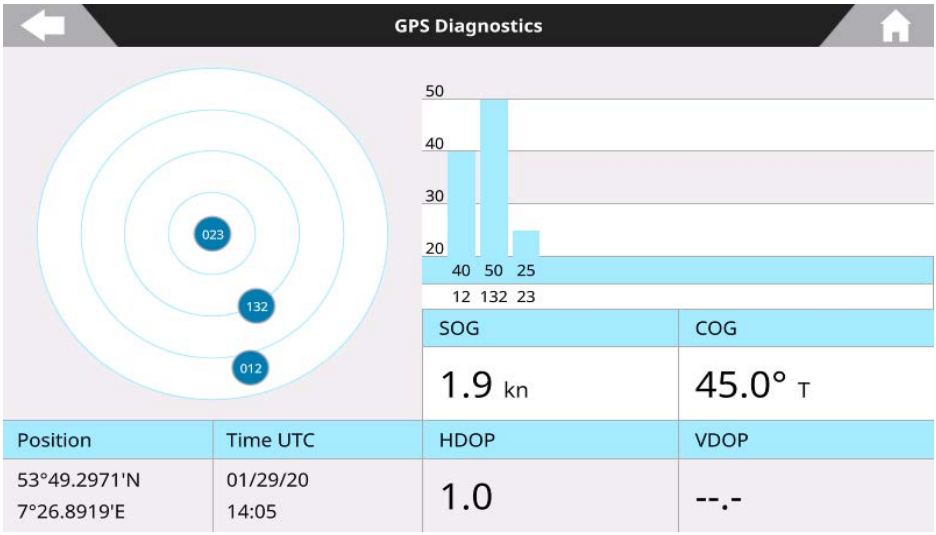


Figure 6.1.b – The GPS Diagnostics page

“Quick Settings” menu on other pages contains the items common for all the pages, such as “Databoxes” and “GPS Diagnostics”, and special items depending on a page.

6.2 Quick Settings with Navionics

“Quick Settings” menu item on the “Map” page includes the following settings:

- Map mode (Par. 16.3);
- Wheel control function setting (Par. 5.1);
- Chart mode (Par. 1.3);
- AIS and DSC targets displaying, menu button opens submenu for quick access to related settings, list;
- AIS tracks displaying;
- ARPA targets displaying, menu button opens submenu for quick access to related settings, list;
- ARPA tracks displaying;
- Fishing Gear displaying, menu button opens submenu for quick access to related Lists and Settings – applied only when BarentsWatch data has been imported (Par. 22.3);

- Enable or disable user data (tracks, routes, marks, boundaries) drawing on map, menu button opens submenu for quick access to related settings, list (Par. 9);
- Hide or show radar;
- Hide or show radar rings;
- Hide or show radar range;
- Chart Tooltip option enables or disables quick info box for map objects;
- Set up databoxes (Par. 4.9);
- Find a place on map by entering its position: selecting “Locate Position” menu item opens a keyboard for entering the coordinates. After pressing “Done” the map will reposition at the indicated position;
- Open “GPS Diagnostics” page: the “GPS Diagnostics” page displays navigational data and geometric interposition of satellites with respect to the receiver.
- Background Charts menu item opens list of background charts which you can select for use.

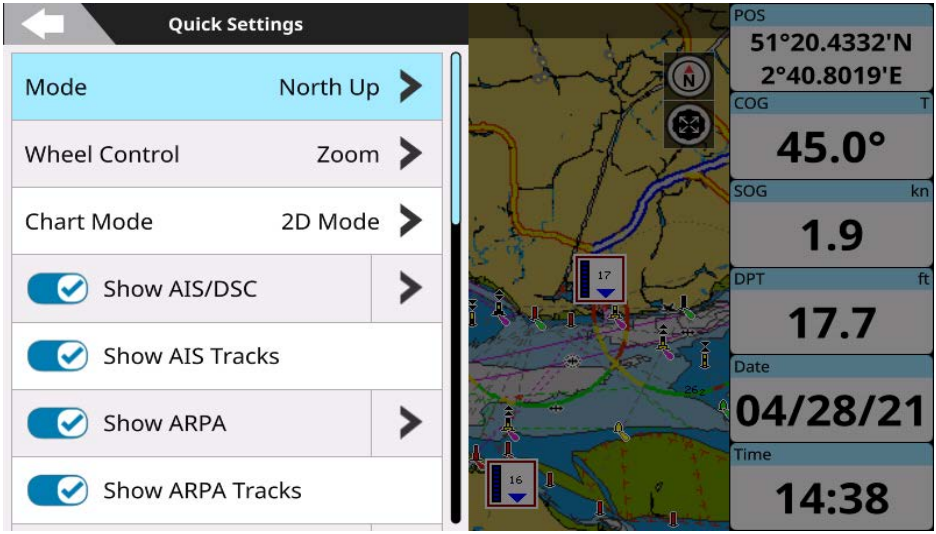


Figure 6.2 – Quick Settings menu on the Map page with Navionics

NOTE: When you select a different background chart a warning dialog window will appear saying “Plotter will be restarted to apply this change.” and device rebooting is required for the new setting to become active.

6.3 Quick Settings with POLARIS Charts

“Quick Settings” menu item on the “Map” page includes the following settings:

- Map mode (Par. 16.3);
- Wheel control function setting (Par. 5.1);
- AIS and DSC targets displaying, menu button opens submenu for quick access to related settings, list;
- AIS tracks displaying;
- ARPA targets displaying, menu button opens submenu for quick access to related settings,

list;
- ARPA tracks displaying;
- Fishing Gear displaying, menu button opens submenu for quick access to related Lists and Settings – applied only when BarentsWatch data has been imported (Par. 22.3);
- Enable or disable user data (tracks, routes, marks, boundaries) drawing on map, menu button opens submenu for quick access to related settings, list (Par. 9);
- Hide or show radar;
- Hide or show radar rings;
- Hide or show radar range;
- Chart Tooltip option enables or disables quick info box for map objects;
- Set up databoxes (Par. 4.9);
- Find a place on map by entering its position: selecting “Locate Position” menu item opens a keyboard for entering the coordinates. After pressing “Done” the map will reposition at the indicated position;
- Open “GPS Diagnostics” page: the “GPS Diagnostics” page displays navigational data and geometric interposition of satellites with respect to the receiver.
- Background Charts menu item opens list of background charts which you can select for use.

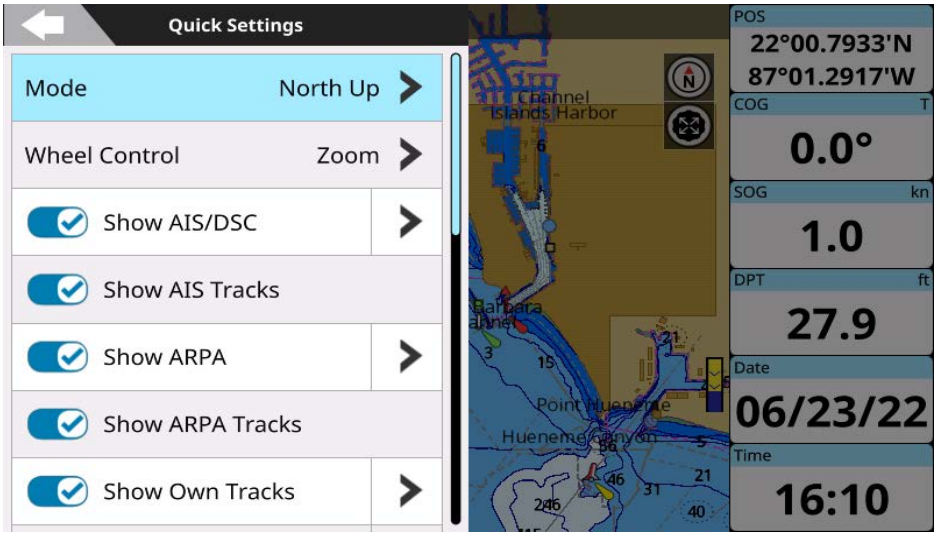


Figure 6.3 – Quick Settings menu on the Map page with Polaris

6.4 Routes settings

On the “Routes” page you can configure the following route and route navigation settings:
- Show Routes;
- Route Planning Speed slider;
- Automatic route following (Par. 8.3);
- Route following optimization (Par. 8.3.2);
- Cyclic Route Following:

This sets the continuous and cyclical following of a given route. After following the entire route, and reaching the last waypoint, navigation is restarted again from the beginning, and proceeds until interrupted.

- Default Prefix;
- WP Zero Handling:

  This setting fills (pads) a given waypoint's name with zeros for easier reading. For example: WPT0001. Suppressing this setting eliminates the leading zeros of the waypoint's name. For example: WPT1.
- Delete All;

NOTE: The WP Zero Handling setting is not retroactive, and will apply zero padding or suppression only to newly created waypoints.

7. General Settings

To access the “General Settings” page:

1. Open the main menu by pressing [MENU];
2. Select “General Settings”.

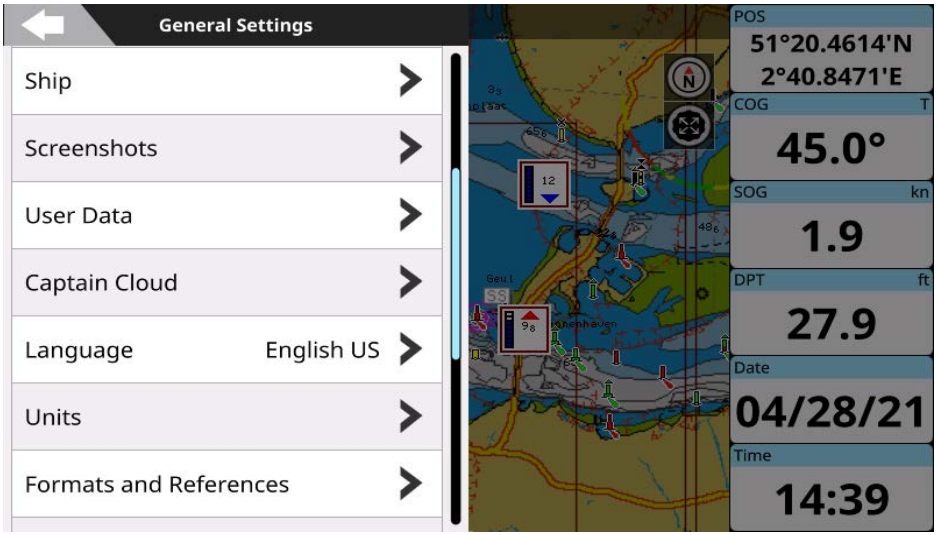


Figure 7 - General Settings page

7.1 Export/import of user settings

Exporting and importing of user settings to micro SD card can be done on the “Restore and Backup” page.

1. Insert micro SD card to the plotter;
2. Open the main menu by pressing [MENU];
3. Select “General Settings” > “Restore and Backup” > “Export Configuration”;
4. Press [ENTER] or tap “OK” to close the popup.

The file with your plotter settings configuration (file extension is .ini) is located at the root folder of micro SD card. You can save it and import back to the plotter at any time:

1. Insert micro SD card with a configuration file into the plotter;
2. Open the main menu by pressing [MENU];
3. Select “General Settings” > “Restore and Backup” > “Import Configuration”.

By importing configurations from micro SD card you overwrite your current settings of the plotter.
To restore all settings to factory defaults:

1. Open the main menu by pressing [MENU];
2. Open “General Settings” > “Restore and Backup” > “Reset to Factory Defaults”;
3. Confirm your action and select “Yes” by pressing [ENTER] or tap in order to restart the plotter.

NOTE: You can also clear all user data or both user data and settings on “Restore and Backup” page.

NOTE: Do not eject micro SD card until the message about successful import or export appears on your screen.

7.2 Keyboard and function keys settings

On the “Keyboard and Input” page you can change settings for the keyboard, such as beep sound on key press, cursor speed and auto focus, keyboard backlight, and function keys settings.

Beeper

By default, the beep sound that accompanies every key press and tap is turned on. To turn it off:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Keyboard and Input”;
3. In “Beeper” section, select “Beep on Keypress” and/or “Beep on Touch” to enable or disable beepers.

Cursor speed and auto focus

The speed of the cursor movement can be changed: the scale is from 1 to 10. By default, cursor speed is 5. Try different cursor speed to set up the most comfortable one.

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Keyboard and Input”;
3. In “Cursor” section, select “Cursor Speed” and slide left or right to set the desired cursor speed value.

Cursor Auto Focus helps to place the cursor to the user or the cartography objects on the map. If it is enabled, the target will be moved to the object, when the cursor is placed near it.

Keyboard backlight

Keyboard backlight can be set to auto, custom or turned off:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Keyboard and Input”
3. In the “Backlight” section, Select “Off”, “Auto” or “Custom”
4. In case of “Custom” brightness adjustment, select “Brightness %” and slide left or right to set the desired value.

Choosing “Auto” the keyboard’s backlight becomes bright at night (from sunset to sunrise). After sunrise, it gradually decreases until noon. In the afternoon, it gradually increases.

Function keys

The keyboard may include some amount of function keys:
F1, F2, F3 etc. Each of them has a double function: a pre-assigned one and a customizable one. The pre-assigned function, which depending on your plotter might be indicated in the front panel, can be executed by a short press on a function key. The customizable function can be executed by press and hold (so-called long press).
In order to customize a function key:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Keyboard and Input”;
3. In the “Function Keys” section, select a function key you want to customize to open the list of options;
4. Scroll through the list and select the desired function;

5. To return to function keys list: press [CLEAR] or tap “Back” icon;

or

6. To close the menu: long press [CLEAR] or tap outside the menu.

For example, if you setup F1 to the “Next Page” function, and after that, you do a long press of F1 while being on the “Map” page, it will cycle to the next page (the “Fish Finder” page). Repeatedly pressing this button, the plotter will cycle through all available pages.

Screenshots

One of the function keys can be set to perform screenshots.
If the micro SD card is inserted into the plotter, screenshot will be saved on the root of the card.
If no user micro SD card inserted, screenshots will be saved to the internal memory. You can save up to 50 screenshots.

To export the screenshots from the internal memory to the micro SD card:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Screenshots”;
3. Insert a micro SD card to the slot of the plotter;
4. Select “Export to micro SD”.

All screenshots can be canceled using the “Delete All” option.

7.3 Navigation settings

On the “Navigation” page you can configure the following navigation settings:

- Keep Destination:
  - Keep Destination ON, vessel navigation will continue to hold the Destination point (last WPT or a mark), even after reaching it.
  - Keep destination in OFF stops the vessel navigation when the destination is reached (last WPT or a mark).
- Arrival circle radius (Par. 8.3.2);
- Cross track distance value (XTD Value);
- Back to fix after timeout (Par. 5.2);
- Static navigation:
  - Static navigation reduces erratic fluctuation of vessel position (and so heading and course remain static), and disables the COG numeric field. If the boat is stationary (boat’s SOG is under the specified speed value), using static navigation is recommended.
    By default, static navigation activates when vessel’s SOG is lower than 1 kn, but this value is adjustable on the “Navigation” page:
    1. Enable “Static Navigation” as described above;
    2. Select the “SOG Threshold” slider;
    3. Enter the desired speed value by moving the slider knob with the rotor wheel, [LEFT] and [RIGHT] buttons or with touch, or using the virtual keyboard and press “Done”.
- Position and speed filters:
  Allows smoothing the unexpected jumps of ship position and speed caused by possible incorrect or distorted signal or errors of raw NMEA data received from the GPS antenna.

7.4 Display settings

Display settings allow adjustment of resolution and ratio of the screen, connected to the plotter (automatically or manually), and to set the font size.

NOTE: Resolution and ratio settings are not available for touchscreen plotters with integrated screens.

Display settings

Automatic detection of external display parameters is usually effective for most modern displays. In case of distortions however, adjust resolution manually as follows:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Display”;
3. Choose the desired resolution for 16:9 or 4:3 ratio;
4. Confirm reboot by selecting “OK” in the warning dialog;
5. Select “Keep” in the warning dialog to keep new settings;

or

6. Select “Revert” to get back to automatically detected screen resolution.

NOTE: Reboot is required for new settings to become active. If after reboot you cannot see anything (e.g. the screen is black) just wait for 15 seconds, after which the plotter will restart and the resolution will be set automatically.

NOTE: Make sure you choose the correct display resolution. Otherwise, all data may be displayed distorted, including important bathymetric information.

Font size

By default, the software font size is set to normal, but size can be adjusted manually, as follows:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Display”;
3. Choose between “Small”, “Normal” or “Large”.

Font size settings are applied to menu items and buttons, but they will not affect the fonts of map objects or the data on the “Engine” page.

7.5 Ship Profile settings

Settings related to the ship icon displaying on map can be edited on the “Ship” page:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Ship”.

You can enable or disable heading and course lines drawing using “Show COG Vector” and “Show Heading Line” switchers (these settings can also be changed in ship icon contextual menu on the “Map” page).

“Own Ship Icon” menu item allows you choosing your boat’s icon on the map.

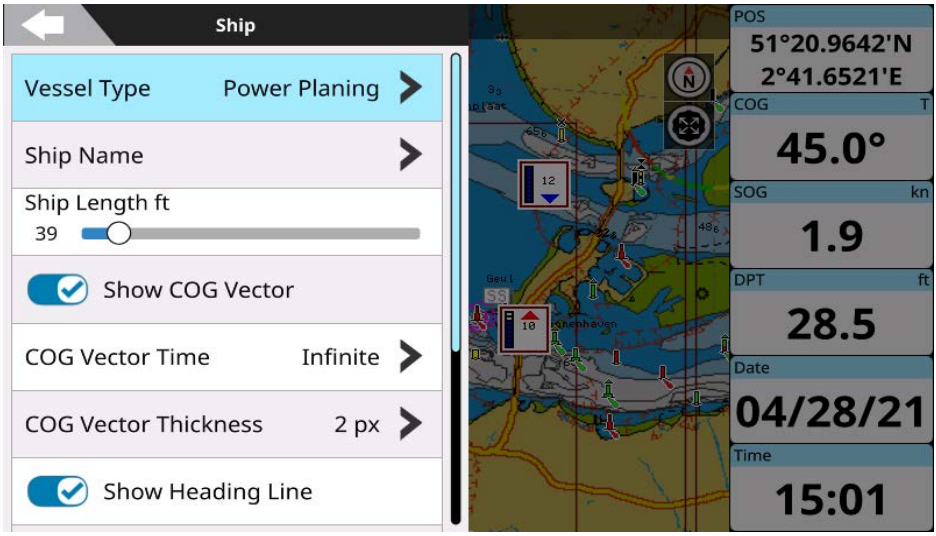


Figure 7.5 - Ship page

In "Orientation Mode" submenu, you can choose ship icon displaying mode: Head up, Course up or North up.

7.6 Formats and References

Magnetic Variation

Sets the calculation reference for magnetic variation, applicable to COG, Heading and related measures. Select [Internal (WWM2020)] to use the internal variation database, or select [External] to use connected NMEA2000 equipment as a magnetic variation source.

NOTE: NMEA0183 equipment will always default to internal system calculation, which is more up-to-date.

Loran-C

You can use the Loran-C coordinate system on your plotter. In order to change the coordinate system to Loran-C, perform the following steps:

1. Open the main menu by pressing [MENU];
2. Select "General Settings" > "Formats and References" > "Position Format" > "TD Coordinate System".

Here you have to select a chain and two secondary stations for the selected chain. The two selectable secondary stations are used to calculate the TD (Time Difference) position:

- To choose a chain, select "Chain" and the desired station from the list;
- To choose secondary stations for the chain, select "Secondary Station 1", and the station from the list;
- Repeat the procedure for the "Secondary Station 2".

The "Alternate Solution" option allows setting an offset for TD coordinates. Simply input the desired offset for the first ("Additional Secondary Factor 1") and the second ("Additional Secondary Factor 2") coordinates. It will be added to the initial TD value or subtracted from it.

7.7 Easy Routing or Dock-to-dock Autorouting Settings

If you are using C-Map 4D or Navionics detailed charts, assisted routing functionality will be available and relative setting menus will appear in the General Settings menu.

In the case of C-Map 4D in use, the “Easy Routing” menu option will be available.
In the case of Navionics the “Dock-to-dock Autorouting” menu option will be available.

Under these respective setting menus, you may set preferred parameters for assisted routing.
See section 8.4 of this user manual for instructions on generating routes with Easy Routing and Dock-to-dock Autorouting, as well as using their settings.

7.8 GPS settings

On this page you can configure internal GPS or external GPS settings.
For internal GPS,

- Enable or disable SBAS, which supports wide-area or regional augmentation through the use of additional satellite-broadcast messages;
- Restart the GPS;
- Change the dynamic platform model to suit the navigation environment.
    1. At Sea – Is recommended for navigation at sea level, with zero vertical velocity. This setting provides precise positioning up to approximately 500m (1640ft) of altitude.
    2. Automotive – Is recommended for dynamics similar to those of a passenger car. Low vertical acceleration assumed. This mode may be useful for navigation in water bodies above 500m (1640ft) of altitude.
- The Navigation Speed setting can be adjusted for both the Internal and External* GPS.
    1. Use the “Low” setting if you typically navigate at slow speed and you want to see even small changes in COG (ie: no filtering).
    2. Use the “High” setting if you typically navigate at higher speed and you do not want to see COG changes at low speed (COG variations will be filtered when you run below 8 m/s).

* Not all External GPS models support Navigation Speed setting. If your External GPS supports this setting, you will see a green dot to the left of the “Configuration” label confirming the setting is applied. A red dot will indicate that the External GPS does not accept the setting.

8. Go To function

8.1 Navigation to a single destination

1. Place the cursor at the desired position on the map;
2. Open contextual menu by pressing [ENTER] or long tap the screen;
3. Select “Go To”.

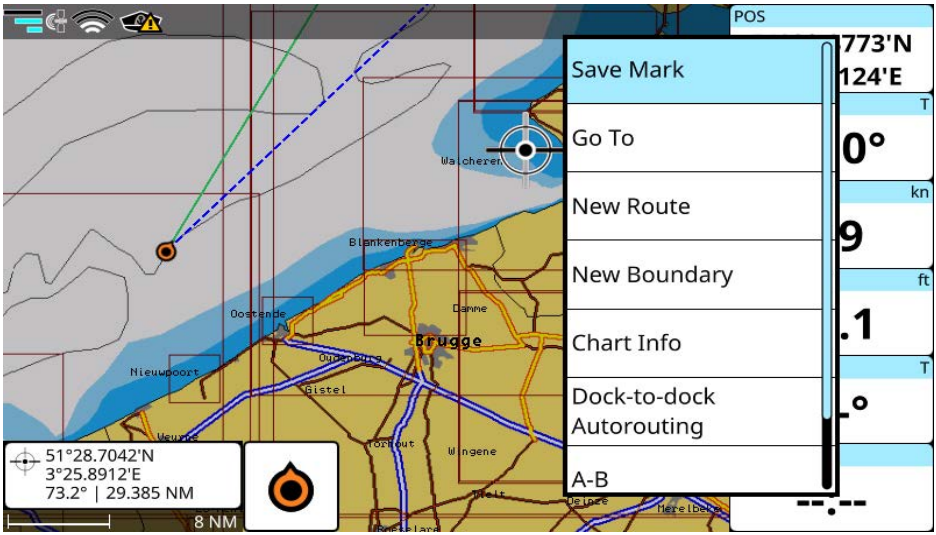


Figure 8.1.a - Map page with the cursor contextual menu

A red line and cross track distance corridor lines are shown on the screen connecting the destination with the initial boat’s position (departure point). All navigation data in the data window, such as BRG, TTG, DST, XTE, is related to the destination.

When your vessel arrives at the destination (crosses arrival circle radius), a dialog window ”Destination reached” appears on the screen.

To stop navigation:

1. Place the cursor at any place on the map;
2. Select “Stop Nav” from the contextual menu.

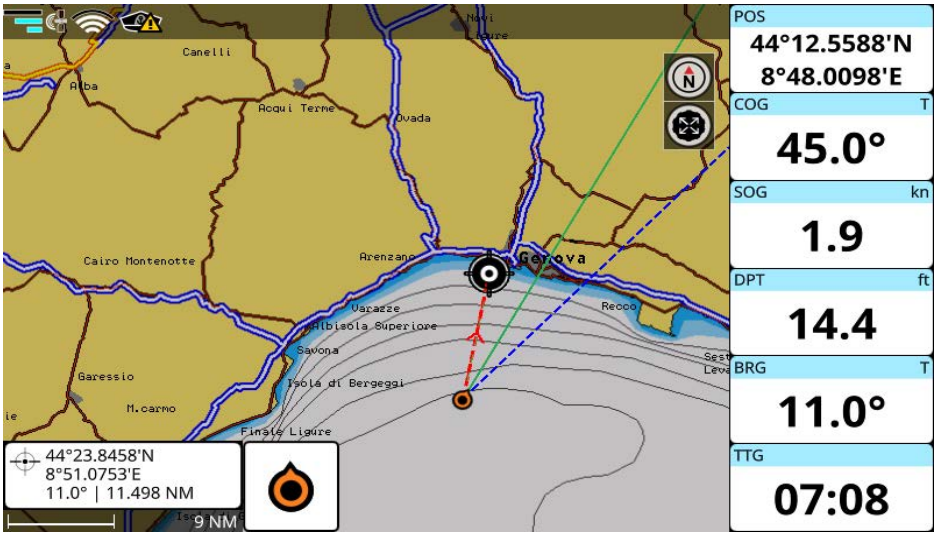


Figure 8.1.b - Map page with active navigation

8.2 Creating a route

A route consists of a set of waypoints.
To create a route on the map:

1. Place the cursor on the map at the desired position;
2. Select “New Route” from the contextual menu. Now you are in a route creation mode;
3. Move the cursor to the desired place on the map;
4. Press [ENTER] or tap the map to add a waypoint, or [CLEAR] to exit route creation mode.

When you create a new route, it has default prefix ‘Route’ with incrementing number. You can change default prefix:

1. Open the main menu by pressing [MENU];
2. Select “Routes” > “Settings” > “Default Prefix”;
3. Create a new default prefix using the keyboard and save it by selecting “Done”.

See Par. 9.2.2 about editing a route.

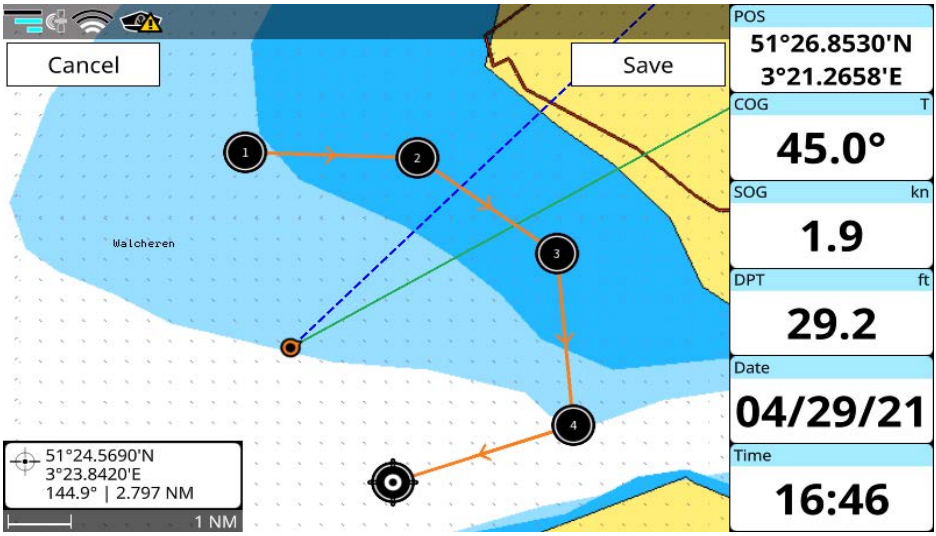


Figure 8.2 - Map page in the route creation mode

8.3 Route following

A route consists of a set of waypoints. The navigation is activated step by step from a waypoint to the next one, so when this waypoint is reached, the navigation towards the next one starts.
You can start navigation to the existing route, which is already created and shown on the map:

1. Place the cursor over one waypoint of the route;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Start Nav” to start navigating to the route, beginning from the nearest waypoint;

or

4. Select “Start Here” to start navigating to the route, beginning from this particular waypoint;

or

5. Select “Reverse” to start route navigation from this point to the beginning of the route (in reverse direction);

or

6. Select “Go To” to start navigating to the single destination (and not to route).

When you reach the first waypoint, navigation will be started to the next waypoint automatically.
The current destination has an arrival circle radius around it.

If you want to prevent automatic navigation to the next waypoint and receive a notification each time waypoint is reached:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” > tap or press on the “Show Routes” menu > “Routes Settings”;
3. Disable “Automatic Route Following”.

8.3.1 Route following options

Most of the route following options can be modified from the map with no need to open route's page.

Inserting a waypoint
During navigation, you may want to first reach another point on the map, and only then navigate to the initial destination.
To insert a waypoint put the cursor over the desired position and select "Insert WP" in the contextual menu.

Appending a waypoint
When in navigation to the active route, you can also append a waypoint at the end of the route by clicking anywhere on the map:

1. Place the cursor on the desired location on the map;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select "Append WP" from the contextual menu.

If the "Add Waypoint" function is set in your function keys you can also place the cursor on the map at the desired position and press the proper function key.

Skipping a waypoint
If you want to skip current destination and to navigate to the next one in route:

1. Place the cursor at the waypoint which is a current destination;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select "Skip".

Opening the waypoints' list
To quickly access the list of all waypoints of a route and get detailed information about it:

1. Place the cursor over the waypoint on the map;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select "Edit Route" > "Detail".

Deleting a waypoint or the entire route
You can delete a waypoint only if it is not the current destination. To delete a waypoint use "Delete WP" option in waypoint's contextual menu.

You can delete the entire route from the map. If it is the active route (so that you are navigating to it), first of all, navigation has to be stopped in order to be able to delete it.

1. Place the cursor at the waypoint or the route leg;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. "Edit Route" > "Delete".

Reversing a route
To reverse navigation direction, use the "Reverse" option in waypoint's contextual menu. You can reverse route from map only if you are in navigation mode, so selecting "Reverse" will start navigation to a route.

Extending a route

To add waypoints to the end of an existing route in navigation:

1. Place the cursor on the last waypoint in the route;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Extend” and press [ENTER] or tap “Save” to save waypoint’s position.

8.3.2 Route following optimization

Under the normal route navigation (without optimization), the vessel is required to approach a waypoint within a certain distance (arrival radius) in order for the route to advance to the next waypoint.
With the “Route Following Optimization” option, the route is constantly recalculated (optimized) to allow automatic advancement to the next waypoint, even if the vessel never gets within the waypoint arrival zone. In this way, “Route Following Optimization” can be thought as a ‘close enough’ navigation when absolute route following precision is not required.

By default, the arrival radius is 0.1 Nm, but it can be changed on the “General Settings” page:

1. Open “General Settings” > “Navigation” > “Arrival Circle Radius”;
2. Select the desired distance with the slider.

8.4 Assisted Routing: Easy Routing or Dock-to-dock Autorouting

If you are using C-Map 4D or Navionics detailed charts, assisted routing functionality will be available.

In the case of C-Map 4D in use, “Easy Routing” will be available. In the case of Navionics “Dock-to-dock Autorouting” will be available.

8.4.1 C-Map Easy Routing

To generate a recommended route with Easy Routing:

1. Place the cursor at the desired start position;
2. Call a contextual menu by pressing [ENTER] or tap the screen;
3. Select “Easy Routing” and place the cursor at the desired end position.

NOTE: Make sure that the route start and end points are within the detailed C-Map chart coverage or Easy Routing will not generate a recommended route; and that the distance between the current fix and the destination point is less than 100 Nm.

A recommended route will be created. You must always review and validate routes created automatically with C-Map Easy Routing, ensuring that they respect prudent navigation habits, local navigation information, and your own vessel’s navigation parameters.

Avoidance of potential dangers and obstacles along your recommended route during its creation will be determined by the following parameters:

1. Vessel parameters (depth, height, width) which can be indicated in the Easy Routing settings in the General Settings > Easy Routing menu;
2. Information about potential obstacles along your route as recorded in the detailed C-Map 4D map information;

3. “Timeout” sets the maximum time for calculating the route.

   NOTE: In case of creating long routes with a low timeout setting you may receive the following warning message: “The route generation operation took more time than was allowed.” You may increase the timeout setting to permit Easy Routing more time to calculate routes.;

4. “Safe Margin” sets the minimum distance (at least 300m or more) from the coast and any other zones of objects to be avoided along the route;
5. “Respect Draft” sets both minimum and maximum depth parameters as conditions for recommended route calculation.

Based on these settings a recommended route will be created respecting them in comparison to information and obstacles on the detailed Navionics map.

Single Leg Easy Routing
You can also apply these settings to an existing route, and Easy Routing will modify the existing route leg accordingly. The plotter will identify obstacles between two waypoints and re-build the route so that obstacles are avoided.

To apply this option:
1. Place the cursor on a route leg (a line that connects two waypoints);
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Leg Easy Routing”.

NOTE: You must have an up-to-date C-Map 4D map to use Easy Routing. This option is not supported by C-Map MAX maps (Navionics maps offer Dock-to-dock Autorouting). Please make sure that your route is within detailed chart coverage.

NOTE: See section 7.7 of this user manual for accessing Easy Routing settings, from the “General Settings” menu.

8.4.2 Navionics Dock-to-dock Autorouting

To generate a recommended route with Dock-to-dock Autorouting:
1. Place the cursor at the desired start position;
2. Call a contextual menu by pressing [ENTER] or a long tap the screen;
3. Select “Dock-to-dock Autorouting”> select “From Fix” or “From Here” the place of the desired end position.

NOTE: Make sure that the route start and end points are within the detailed Navionics chart coverage or Dock-to-dock Autorouting will not generate a recommended route; and that the distance between the current fix (or the starting point) and the destination point is less than 100 Nm.

A safe route will be created. You must always review and validate routes created automatically with Navionics Dock-to-dock Autorouting, ensuring that they respect prudent navigation habits, local navigation information, and your own vessels’s navigation parameters.

Avoidance of potential dangers and obstacles along your recommended route during its creation will be determined by the following parameters:

1. Vessel parameters (depth, height, width) which can be indicated in the Dock-to-dock Autorouting settings in the General Settings > Dock-to-dock AutoRouting menu;
2. Information about potential obstacles along your route as recorded in the detailed Navionics map information.
3. “Timeout” helps to set the time for which the created route should be calculated.

NOTE: In case of creating long routes with a low timeout setting you may receive the following warning message: “The route generation operation took more time than was allowed.” You may increase the timeout setting it to permit Dock-to-dock Autorouting more time to calculate routes.

Based on these settings the recommended route will be created respecting them in comparison to information and obstacles on the detailed Navionics map.

Single Leg Dock-to-dock Autorouting
You can also apply these settings to an existing route, and Dock-to-dock Autorouting will modify the existing route leg accordingly. The plotter will identify obstacles between two waypoints and re-build the route so that obstacles are avoided.

To apply this option:

1. Place the cursor on a route leg (a line that connects two waypoints);
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Leg Dock-to-dock Autorouting”.

NOTE: You must have an up-to-date Navionics map to use Dock-to-dock Autorouting. This option is not supported by C-Map maps. Please make sure that your route is within detailed chart coverage.

NOTE: See section 7.7 of this user manual for accessing Dock-to-dock Autorouting settings, from the “General Settings” menu.

9. User Data

User data point is an object that you can place on the map to mark a specific point and get it stored in the plotter's database. The plotter has the following types of user data: marks/events, tracks, routes, waypoints and boundaries. A mark can be created on the cursor's position while an event is created on boat's position. A track is a boat trail. A waypoint is a part of a route. A boundary can be useful to mark some area on map.

There is a limitation on the maximal amount of user data you can save:

- 30000 marks;
- 1000 routes each having 250 waypoints at most;
- 1000 tracks and 30000 trackpoints;
- 1000 boundaries each having 50 vertices at most.

All the user data can be accessed both from the map and from the dedicated page in the main menu. Operating on the map is possible via contextual menu. When you press [ENTER] on the map or execute long tap gesture, the contextual menu appears. Using contextual menu you can add, edit or delete user data.

9.1 Marks

Marks are a useful and easy way to mark and store any place on the map. Like any other user data type, marks can be added, modified or deleted both on the "Marks" page and on the map.

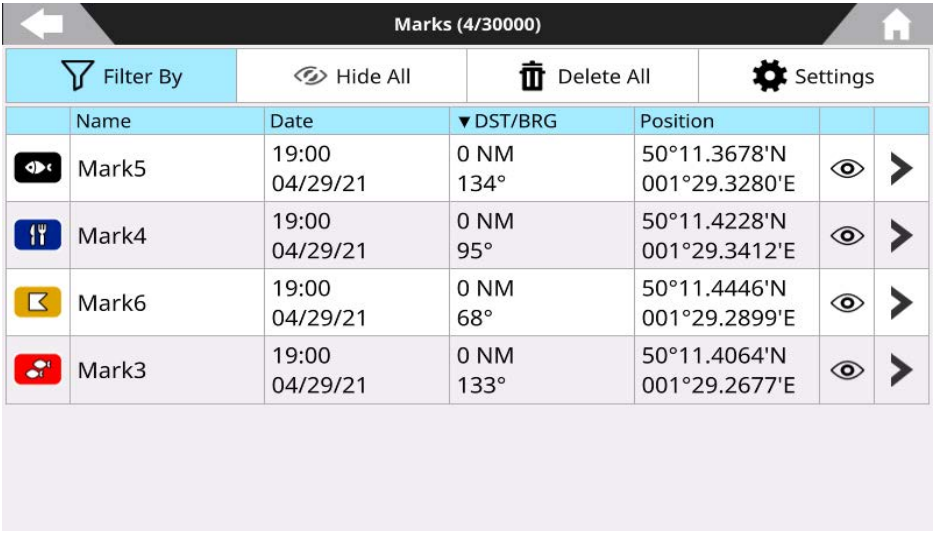


Figure 9.1 - Marks page

To open the "Marks" page:

1. Open the main menu by pressing [MENU];
2. Select "Marks".

On this page, you can observe all marks and events that are stored on your plotter.

9.1.1 Adding a new mark

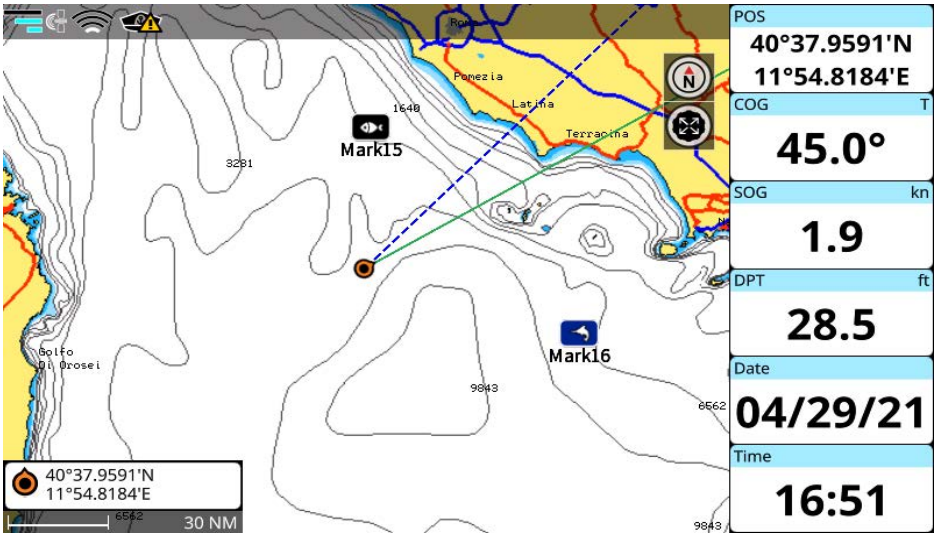


Figure 9.1.1 - Marks on the Map page

To add a mark on the map:

1. Place the cursor at the desired position on the map;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Save Mark”.

To add an event on the “Map” page:

1. Open map page;
2. Home the cursor to the boat using [CLEAR];
3. Call a contextual menu by pressing [ENTER] or a long tap;
4. Select “Save Event”.

9.1.2 Editing mark’s color, symbol, name and description

You can change color, symbol, name and description of each mark. To edit marks on the “Marks” page:

1. Open the main menu by pressing [MENU];
2. Select “Marks”;
3. Choose a mark in the list;
4. Select “Color”, “Symbol”, “Name” or “Description”.

On the “Map” page:

1. Place the cursor over the mark;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Edit Mark” > select “Name”, “Description”, “Color” or “Symbol”.

9.1.3 Editing mark's position

On the "Marks" page:

1. Open the main menu by pressing [MENU];
2. Select "Marks";
3. Choose a mark in the list;
4. Select "Position";
5. Introduce changes and confirm by selecting "Done" or exit without saving ([CLEAR] or "Back" icon).

On the map:

1. Place the cursor over the mark;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select "Move" or "Edit Mark" > select "Position";
4. If "Move" was selected: move the cursor over the map and save new position by pressing [ENTER] or tap "Save", or press [CLEAR] to cancel the movement;

or

5. If "Edit Mark" > 'Position" was selected: enter new "latitude" and "longitude" values and confirm by selecting "Done" or press [CLEAR] (or tap "Back" icon) to exit without saving.

9.1.4 Marks displaying on the map

By default, mark's name contains a prefix "Mark" and a number.
See Par. 9.7 on how to change a prefix. Mark's number presentation can be set in the "Marks" settings:

1. Open the main menu by pressing [MENU];
2. Select "Quick Settings" > "Show Marks" menu button > "Mark Settings" > "Zero Handling";
3. Choose "Suppress" to remove zeros in the mark's name (e.g. Mark1), or "Padding" to see the full name (e.g. Mark00001).

Sometimes it may be useful to hide mark's name on the map.

1. Open the main menu by pressing [MENU];
2. Select "Quick Settings" > "Show Marks" menu button > "Mark Settings";
3. Disable "Show Names".

After that, all the marks on the map will be displayed without their names.

You can set an icon size to be small, standard or large:

1. Open the main menu by pressing [MENU];
2. Select "Quick Settings" > "Show Marks" menu button > "Mark Settings" > "Icon Size";
3. Choose a desired size.

9.2 Routes

Routes can be modified or deleted on the "Routes" page and on the map.
To open the "Routes" page:

1. Open the main menu by pressing [MENU];
2. Select "Routes".

On this page, you can observe all routes that are stored on your plotter and open the list of waypoints of a selected route.

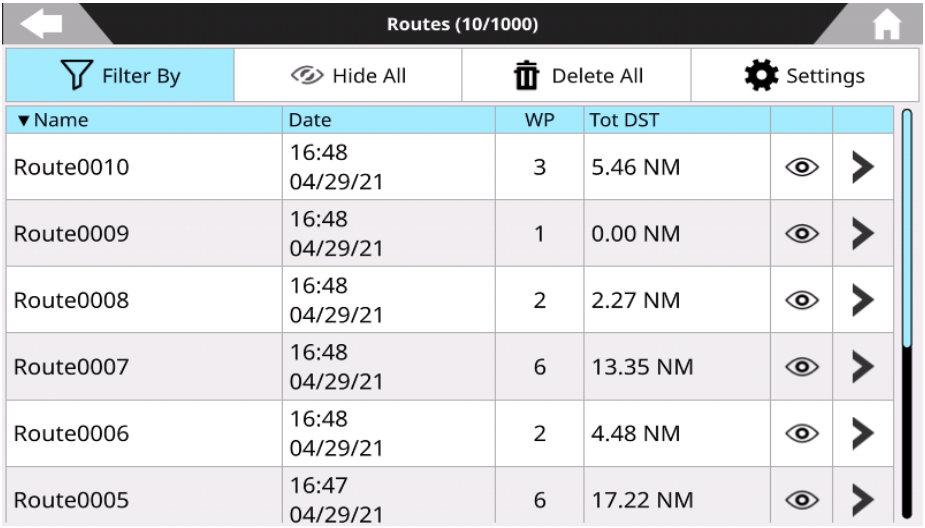


Figure 9.2 - Routes page

9.2.1 Creating a new route

To create a route on the map:

1. Place the cursor at the desired position on the map;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “New Route”;
4. Place the cursor at the position, where the next waypoint should be saved; confirm by pressing [ENTER] or tap the map;
5. Repeat previous step for each waypoint;
6. After all the waypoints are placed, press [CLEAR] or tap “Save” button to exit route creation mode.

9.2.2 Editing route’s name and description

To edit route’s name and description on the “Routes” page:

1. Open the main menu by pressing [MENU];
2. Select “Routes”;
3. Choose a route in the list;
4. Select “Name” or “Description”.

On the map:

1. Place the cursor over the route leg;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Edit Route” > select “Name” or “Description”.

9.2.3 Planned route speed

The speed of your planned route (“Routes Planning Speed”) allows you to choose a speed that will be used in “Time to go” calculations (e.g. for calculating TTG and TTTG in the route’s waypoints list or in A-B info box). To set the speed:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” > “Show Routes” menu button > “Routes Settings”;
3. Set the desired speed with a “Route Planning Speed” slider.

9.3 Waypoints

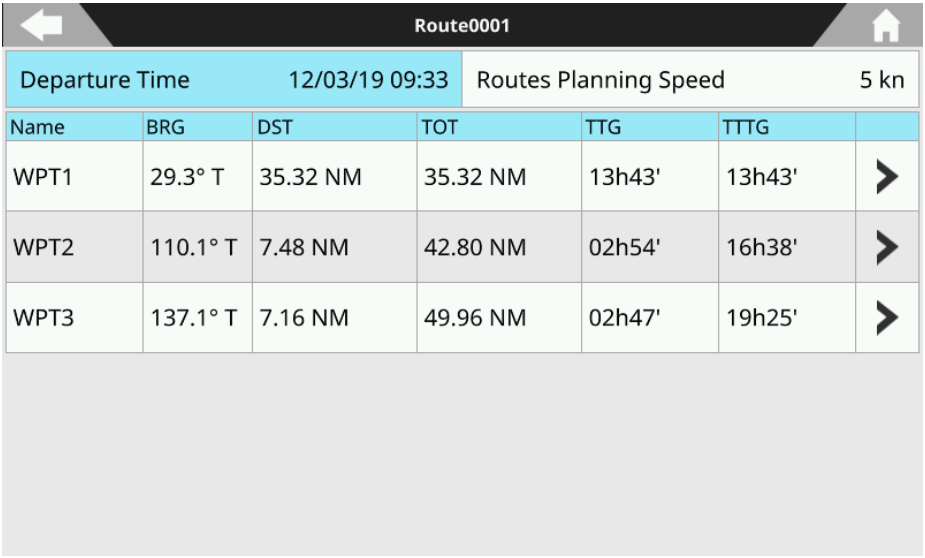


Figure 9.3 - Waypoints list

Each route is a set of waypoints. List of waypoints can be accessed either from the map or from the “Routes” page.

9.3.1 Editing waypoint’s position

To change waypoint’s coordinates in waypoints list:

1. Open the main menu by pressing [MENU];
2. Select “Routes” and choose a route from the list > “Detail”;
3. Select the waypoint in the list of waypoints > “Position”;
4. Input new latitude and longitude values and select “Done” to save or press [CLEAR] or tap “Back” icon to exit position editing.

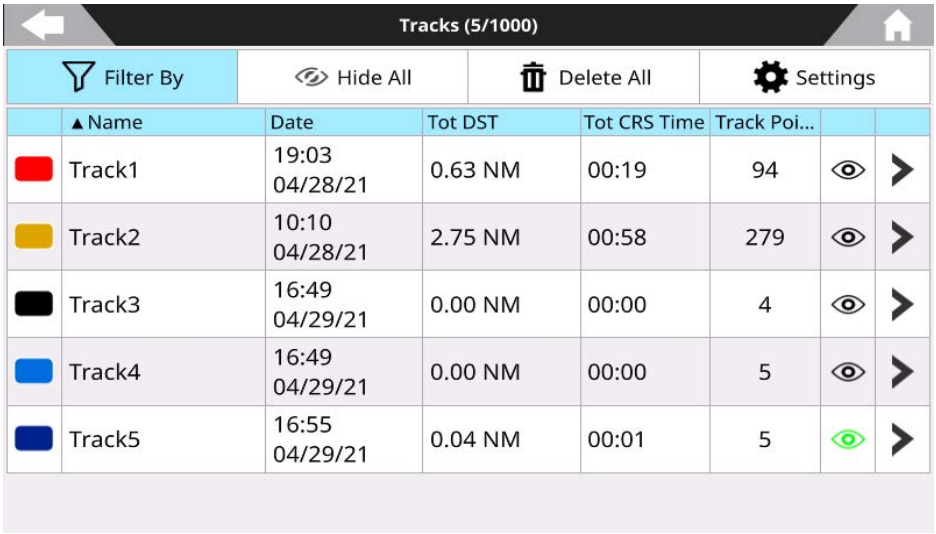
On the map:

1. Place the cursor over the waypoint on the map;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Move”;
4. Move cursor over the map and save new position by pressing [ENTER].

You can also change waypoint's position by inputting new coordinates manually. In this case, select "Edit Position" in waypoint's contextual menu on the map.

NOTE: If a waypoint is a current active destination, its position cannot be changed.

9.4 Tracks



	▲Name	Date	Tot DST	Tot CRS Time	Track Poi...		
	Track1	19:03 04/28/21	0.63 NM	00:19	94		
	Track2	10:10 04/28/21	2.75 NM	00:58	279		
	Track3	16:49 04/29/21	0.00 NM	00:00	4		
	Track4	16:49 04/29/21	0.00 NM	00:00	5		
	Track5	16:55 04/29/21	0.04 NM	00:01	5		

Figure 9.4 - Tracks page

By recording tracks you can store history about your boat moving over the map, so you can track where your boat has been. Tracks can be edited or deleted both on the "Tracks" page and on the map.
To start track recording on the map:

1. Press [CLEAR] or tap "Back to Fix" icon to center on fix position;
2. Press [ENTER] to call a contextual menu;
3. Enable "Record Track".

You can also use function keys to start/stop track recording.

9.4.1 Editing track's color, name and description

You can change color, name and description of tracks. To activate the editing mode on the "Tracks" page:

1. Open the main menu by pressing [MENU];
2. Select "Tracks";
3. Choose a track in the list > select "Name", "Description" or "Color".

To edit track color on the map:

1. Place the cursor over the track;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select "Edit Track" > select "Color".

9.4.2 Setting up a track generation interval and color logic

There are three ways to record a track: using smart tracking algorithm, by time or by distance.
By default, track is recording by smart tracking. It means that new trackpoint will be saved, if ship position or bearing were significantly changed. This recording option helps to save a space on the plotter's memory.
Recording by distance means trackpoint is placed when the distance from its last stored position is greater than the defined distance. If track is recorded by time, a trackpoint is placed after the defined time.
You can select the track generation time interval [1, 5, 10, 30 sec, 1, 5, 10, 30 min, 1 h] or distance [0.01 - 20.00] Nm. Setting a short time interval between trackpoints is best suited to navigate within a close or complex environment, while a greater time interval is best suited to a long journey.
To select the track generation interval:

1. Open the main menu by pressing [MENU];
2. Open "Quick Settings" > "Show Own Tracks" menu button > "Tracks Settings";
3. Select "Record By" and choose the desired algorithm;
4. In case "Time" or "Distance" were selected, set "Time Interval" or "Distance Interval" values.

9.4.3 Converting track to route

You can convert a track to a route so that the new route will outline the boat's track.

1. Open the main menu by pressing [MENU];
2. Select "Tracks";
3. Select a track in the list > "Convert to Route".

9.5 Boundaries

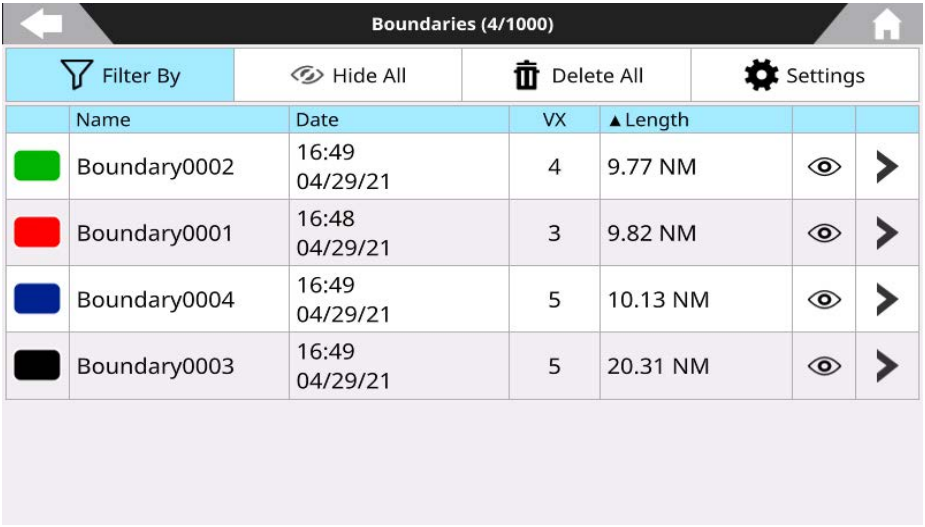


Figure 9.5 – Boundaries page

You can modify or delete boundaries on the “Boundaries” page and one the map.
To open the “Boundaries” page:

1. Open the main menu by pressing [MENU];
2. Select “Boundaries”.

On this page, you can see all boundaries that are stored on the plotter and open the list of vertices of a selected boundary.

9.5.1 Creating a boundary

To create a boundary on the map:

1. Place the cursor at the desired position on the map;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “New Boundary”;
4. Place the cursor at the position, where the next vertex should be saved; confirm by pressing [ENTER] or tap the map;
5. Repeat previous step for each vertex;
6. After all the vertices are placed, press [CLEAR] to exit boundary creation mode, or tap “Save” button.

9.5.2 Editing boundary’s color, name and description

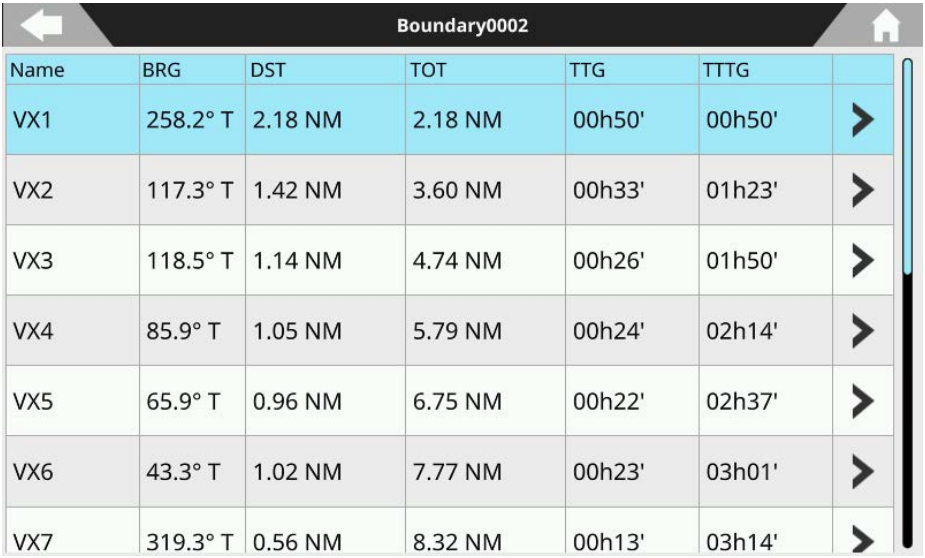


Figure 9.5.2 – Vertices list

1. Open the main menu by pressing [MENU];
2. Select “Boundaries”;
3. Choose a boundary in the list;
4. Select “Color”, “Name” or “Description”.

To edit boundary's color on the map:

1. Place the cursor over the boundary;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select "Edit Boundary" > select "Color".

9.5.3 Boundary alarm

To set boundary crossing alarms:

1. Open the main menu by pressing [MENU];
2. Select "Boundaries";
3. Choose a boundary from the list;
4. Select "Start Watch".

Boundaries marked as "watched", show a green eye icon on the "Boundaries" page. When the "Boundary Crossing" alarm is enabled, and a watched boundary is crossed by the vessel, an alarm notification will occur (Par. 14).

9.5.4 Vertices

Each boundary is a set of vertices. Vertices can be edited or deleted either from the map or from the "Boundaries" page.

To edit vertex position on the map:

1. Place the cursor over the vertex;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select "Move";
4. Move cursor to the new vertex position and press [ENTER], or tap the map;
5. Press [ENTER] or tap "Save" button to exit boundary edit mode.

To edit vertex position on the "Boundaries" page:

1. Open the main menu by pressing [MENU];
2. Select "Boundaries" and choose a boundary from the list > "Detail";
3. Select the vertex in the list > "Position";
4. Input new latitude and longitude values and select "Done" to save or press [CLEAR] or tap "Back" icon to exit position editing.

9.6 Locate user data on the map

You can browse through the list of all user points (ex: marks) and then open map on the selected point's position. Depending on a type of user data, it can be done differently.

To locate a route, a track, a mark or a boundary:

1. Open the main menu by pressing [MENU];
2. Select "Routes" ("Tracks", "Marks" or "Boundaries");
3. Choose the point in the list;
4. Select "Locate on map".

To locate a waypoint or a vertex:

1. Open the main menu by pressing [MENU];
2. Select needed page ("Routes" or "Boundaries");
3. Choose the point in the list (a route or a boundary) > "Detail";

4. Select the waypoint or the vertex > “Locate on map”.

You will be relocated to the “Map” page with the point centered on the map.

9.7 Changing user data default color, symbol or prefix

A new route, mark, event, track and boundary will be created with a default color, symbol, and name with incrementing number. To change defaults:

1. Open the main menu by pressing [MENU];
2. Select “Marks”, “Tracks”, “Routes” or “Boundaries” page;
3. Select “Settings” in the top bar menu;
4. Select “Default Color”, ”Default Symbol” or “Default Prefix”;
5. Save new default color and/or symbol;

or

6. Save new default prefix by inserting it with the keyboard and selecting “Done”.

NOTE: Vertices and waypoints prefix cannot be changed.

9.8 Displaying user data

To enable or disable all the tracks, marks, routes or boundaries displaying on the map screen:

1. Open the main menu by pressing [MENU];
2. Select the “Marks”, “Tracks”, “Routes” or “Boundaries” page;
3. Select “Hide All” button in the top bar menu to hide all the user data of this type.

If data is hidden, the “Show All” button appears in the top bar menu. By selecting it, you can display user data on the map again.

To hide/show a particular mark, track, route or boundary:

1. Open the main menu by pressing [MENU];
2. Select “Marks”, “Tracks”, “Routes” or “Boundaries” page;
3. Select the item to hide or show, press ENTER to open the menu and select “Hide” (or “Show”).

9.9 User data filters

You can filter routes by name and date, tracks and boundaries by color, name and date and filter marks by color, symbol and name. Choose any filter option or all of them at once.

1. Open the main menu by pressing [MENU];
2. Select “Routes”, “Tracks”, “Marks” or “Boundaries”;
3. Choose “Filter by” to open filter window – it has a list of filters to apply;
4. Select the filter by pressing [ENTER] or tap the needed one;
5. Open the keyboard to insert the name and select “Done” after the name has been entered;
6. Press [CLEAR] or tap ”Back” icon to apply.

After the filter was applied, you can execute group operations over filtered user data (delete or hide). When there is no filter activated, group operation will be applied to all the user data items in the list.

9.10 Order of user data on the page

Order of routes, tracks and marks on dedicated pages can be changed. You can sort out:

- Routes by name, date of creation, number of waypoints and total distance;
- Tracks by name, date of creation, total distance and total cruising time;
- Marks by name, date of creation and DST/BRG;
- Boundaries by name, date of creation, number of vertices and total length.

To sort the user points:

1. Open the main menu by pressing [MENU];
2. Select “Routes”, “Tracks”, “Marks” or “Boundaries”;
3. Move target to the desired column and press [ENTER], or tap the column name.

9.11 Exporting/importing user data

You can export or import your user data to or from a micro SD card. The acceptable file format for importing user data are GPX and DB.

To export user data in GPX format:

1. Insert a micro SD card to the micro SD slot of the plotter;
2. Open the main menu by pressing [MENU];
3. Select “General Settings” > “User Data”;
4. Choose the data to export (“Routes and Marks”, “Boundaries” or “Tracks”) and select “Export to micro SD”.

NOTE: Exported files will be placed on the root of the micro SD card.

To export user data in DB format:

1. Insert a micro SD card to the micro SD slot of the plotter;
2. Open the main menu by pressing [MENU];
3. Select “General Settings” > “Restore and Backup” > “Export User Data”.

NOTE: Do not eject the micro SD card until the message “Data exported” appears on your screen. You do not need to switch off the plotter, you can remove the micro SD even if the plotter is turned on.

To import user data in GPX format from a micro SD card to your plotter:

1. Insert a micro SD card to the slot of the plotter;
2. Open the main menu by pressing [MENU];
3. Select “General Settings” > “User Data”;
4. Select the data type (“Routes and Marks”, “Boundaries” or “Tracks”) and press “Import from micro SD”;
5. Select the desired file.

To import user data in DB format from a micro SD card to your plotter:

1. Insert a micro SD card to the slot of the plotter;
2. Open the main menu by pressing [MENU];
3. Select “General Settings” > “Restore and Backup” > “Import User Data”;
4. Choose between “Append” (user data from the micro SD card will be added to the data on the plotter) and “Substitute” (the data on the plotter will be substituted with the data from the micro SD).

To export user data in GPX format to Plotter Sync:

1. Insert a micro SD card to the micro SD slot of the plotter;
2. Open the main menu by pressing [MENU];

3. Select “General Settings” > “User Data”;
4. Choose the “Export to Plotter Sync”.

To import user data in GPX format from a Plotter Sync:

1. Insert a micro SD card to the slot of the plotter;
2. Open the main menu by pressing [MENU];
3. Select “General Settings” > “User Data”;
4. Select the data type and select a desired userdata object, or select “Import All” if you want to import all data;
5. Select the desired file.

NOTE: In case DB data was already synchronized with Captain Cloud account, the popup will appear asking if to save the synchronization state. Select “No” if you want to be able to synchronize this data with your account.

NOTE: Do not eject the micro SD card until the message “Data has been successfully imported” appears on your screen.

NOTE: The GPX files must be located at the root of micro SD card in order to be successfully imported by the plotter. The import of data will not substitute/delete any user data on the plotter; the new user data will be added to the existing ones.
The DB files, that you want to import, must be located at \AMP\Userdata folder of micro SD card in order to be found by the plotter.
As well, exported DB files will be placed into \AMP\Userdata.

9.12 Deleting user data

There are two ways to delete user data: you can clear all the data at once or delete user points one by one.

To clear all the routes, tracks, marks and boundaries at once:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Restore and Backup”;
3. Choose “Clear User Data” and confirm the action by selecting “Yes”.

User data can be deleted also on the “Map” page:

1. Place the cursor over the route, the track, the mark or the boundary;
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Delete”.

You can delete all the routes, tracks, marks and Boundaries on dedicated pages:

1. Open the main menu by pressing [MENU];
2. Select “Routes”, “Tracks”, “Marks” or “Boundaries”;
3. Select “Delete All” button in the top bar.

To delete a route, a track, a mark or a boundary one by one:

1. Open the main menu by pressing [MENU];
2. Select “Routes”, “Tracks”, “Marks” or “Boundaries”;
3. Choose a route, a track, a mark or a boundary from the list;
4. Select “Delete”.

10. A-B function

A-B function allows measuring distance and bearing between two points on the “Map” page.
You can access the A-B function in the contextual menu of the map:

1. Open the “Map” page;
2. Select “A-B” from the contextual menu. The A point is placed on the cursor position;
3. Move the cursor to the desired place. You will see the B point at the cursor position, and line, that connects A and B;
4. Press [ENTER] or tap to save A-B coordinates on the map;

or

5. Press [CLEAR] to exit A-B mode.

The distance between A and B (DST), the bearing (BRG) and time to go (TTG) to reach B from A are displayed in the A-B info.



Figure 10 - A-B function

In case you want to measure a distance/bearing from your boat to one point on the map:

1. Center the map on fix by pressing [CLEAR] or tap “Back to Fix” icon;
2. Call a contextual menu by pressing [ENTER];
3. Select “A-B”. The A point will be placed on a ship position;
4. Move the cursor to the desired position on the map;
5. Press [ENTER] or tap to save A-B coordinates on the map;

or

6. Press [CLEAR] to exit A-B mode.

To edit previously saved A-B on the map, call the contextual menu of A or B:

1. Place the cursor over “A” or over “B” icon;
2. Select “A-B”;
3. Move cursor to change A-B and save new A-B coordinates.

NOTE: On touchscreen plotters in A-B edit mode long tap on A or B allows to move both A and B points.

A-B will be fixed on the map until you delete it by pressing “Delete A-B” in the contextual menu of A or B. This action deletes A and B points and the connecting line.

11. Search function

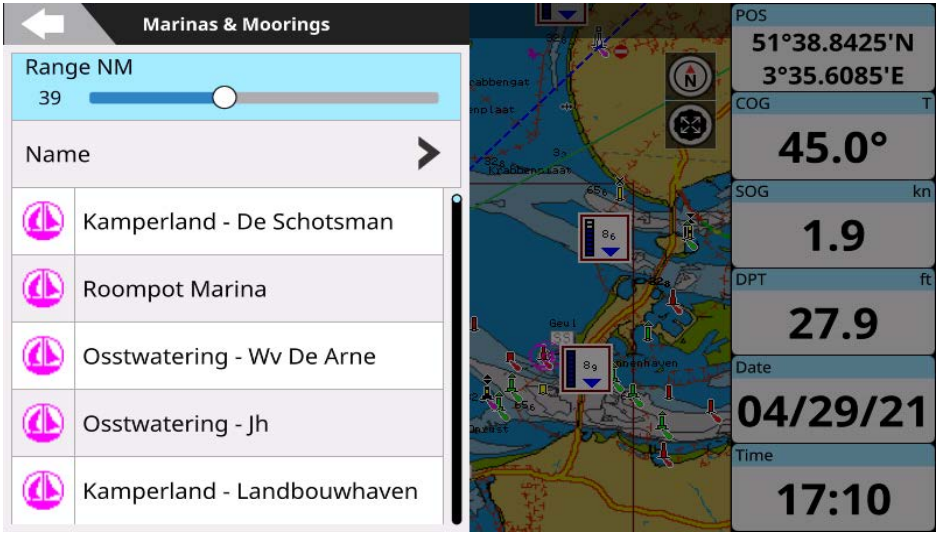


Figure 11 - Search page

NOTE: Search function requires the detailed C-Map or POLARIS Charts map unless you search for marks.

On the “Map” page:

1. Open the main menu by pressing [MENU];
2. Select “Search”;
3. Choose the object to search and the range.

You can search different objects:

- Ports Near to Me (*);
- Ports by Name and Service (*);
- Tide Stations;
- Current Stations;
- Marks;
- Fishing Gears – applied only when BarentsWatch feature has been enabled (Par. 22.3);
- Points of Interest (*);
- Wrecks;
- Obstructions;
- Lakes (Near to Me, by Name and Service) (*).

(*) not available in POLARIS Charts

The search operation may take some time, depending on the specified range of search. The larger range is covered by search, the longer it takes to find the objects.
After the search, the “Chart Info” page of the selected object can be reached. Here you can read information about the object, as well as locate the object on the map or start navigation to it.

12. Tides information

The “Tide Station” page displays a graphical page with the tides prediction of the selected object. You can reach a graph of a tide station in two ways:

1. Open the main menu by pressing [MENU];
2. Select “Search” > “Tides”;
3. Select a station from the list;
4. On the “Chart Info” page select “Graph”;

or

5. Select the tide station on the map;
6. Call a contextual menu by pressing [ENTER] or a long tap;
7. Select “Show Graph”.

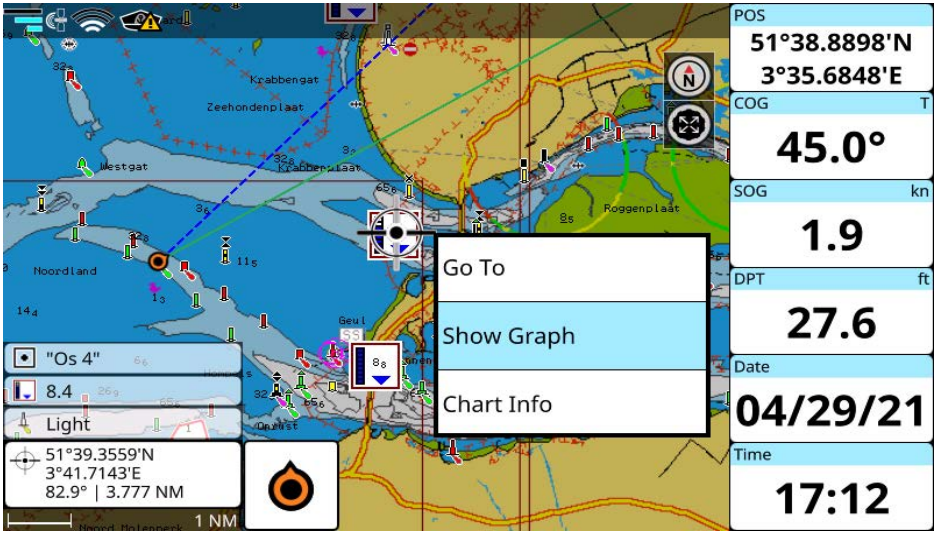


Figure 12.a - Tide height and tide stream stations on the Map page

On the “Tide Station” page you can see the information about the tide levels and sunrise/sunset and moonrise/moonset time for the selected date.

To change the date on the “Tide Station” page:

1. Select “Set Date” in the top bar;
2. Set day, month and year.

The tide graph will show the information for the new date.

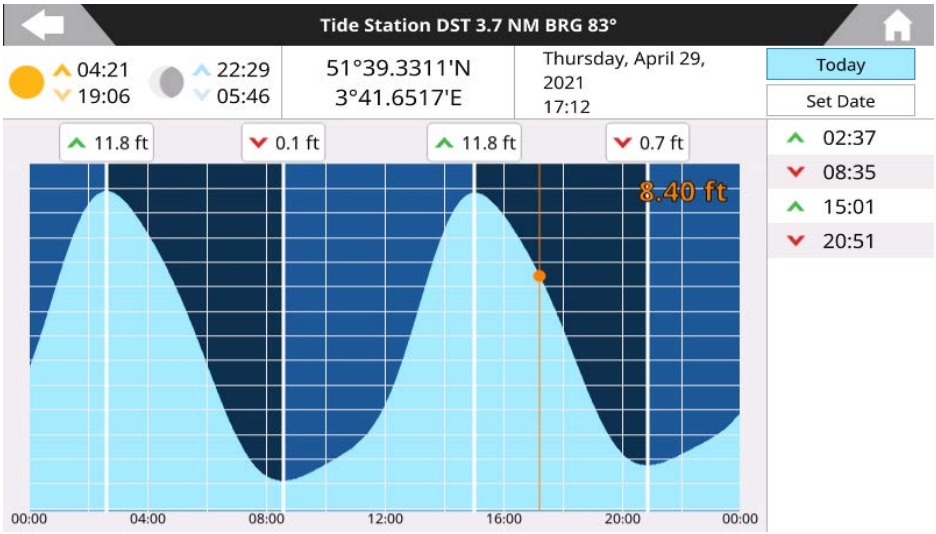


Figure 12.b - Tide Station page

You can check current tide level or move the cursor along the tide graph to see the tide height changes.

Press [UP] in order to move the cursor back to the “Change” option or tap the top bar.
Press [CLEAR] or tap the “Home” icon on the top right of the screen to exit the “Tide Station” page.

NOTE: On touchscreen plotters, you can use two fingers swipe gesture to see tide graphs of previous or next days.

13. MOB

If a person or an object are lost overboard and you need to return to the location, use the MOB (Man Over Board) function.

NOTE: To activate the MOB function, a valid GPS fix must be available.

The MOB function can be accessed from any page by pressing [MOB] key of the plotter. Also MOB can be accessed from the onscreen button when you activate it with below actions:

To activate onscreen MOB icon:

1. Press [Menu] > select Ports and Connectivity;
2. Set “Mirror Control” online status to ON.



The MOB icon is placed at the current fix position and at the same time navigation towards the MOB position starts.

To delete MOB icon and stop navigation to it:

1. Place cursor over the MOB icon and press [Enter] or tap the icon;
2. Select “Cancel MOB”.

14. Alarms

The plotter provides alarms for various purposes: navigation, tank, wind and AIS monitoring. You can specify the desired alarm range for most of the functions.
To open the “Alarms” page:

1. Open the main menu by pressing [MENU];
2. Select “Alarms”.

An alarm is triggered when the specified condition happens, and shuts down when the condition disappears. You can choose for the alarm to appear with a beep sound (which can be automatically muted after a timeout) or without it:

1. Open the main menu by pressing [MENU];
2. Select “Alarms” > “General Configuration”;
3. Enable or disable “Audible Alarm”.

When audible alarms are triggered, you can turn off the sound by pressing [CLEAR] or tap the alarm bar. Alarm bar will remain visible until the alarm condition is released. When two or more alarms are activated, the messages cycle on the alarm bar.

External alarm

The external alarm is a signal triggered by the plotter on a specific wire, which can be used by the external device (as a hooter or a buzzer).
To switch on the “External Alarm” function:

1. Open the main menu by pressing [MENU];
2. Select “Alarms” > “General Configuration”;
3. Enable or disable “External Alarm”.

NOTE: You can use “Auto Mute” slider to set a specific amount of time for a beep to sound. After the preset time will pass, notification will continue to be displayed.

NOTE: You can check alarm settings using “Test Alarm” action.

Navigation alarms

Navigation alarms are presented with the following alarms:

- “Grounding” alarm scans map area within 1 nautical mile range in front of your course line (plus 8 degrees to the left and 8 degrees to the right direction) in order to find objects dangerous for navigation, such as shallow water (depth areas), seabed areas, intertidal areas, land, rocks, areas with navigation limits or interdictions, obstacles under the water surface, obstructions and shoreline constructions. You can set the minimum depth value for this alarm on the “Alarms” page;
- “Bottom Lost Alarm” is automatically triggered when the plotter stops receiving depth information from Fish Finder or any other connected depth sensors.
- “Depth” alarm is automatically triggered when the depth value read by the depth transducer is within or outside the depth range;
- “Anchor” alarm is triggered when the ship moves off the current ship’s position location;
- “XTD” alarm is triggered when the vessel is deviating from a defined course. Cross track distance value can be set in “General Settings” > “Navigation” > “XTD Value NM”;
- “Boundary Crossing” alarm is triggered when a watched boundary (Par. 9.5.3) and is crossed by a vessel;
- “Arriving at Destination” alarm is triggered when the distance to destination becomes smaller than the value specified in “General Settings” > “Navigation” > “Arrival Circle Radius NM”;

- “Own Ship Speed” alarm is triggered when ship speed is within or outside specified range;
- “Trip Meter” alarm is triggered when the distance that ship passed till last “Trip Meter” databox reset, exceeds the preset one;
- “Surface Temperature” alarm is triggered when the temperature is within or outside the specified range;
- “Temperature Shear” alarm is triggered when the temperature changes with the preset amount of degrees during one minute.

NOTE: Grounding alarm works only with C-Map micro SD card with detailed map. Navionics and POLARIS Charts do not support grounding alarm.

NOTE: By default, all navigation alarms are turned off. Before you start the navigation, enable/disable alarms and customize ranges. The “Anchor” alarm turns off each time the plotter restarts.

Tank alarms

Tank alarms are triggered depending on a tank type. The type of fluid cannot be set manually, it is is received via NMEA 2000.

You can set on board the amount of tanks:

1. Open the main menu by pressing [MENU];
2. Select “Alarms” > “Tank Alarms”;
3. Select a value from 1 to 6.

Depending on a fluid type, the alarm is triggered when the value is above or below than the one specified with the “Notification Percentage” slider.

For example, if the tank type is “Fuel”, “Low Fuel” alarm will be triggered when fuel level is less than notification percentage value. For a “Waste water” tank type “High Waste Water” alarm occurs when the current tank value exceeds the notification percentage.

Wind alarms

Wind alarms aimed to inform about wind speed or angle changes. They include:

- “Max TWS Alarm” is triggered when wind speed exceeds the value, set with “Max TWS Value” slider;
- “Wind Shift Alarm” is triggered when wind direction changes for more than 90 degrees during one second;
- “Low AWA Alarm” is triggered when apparent wind angle value is less than the value, set with “Min AWA Value” slider;
- “High AWA Alarm” is triggered when apparent wind angle value is larger than the one specified with “Max AWA Value” slider.

CPA/TCPA alarms

The CPA/TCPA alarms are available only when a compatible AIS or ARPA device is connected to the plotter.

This collision avoidance tool warns you of possible collisions with other vessels based on the parameters you indicate. To calculate CPA and TCPA, the plotter must receive valid position, course and speed data for both your own vessel and any AIS target. AIS alarms include:

- CPA value indicates the minimum distance (e.g in Nm) between vessels at some time in the future if both vessels continue to move at the same speed and course.
- TCPA value indicates how long (e.g in minutes) the vessels will take to reach the minimum distance if both vessels continue to move at the same speed and course.

When both of the predicted CPA and TCPA of any AIS target become less than the set CPA and TCPA alarms settings, the audio alarm sounds. The alarm message “CPA/TCPA” appears.

NOTE: If “Audible on Every New Target” is disabled, first dangerous AIS target will be marked in red color on the map and related alarm will sound, but after mute each next dangerous AIS target will be marked in red color on the map, but will be muted.

WARNING: If CPA and TCPA alarms are disabled, potentially dangerous AIS targets will NOT be marked in red color on the map and NO related alarms will sound (Par. 19).

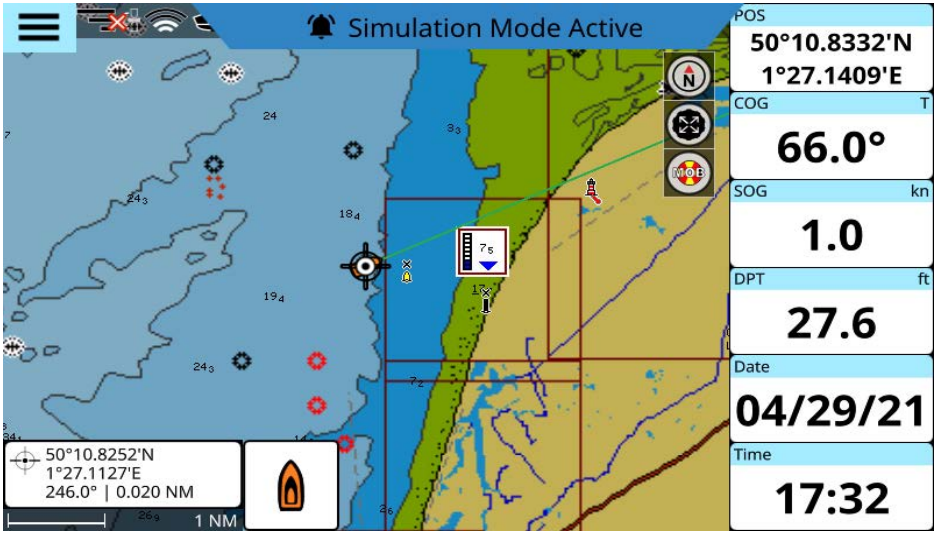
15. Simulation mode

The built-in simulation function allows you to become proficient in the use of the plotter. It simulates reception of the navigation data (position, SOG and COG).

The simulated boat’s position is placed at the current position of the cursor when the simulation is activated. It can be moved to any place on the map by choosing “Move Vessel Here” option from the map contextual menu.

To turn fix simulation on:

1. Open the main menu by pressing [MENU];



2. Select “Simulation” and enable “GPS Simulation”;
3. Select “SOG” and “COG”, input the desired values.

To center fix icon on the map:

1. Open the “Map” page;
2. Press [CLEAR] to get to the home mode (fix position will be centered) or tap “Back to Fix” icon.

Figure 15 - Simulation mode

You can turn on AIS, route following and Fish Finder simulation in the same way.

- “Simulate Route Following” option allows demonstrating automatic route following by the boat’s icon on the “Map” page;
- “Simulate AIS targets” generates AIS targets around your fix position;
- “Simulate Fish Finder Device” demonstrates the simulated echogram, transducer frequency, water temperature and depth.
- “Simulate Radar” shows the simulated radar echogram.

To apply “Simulate Radar” option:

1. Enable “Simulate Radar”;
2. Select “Page” > go to Radar page;

Radar simulation can be interrupted and restarted by pushing the onscreen Tx button icon.

NOTE: Most radar settings will not affect radar picture in radar simulation mode.

16. Map settings

16.1 Course predictor

The course predictor is a line that starts from your boat and indicates the course direction. It is displayed on the map as an infinite blue dashed line by default.
You can customize it in the “Course Line” settings:

1. Get to the home mode on the “Map” page by pressing [CLEAR];
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Select “Course Line”.

On the “Ship” page you can either turn course line off or customize its length by selecting “Infinite” or time values.

Course predictor time can be set to 120 minutes.
To set the course predictor value:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Ship”;
3. Select “COG Vector Time”;
4. Choose the desired value.

Now the course line will be finite and its length will depend on your boat’s speed. The end of the finite course line is indicated by the blue circle.

16.2 Heading line

The heading line is a line that starts from the boat’s bow and indicates the heading direction.
It is presented on the map with an infinite green solid line by default. You can switch on/off the heading line:

1. Get to the home mode on the map by pressing [CLEAR];
2. Call a contextual menu by pressing [ENTER] or a long tap;
3. Disable “Heading Line”.

You can turn on the heading line in the same way.

Alternatively, you can enable or disable the heading line following these steps:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Ship”;
3. Enable or disable “Show Heading Line”.

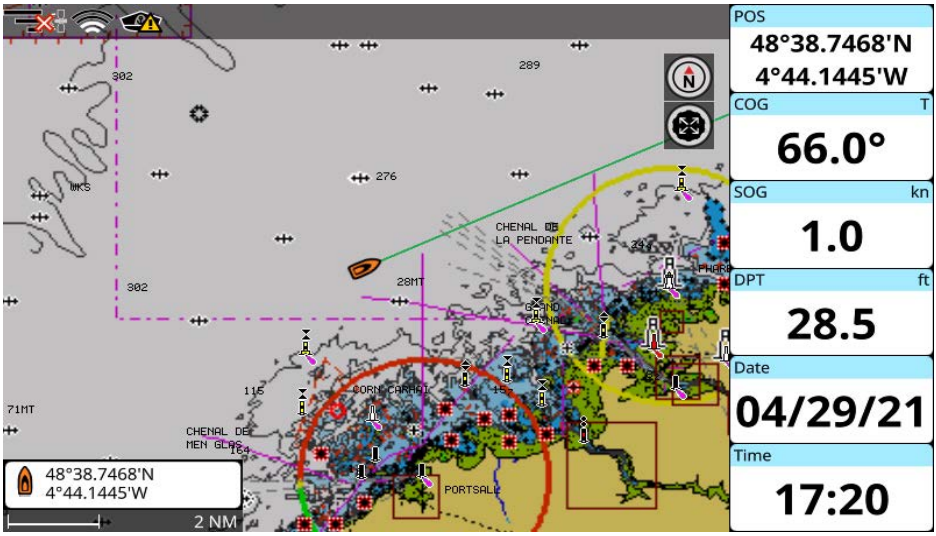


Figure 16.2 - Heading line on the map

16.3 Map Orientation

During navigation, the map can be set to view north-up, or it can be oriented heads-up, or course-up. Otherwise, you can choose a fixed custom map orientation, rotating the map (Par. 5.1).

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” > “Mode”;
3. Select the desired option among “North Up”, “Head Up” or “Course Up”.

On touchscreen plotters you can also change the mode by tapping on the orientation button icon on the top right of the screen.

17. Ports settings

You can change the parameters of the serial and CAN interface on the “Ports and Connectivity” page:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity”.

On this page you can set the configuration for serial ports (A, B, etc.) and CAN port. If your plotter is WiFi compatible, you can also enable WiFi on this page and connect to a network (Par. 18) as well as enable Mirror Control.

17.1 External serial ports

The plotter is equipped with serial ports (COM). Different plotter families can have specific ports dedicated to GPS sensor because of its special socket. You can configure it to Fish Finder or other NMEA 0183 device alternatively.

When a given external port is in use by the internal GPS, that port will not be available for connection of any other external devices:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity”;
3. Select the serial port with “Internal GPS” label;
4. Disable “Use Port for Internal GPS”;
5. Select the option for serial port from the list displayed below.

Serial ports can be set up to receive NMEA 0183 data by selecting one of the following options.

NMEA 0183 device

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” and select a port;
3. Select the serial port with “NMEA 0183” label;
4. In the “Baud Rate” section, select the desired baud rate.

Auto-detect

Connect NMEA 0183 device to the serial port and wait for the device to be found - the port tab will become marked with a green circle instead of red one.

NOTE: In the “Auto” mode, baud rate is configured automatically.

17.2 Communication log

“Communication Log” allows the plotter to act as a computer terminal and display the data exactly as it is received or transmitted. This option is available in the “NMEA 0183 ” and “NMEA 2000” modes. If the data displayed on the screen is unrecognizable, you may have selected the wrong input parameters for your particular accessory.
Check your accessory manual to be sure that you have selected the proper interface format.
If the screen is blank, the connection may be interrupted, and no data is being received.

17.3 NMEA 2000 port

The plotter is equipped with one CAN port. CAN bus is a communication protocol that shares multiple data and signals through a single backbone cable. You can simply connect any CAN bus device onto the backbone cable to expand your network onboard.
With CAN bus, IDs are assigned to all the devices in the network, and the status of each sensor in the network can be detected. All CAN bus devices can be incorporated into the NMEA 2000 network.
This port can be turned on/off on the “CAN port” settings page:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” > “CAN Port”;
3. Select “None” to turn the port off or “NMEA 2000” to turn it on.

17.4 Ports output

The plotter can output NMEA 0183 or NMEA 2000 data through your serial ports or the CAN port respectively. For serial ports, this option is available in the “NMEA 0183 device” mode of the serial ports options.
To enable output for a serial port:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” and choose the desired serial port (A, B, etc.);
3. Select “NMEA 0183” > “Output Options” > “Enable Output”.

On the “Output Options” page you can select:

- the NMEA 0183 version (2.0, 3.0, 4.0 or 4.1);
- the NMEA 0183 sentences for output.

For CAN port the port output function is available in the “NMEA 2000” mode.

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” > “CAN Port” > “Output Options”;
3. Select “Enable Output” to enable or disable output;
4. Select the desired NMEA 2000 PGNs in the list below for output and enable them.

17.5 Input Manager

Different navigation data may be received from other devices to different ports of the plotter.
Input manager page is helpful if there is more than one source of incoming data. On this page, you can check which data arrive to which port and choose the source to receive the data from, in case there are multiple sources.

For example, devices with internal GPS can receive position data both from NMEA 0183 and internal GPS. You can choose the source of the data by switching between serial ports:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” > “Input Manager”;
3. In the “GPS” section choose between the different serial or CAN ports.

NOTE: Make sure that data sources are set correctly and don’t forget to change settings in case

data starts being received on another port. If data is received from non-selected port, the notification will occur suggesting to check the source. Once source was set to non-default or the notification was dismissed, it will not appear again.

NOTE: You can find NMEA0183 and NMEA2000 Sentence inputs and outputs lists at the end of his User Manual.

17.6 Offset

You can adjust the values of depth, water and air temperature, speed through water, heading, wind speed and angle, received by the sensors, and set the damping time in the “Offset” menu.

Damping

Values of COG, SOG and wind can change fast. In order to improve the accuracy and to smooth the values, you can set a damping time. This time (can be set from 0 to 12 seconds) means, that the data, which were received in the chosen amount of seconds, will be used for calculations. The higher the damping is, the steadier COG, SOG and wind values are. Which also means, that they become less responsive to changes.

To set the damping time:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” > “Offset”;
3. Set the desired values for “Wind Damping” and “COG & SOG Damping”.

Boat position offset

Sometimes the position of your boat can be displayed in the wrong place of the map due to weak GPS signal or cartography accuracy. You can change the position of the boat on the map by introducing the latitude and longitude correction values:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” > “Offset”;
3. Enable “Fix Offset”;
4. Enter the values to the ”Latitude Offset” and “Longitude Offset”;

or

5. Return to the “Map” page and call cursor contextual menu > “Calculate Fix Offset”.

18. WiFi

If your plotter is WiFi compatible, you can connect it to any available WiFi hotspot. The internet connection grants access to special features, such as Captain Cloud (Par. 18.1), Mirror Control (Par. 18.2), Radar (Par. 21), and software updates via the Internet (Par. 23.1).
In order to connect the plotter to the Internet, verify that WiFi is enabled in the settings page.

To turn WiFi on/off:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” > “WiFi”;
3. Enable/disable “Wireless LAN”.

After that, you can connect to the desired network in the list of available networks:

1. Select the desired WiFi hotspot in the automatically updated list;
2. Insert password for the network access.

The network will be remembered by the plotter, and next time it will be connected automatically.
If for any reason you don’t want to connect to this network automatically anymore:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” > “WiFi”;
3. Select “Disconnect” button near the active network name.

You may have only one active WiFi connection at a time with your plotter. Connecting to a given WiFi router or other WiFi device will automatically interrupt any/all other connections.

18.1 Captain Cloud

Captain Cloud is a special feature that saves your tracks, routes, and marks on the cloud and keeps them safe. Synchronizing user data with Captain Cloud allows to use and manage it on any other plotter, PC, tablet or smartphone connected to your private cloud.
In order to use Captain Cloud, you need to create your account on captaincloud.com, then you need to login to Captain Cloud on the plotter with the same credentials used on ***captaincloud.com***.

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Captain Cloud”;
3. Enter the email address you used for your account on captaincloud.com and your password.

In a few seconds, the status will be changed to “Connected”, after which data synchronization will be done automatically. Synchronization may take time if the amount of data is large. All the user data stored on plotter will be accessible on Captain Cloud website.

User data synchronize with your account on ***captaincloud.com*** automatically.
You can create a new route or mark on Captain Cloud’s map and it will automatically appear on your plotter.

NOTE: All the modifications will be synchronized automatically every 60 seconds in case you have the Internet connection. In case you are not connected while making changes on your plotter, changes will be stored in the plotter memory and synchronized as soon as the Internet connection becomes available.

NOTE: Try to avoid simultaneous modifications of user data on the plotter and on the webpage. This may cause collisions and unexpected behaviors.
If you want to log in as a different user on the plotter, you need to reset the “Captain Cloud” page:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “Captain Cloud”;
3. Select “Reset”;
4. Carefully read information in the warning dialog and confirm the action.

NOTE: It is highly recommended to clear all user data on your plotter if you want to start synchronizing data with another user account.

18.2 Mirror Control

Wireless LAN connection compatible plotters can be controlled by smartphones or tablets with Mirror Control app installed. The application allows operating your Android or Apple device as a touchscreen plotter.

You can pair your devices via WiFi and then use a tablet/smartphone to control the plotter remotely:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” > “WiFi” and enable WiFi;
3. Connect the plotter to a hotspot;
4. Make sure your tablet is connected to the same hotspot;
5. Open “Ports and Connectivity” > “Mirror Control” and enable “Online Status”. The menu icon will appear in the top left corner of the map page;
6. Open your app and pair it to a plotter by inserting IP Address, which is displayed on the “Mirror Control” page.

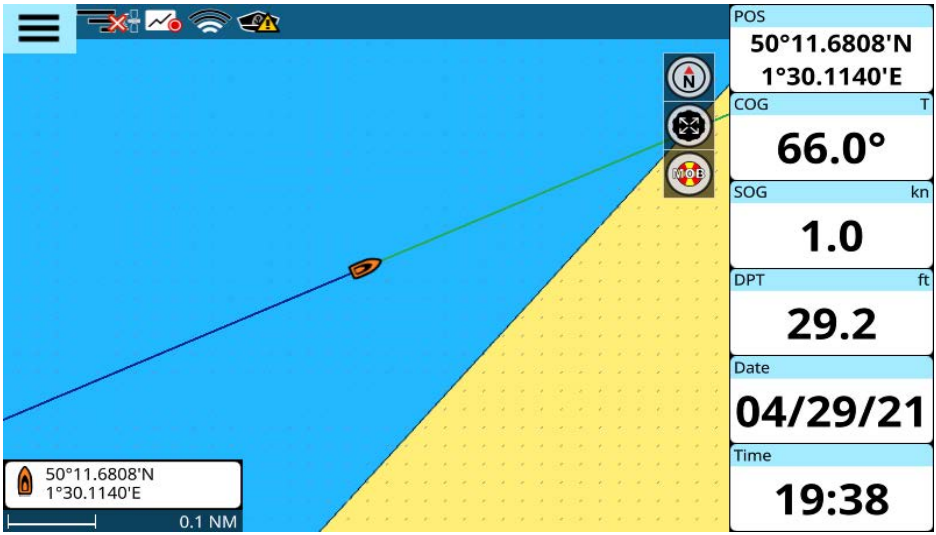


Figure 18.2 - Menu icon on the Map page

18.3 Radar

Wireless LAN connection compatible plotters can also be connected to compatible WiFi radar antennas or radar antennas with a WiFi router. For full information regarding radar connections and use with your plotter, please see chapter 21 of this manual.

To connect to the radar antenna via WiFi:

1. Open the main menu by pressing [MENU];
2. Select “Ports and Connectivity” > “WiFi” and enable “Wireless LAN”;
3. Select the network from the list and enter the correct password.

18.4 BarentsWatch

Wireless LAN connection compatible plotters are granted to the Fishing Gears of BarentsWatch site feature.

BarentsWatch is a special feature useful for fisherman that fish in the Norwegian sea area.

To use BarentsWatch, you need to create your account at **https://id.barentswatch.no**, then you need to authorize the plotter with the BarentsWatch website.

For full information regarding Fishing Gears of BarentsWatch and use with your plotter, please see chapter 22 of this manual.

19. AIS and DSC

AIS is an Automatic Identification System. The AIS allows automatic tracking of ships for identifying and locating vessels by exchanging data with other nearby ships, AIS base stations, and satellites. A vessel equipped with AIS is called a target. Information about all targets, received by AIS receiver, is displayed on the screen and on the “AIS” page.
Class A and Class B targets are usually displayed as triangles filled with a solid color. You can view the AIS type by color on the “AIS Legend” page. This page can be opened by clicking on any target on the “AIS” page and selecting “AIS Legend”.

1. Open the main menu by pressing [MENU];
2. Select “AIS”.

19.1 AIS, DSC and ARPA filters

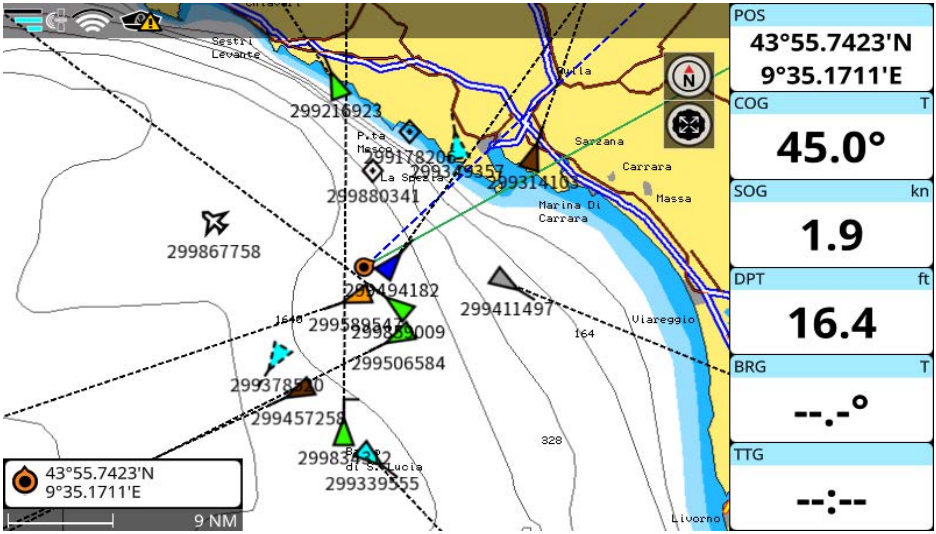


Figure 19.1.a - AIS target on the map

Display Settings
The display filter includes the following settings:

1. AIS Icon Size can be set to display Small, Standard or Large icons;
2. AIS Targets IDs display, by default this option is disabled;
3. AIS Targets INames display, by default this option is enabled;
4. Show or hide AIS Targets COG Vector;
5. AIS Targets COG Vector Time can be set to show where the AIS target will be in the selected time if it moves at its current speed and heading.

AIS Targets Range Filters
By default, the information is displayed for all targets within the display range of 20 Nm. The AIS Targets Range is the range around your boat where targets become active. You can change the settings for AIS

targets range:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” > “Show AIS/DSC” menu button > “AIS Settings”;
3. Set the desired “AIS Targets Range”.

Enabling the “Unlimited / Always On” option disables “AIS Targets Range” setting and shows all AIS targets including those beyond 20 nautical miles from the ship.
Enabling “Unlimited / Always On” switcher shows all AIS targets and ignores the AIS Target Range setting.

Show AIS Targets filters
You can filter AIS Targets viewing by selecting: All, Class A, Class B, or Dangerous. By default All AIS Targets are displayed.

Targets Limit
By default 300 targets are displayed. You can set the value of displayed AIS targets from 100 to 1000.

NOTE: Large numbers of AIS targets will reduce the performance of your navigation system, slowing down many other functions.

Lost Targets Last Position
You can continue to view lost targets that have stopped sending their AIS information, for a selected timeout period by changing the value with the slider setting.

To apply AIS target speed filter:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” > “Show AIS/DSC” menu button > “AIS Settings”;
3. Set the desired speed with “Ignore Targets Slower Than” slider. You will not see AIS targets with the speed slower than the selected value.

Slow targets
You can set the speed value for ignoring (and removing from display) targets when they are moving slower than the speed you indicate.

AIS tracks
You can set the thickness for AIS tracks (1, 2, 3 px) or delete all tracks.

Other settings:
SART Test option
Enabling the “SART Test” option shows activated SARTs in test mode. Disabling removes test SARTs, and only real, sent SARTs are visible.
ICOM Data option
Enabling the “ICOM Data” option allows reception of AIS data from ICOM devices. Disabling this option data from ICOM devices will be ignored.

DSC displaying
DSC targets are displayed on the “DSC” page for a predefined amount of time. By default, this value is 100 calls.

To change the setting:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” > “Show AIS/DSC” menu button > “DSC Settings”;
3. Select “DSC Settings” and choose the needed value.

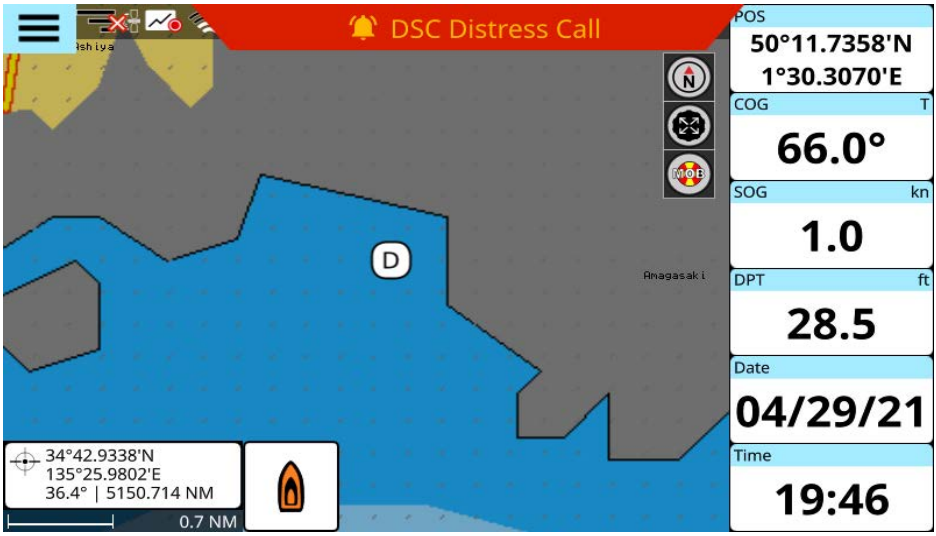


Figure 19.1.b - DSC on the map

ARPA Display Settings

The display filter includes the following settings:

1. ARPA Icon Size can be set to display Small, Standard or Large icons;
2. ARPA Targets IDs display, by default this option is disabled;
3. Show or hide ARPA Targets COG Vector;
4. ARPA Targets COG Vector Time can be set to show where the ARPA target will be in the selected time if it moves at its current speed and heading.

ARPA tracks

You can set the thickness for ARPA tracks (1, 2, 3 px) or delete all tracks.

ARPA Legend

You can see the status and description in the ARPA legend setting:

1. Open main menu by pressing [MENU];
2. Select ARPA > tap on press [Enter] on “ARPA Legend”.

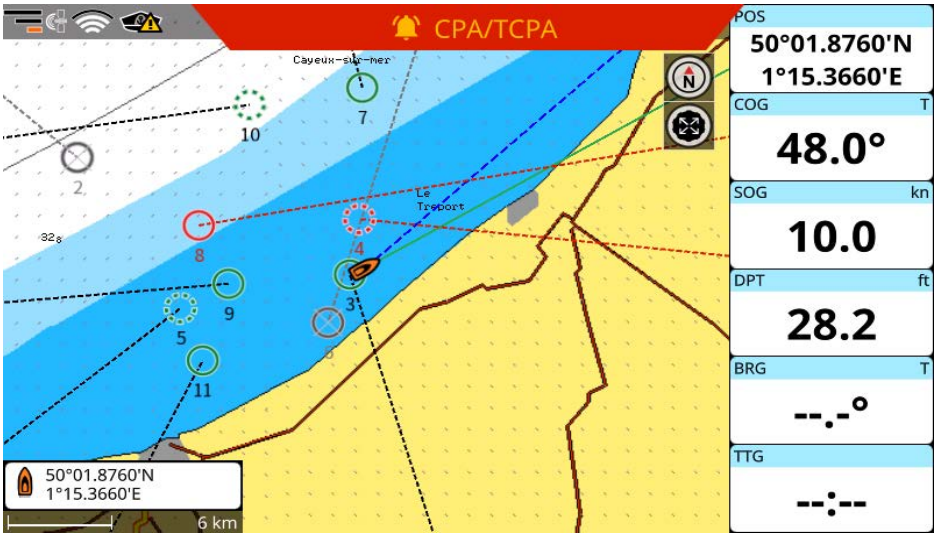


Figure 19.1.c - ARPA on the map

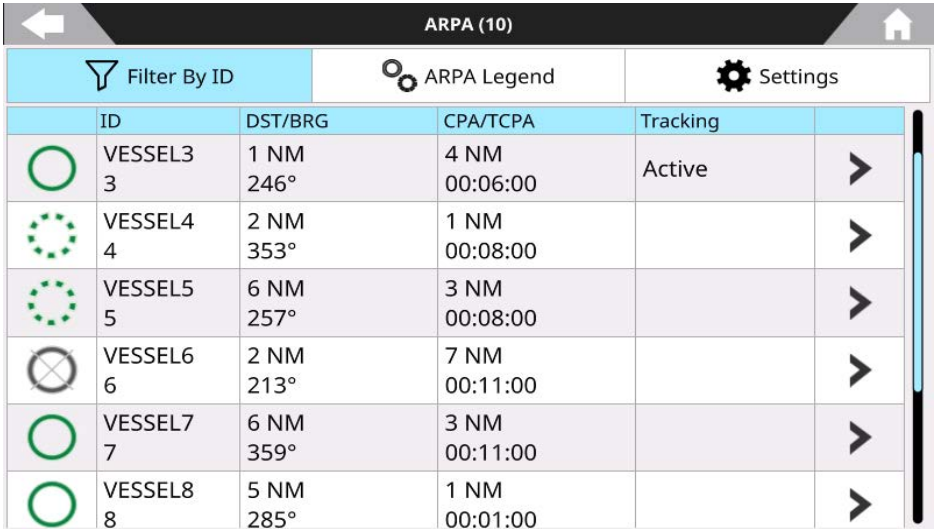


Figure 19.1.d - ARPA in the list

19.2 AIS and DSC target information

On the “AIS” page you can access the following information about each target:

- Name;
- DST/BRG;
- Call Sign;
- Type;
- CPA/TCPA;

- Tracking.

On the “DSC” page the following information is displayed:

- MMSI;
- Position;
- DST/BRG;
- Time.

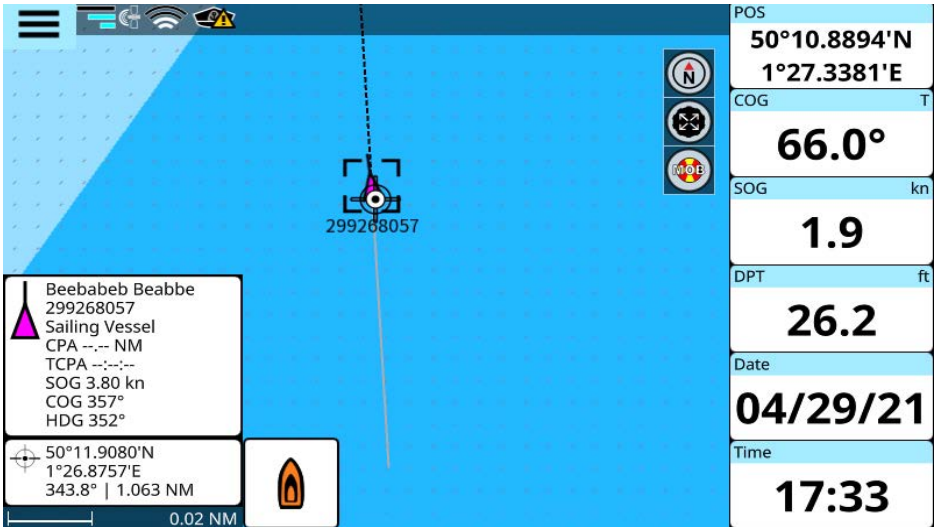


Figure 19.2.a - AIS targetinfo box (AIS track in record)

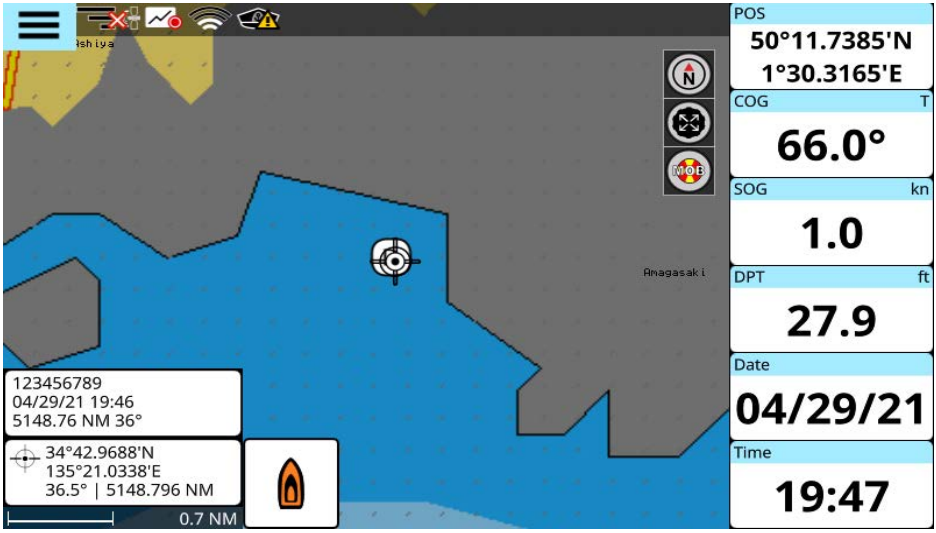


Figure 19.2.b - DSC target info box

You can locate the selected AIS target and DSC on the map, start navigation on a target or save a mark on the target position:

1. Open “AIS” or “DSC” page;
2. Select the desired target in the list of AIS or DSC targets.

By placing the cursor over an AIS target icon on the map, the following information is displayed: AIS name, MMSI, CPA and TCPA, COG, SOG and HDG (see Fig. 19.2.a).
DSC info box shows MMSI, date and time, distance and bearing (see Fig. 19.2.b).

You can enable or disable the display of AIS target IDs and names on the map:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” > “Show AIS/DSC” menu button > “AIS Settings”;
3. Enable/disable “Show Target IDs” or “Show Target Names”.

You can enable or disable the display of DSC target IDs on the map:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” > “Show AIS/DSC” menu button > “DSC Settings”;
3. Enable/disable “Show Target IDs”.

20. The Fish Finder

The Fish Finder consists of a high power transmitter, sensitive receiver and a transducer. The Fish Finder sends acoustic (sound) wave through the water. As this wave travels from the transducer to the bottom, it may strike fish, structures, thermoclines (temperature changes in the water). When the wave strikes an object(s) a certain amount of the wave is reflected back to the transducer depending on the composition and shape of the object. When the reflected wave is returned to the transducer it is converted into a voltage and is amplified by the receiver, processed and sent to the display.

20.1 Switching on the Fish Finder

Before you can see the information from Fish Finder on the screen, you must set up a plotter port. Depending on the type of your plotter, serial ports can have an option “Fish Finder” (you may use either this option or “Auto” option of the serial port), or there may be a special port to connect the external Fish Finder device.

“Disconnected” label appears at the bottom of the “Fish Finder” page in case you have disconnected the Fish Finder.

NOTE: The plotter does not support more than one Fish Finder, so make sure other serial ports are not set to “Fish Finder” option.

20.2 The “Fish Finder” full page

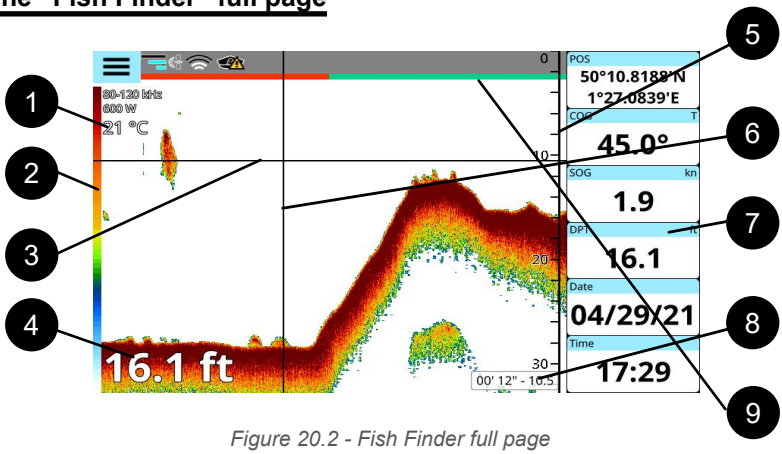


Figure 20.2 - Fish Finder full page

1. Transducer data shows frequency and power of the transducer. Also, water temperature is displayed;
2. Color bar displays the mapping between echo strength and the colors of echogram, and can be enabled or disabled in “Display Settings” menu;
3. Variable depth marker (VDM) is a horizontal line on the echogram with a depth label. The up/down joystick keys or scroll gestures can move it up and down. The label displays the depth of the VDM position;
4. Depth data is displayed in the bottom left part of the page. Depth units depend on your plotter settings (Par. 3.6);

5. The depth ruler shows the range of depth, on which the Fish Finder is operating. It is a scale which reflects the depth of the area being displayed;
6. The vertical time marker is a vertical line on the echogram. The [LEFT], [RIGHT] up/down joystick keys or scroll gestures can move it left and right to scroll the echogram history;
7. Databoxes (Par. 4.7);
8. Cursor box reporting time and depth data (corresponding to the intersection of VDM and vertical time marker lines). In order to hide the cursor, press [CLEAR].
9. The FF timeline at the top of the display uses alternating colors to show 30s time intervals.

Fish Finder main menu

Press [MENU] on Fish Finder page to make adjustments of:

- Frequency;
- Display mode;
- Display settings;
- Transmission settings;
- Offset;
- Transducer list.

The rest of the menu items are common for all the pages: “General Settings”, “System Messages”, “Ports and Connectivity”, “Simulation”, “User Manual”.

20.3 Echogram history

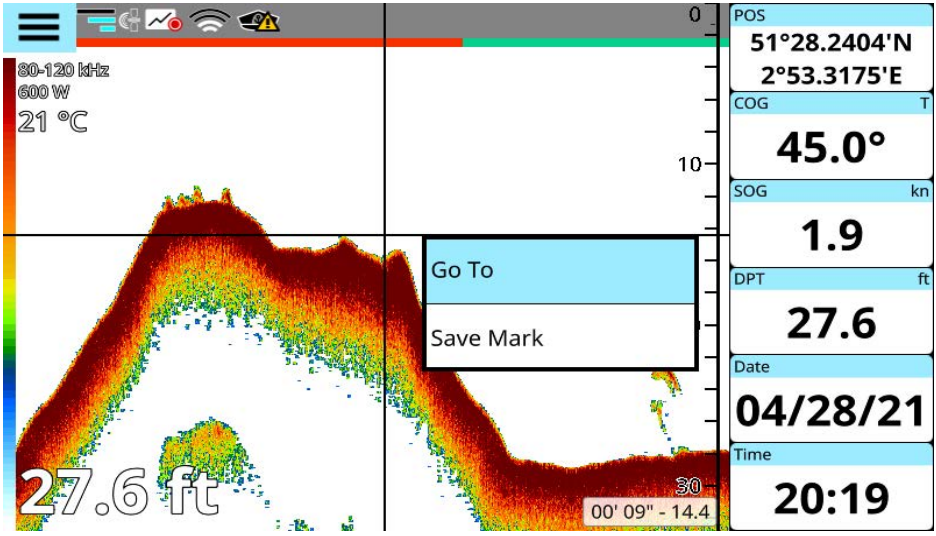


Figure 20.3 - Fish Finder history

The echogram presents an approximate picture of the surface under the Fish Finder transducer that can be scrolled to see the history of the echoes received by the transducer.
To scroll the echogram, press [LEFT] on the “Fish Finder” page or use scroll gesture. You will see the

vertical white line moving along the echogram. The scrollable history is limited and covers around 2048 echoes. In order to return the vertical time marker to the current time, press [CLEAR] or scroll to the most right.

Placing a mark on the Fish Finder echogram

You can place a mark in any place of the echogram history shown on the screen:

1. Press [LEFT]/[RIGHT] to place the vertical time marker or tap in the desired position;
2. Call the contextual menu by pressing [ENTER] or by a long tap gesture;
3. Select “Save Mark”.

The mark is placed and saved in the place where your boat was located at that exact time moment. To start navigation to the point:

1. Press [LEFT]/[RIGHT] to place the vertical time marker or tap in the desired position to place the cursor;
2. Call the contextual menu by pressing [ENTER] or by a long tap gesture;
3. Select “Go To”.

Navigation will begin to the point where your boat was at that exact time moment, to which the vertical time marker pointed.

20.4 Frequency

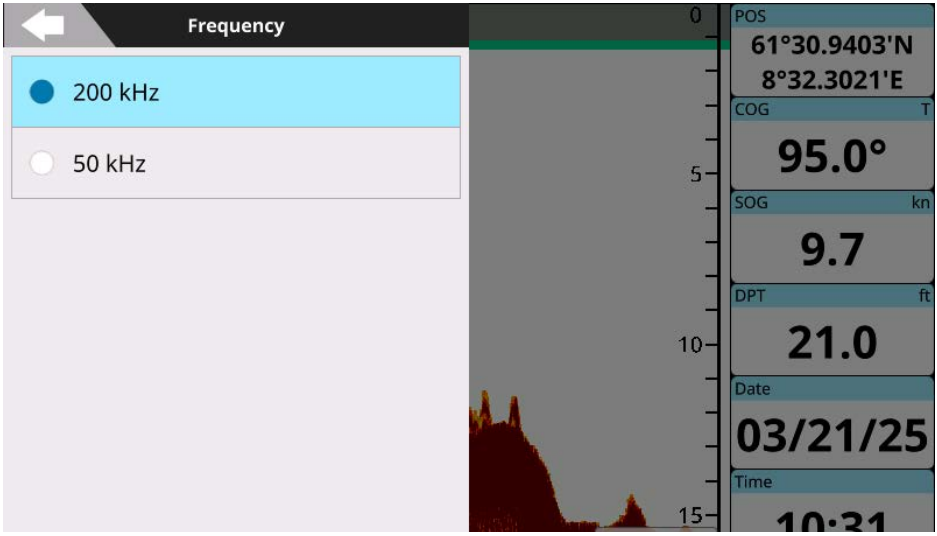


Figure 20.4 - Frequency menu page.

The operation frequency can be changed for some transducers. To change the operation frequency:

1. Open the main menu by pressing [MENU] on the “Fish Finder” page;
2. Select “Frequency”;
3. Select frequency from the list.

20.5 Display mode and settings

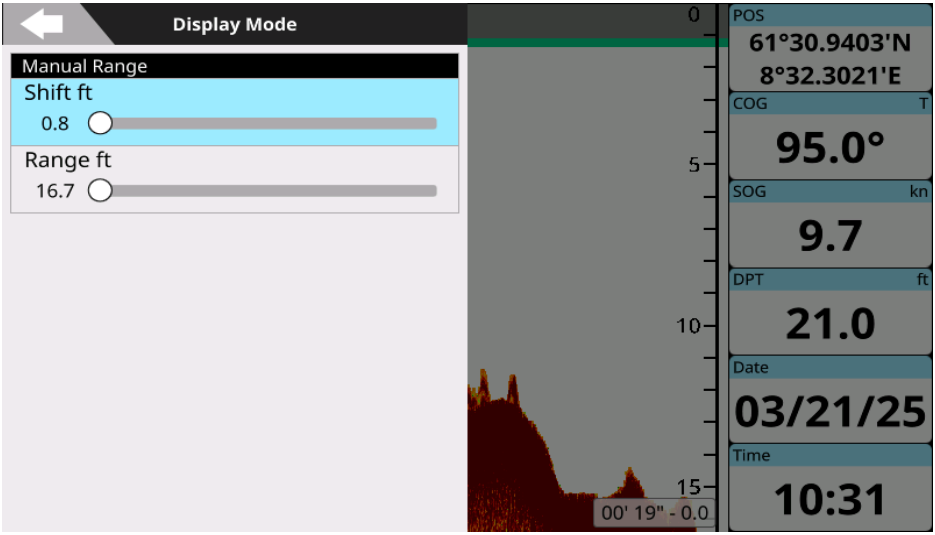


Figure 20.5 - Display mode menu

Display settings allow you to change color schemes, display mode and tuning the “Gain mode”, “Noise Filter” and “Sensitivity”. You can find display mode and settings in the main menu of the “Fish Finder” page.

Display mode

Display mode is a useful feature to setup manually the desired display range and shift when searching for fish at a certain depth. Display mode opens the menu to select the manual range and shift you want to use.

You can use the slider or select the needed button to enter the needed shift and range values.

Color schemes

The default color palette for day mode is white, and black for night mode. You can set different color schemes for day and night modes:

1. Open the main menu by pressing [MENU];
2. Select “Display Settings” > “Day” or “Night”;
3. Choose between “White”, “Blue”, “Dark Blue” and “Black”.

Gain Mode

Gain mode influences the strength of echo and can be adjusted on the “Display Settings” page. You can use preset gain modes (like “Auto Fish”, which searches for fish, or “Auto Cruise”, which keeps track of a bottom area) or set it manually. Set “Clutter” to reduce noise. To set values manually:

1. Open the main menu by pressing [MENU];
2. Select “Display Settings” > “Gain” or “Clutter”;
3. Enter values using a numeric keyboard.

Noise Filter

Fish can be located near the surface, so it is useful to enable “Surface Noise Filter”. Depending

on the transmission line of a transducer, you can increase or decrease “Area Noise Filter” values.

Sensitivity

“Interference” setting allows reducing the influence of other Fish Finders or equipment that can appear on the screen. You can set “Erase Weak Echos” value so that reflections from plankton or sediments will not appear on the echogram.“White Marker” and “Show White Edge” allow displaying echo in white color to differ fish near the seabed and bottom echo. While echogram represents a history, “A-Scope” shows what is under a transducer right now. It is displayed on the right part of echogram. A-Scope can be enabled or disabled on the “Display Settings” page.

20.6 TX Settings

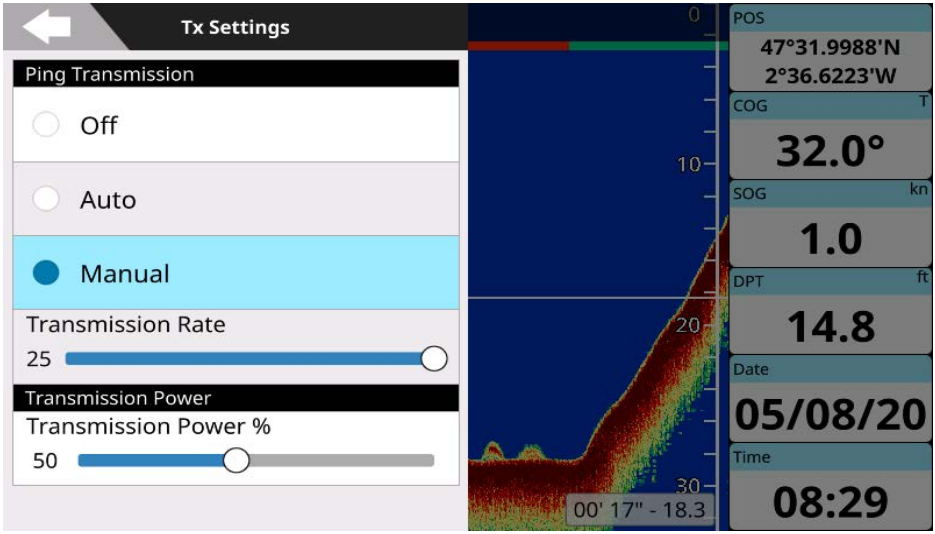


Figure 20.6 – TX Settings page

Ping Transmission

Your Fish Finder transmission can be controlled from the “Tx Settings” menu.
To select Ping Transmission mode:

1. Open main menu by pressing [MENU];
2. Select “Tx Settings”;
3. Select the mode from the “Ping Transmission” list.

- Off - disables your ping transmission.
- Auto - adjusts your Fish Finder ping transmission automatically.
- Manual - adjusts your Fish Finder ping transmission manually.

With Manual mode you can set the speed of your ping transmission changing values of the Transmission Rate slider from 1 to 25 pings per second.

Transmission Power

Use the slider to set desired transmission power which will be a percentage of potential transducer power. For example: If you select transmission power 50% while using a 600W transducer, the transmission

power will be 300W. The resulting transmission power is displayed in the upper-left corner of the Fish Finder page.

20.7 Offset

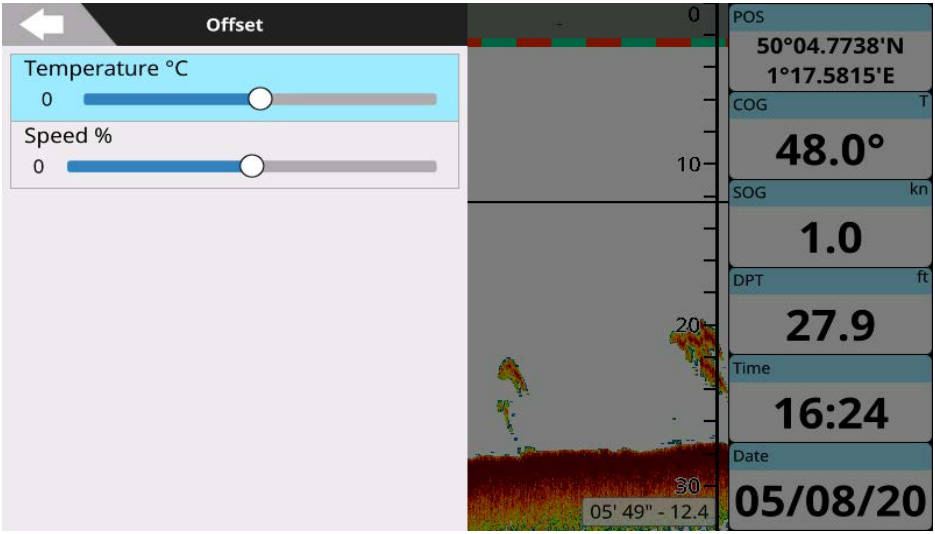


Figure 20.8 – Offset page

Offset settings allow you to adjust temperature and speed values received from a transducer. “Temperature” calibrates the water temperature sensor. Using the readings from a precise temperature measuring device, you can insert a positive/negative offset to display the correct value on the Fish Finder screen.
“Speed” calibrates the value of water speed sensor. The calibration value, in the range between -50% and 50%, will be applied to the water speed from the transducer.

21. The Radar

Radar (from Radio Detection and Ranging) refers to electronic equipment used for detecting and tracking objects (targets) at a considerable distance. Its main purpose is to provide bearing and distance of surrounding objects - especially other vessels and land. Radar is a very important collision avoidance system, which can greatly enhance navigation safety.

21.1 Radar Compatibility and Functionality

Only controller and touchscreen plotter models with integrated WiFi, and running SW 5.2.x or higher, can communicate with radar antennas, and so provide the functionality described in this chapter. For more details please refer to manufacturer information or your reseller.

For a list of compatible WiFi radar antennas (or antennas that can connect via a dedicated WiFi router), please refer to manufacturer information or your reseller.
Instructions for connecting a compatible WiFi radar antenna should be provided with your antenna. If not, please refer to manufacturer information or your reseller / installer.

Radar and other WiFi connections to your plotter. You may have only one active WiFi connection at a time with your plotter. Connecting to a WiFi radar antenna will automatically interrupt any/all other connections (such as Internet connection or Mirror Control App from a mobile device). Such connections may be re-established when radar WiFi communication is deactivated.

21.2 Switching on the Radar

In order to view the radar echogram onscreen, you need to enable “Transmit Mode”. Make sure that your radar antenna is connected to power, the plotter is connected to the radar WiFi network, and follow these steps:

1. Open the “Radar” page;
2. Open the main menu by pressing [MENU];
3. Select “Quick Settings” and enable “Radar Transmit Mode”.

NOTE: On touchscreen plotters switching between TX and stand by modes can be done without entering the main menu. Simply tap the “Radar Transmit Mode” icon located on the top right of the screen.

21.3 The “Radar” full page

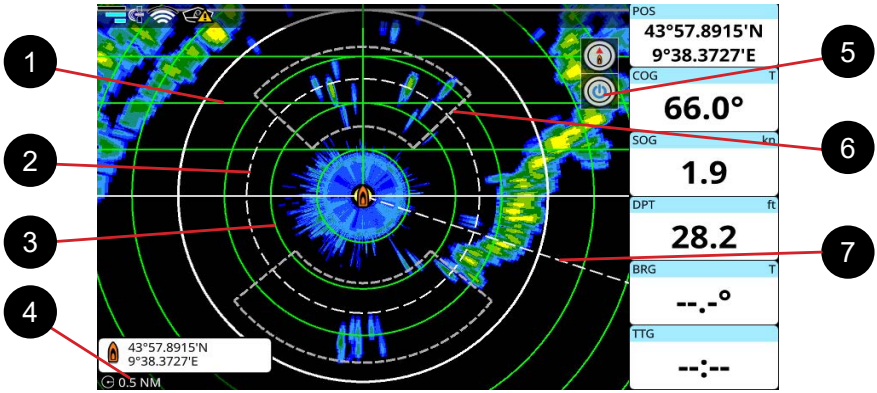


Figure 21.3 – Radar full page

1. Parallel cursor is a set of parallel lines displayed in green. You can enable or disable drawing them and adjust the angle of the lines in “Quick Settings” menu;
2. Variable range marker (VRM) is a white dashed circle, which can be helpful in measuring the distance to a target. See Par. 21.5 on how to edit electronic bearing line and VRM;
3. Range rings are displayed in green. Depending on the range, the number of the rings can be different, so that it is easier to calculate the distance between the rings. While green range rings can be hidden, the white outer ring is always present on the page;
4. Range databox is located under the cursor box. It displays the range of the page: the distance between the ship icon and the outer ring;
5. TX / stand by icon is displayed on the top right of the page. It shows the current radar state (transmission is active or the radar is in stand by mode);
6. Guard zones are displayed as white dashed lines. They can be edited or hidden from the page. Check Par. 21.5 on how to edit guard zones and enable notifications;
7. Electronic bearing line (EBL) is a white dashed bearing line, that can be used to measure the bearing to a target. See Par. 21.5 on how to edit EBL and VRM.

The Radar main menu
Press [MENU] on the Radar page to make adjustments of:
- Quick Settings;
- Radar Color Schemes;
- Radar Tuning;
- Radar Configuration.

The rest of the menu items are the same as the standard Map page: “Marks”, “AIS”, “DSC”, ”ARPA”, “Alarms”, “General Settings”, “System Messages”, “Ports and Connectivity”, “Simulation”, “User Manual”.

21.4 Radar page settings

You can customize the look and feel of the “Radar” page before a radar antenna is connected to the device: some settings are enabled whether if the radar antenna is connected or not.

The “Quick Settings” menu
Most of the “Quick Settings” menu items are not disabled even when there is no radar connected. Here you can select the types of data to see on the page:
- Radar transmit mode;
- Antenna rotation;
- Radar orientation mode (“Head Up” by default);
- EBL/VRM lines;
- Range rings;
- Heading line;
- Fix icon;
- Guard zones;
- AIS/DSC;
- AIS tracks;
- ARPA;
- ARPA tracks;
- Fishing Gear – applied only when BarentsWatch feature has been enabled (Par. 22.3);
- Marks;
- Parallel cursor lines and angle.

To enable parallel cursor lines:

1. Open the main menu by pressing [MENU];
2. Select “Quick Settings” and enable “Parallel Cursor”;
3. Set the desired “Parallel Cursor Angle”.

As on other pages, the “Quick Settings” menu provides access to the databoxes settings, MOB placement and the “GPS Diagnostics” page.

Echogram and background colors

By default the background color is black in day and night modes. You can change the background colors in the “Radar Color Schemes” menu:

1. Open the main menu by pressing [MENU] on the “Radar” page;
2. Select “Radar Color Schemes” > “Day” or “Night”;
3. Choose between “Black”, “Black Blue” and “White” for day mode and “Black” or “Black Blue” for night mode.

The echogram color can also be changed:

1. Open the main menu by pressing [MENU] on the “Radar” page;
2. Select “Radar Color Schemes” > “Echogram Palette”;
3. Choose between “Green”, “Yellow” or “Multicolor”.



Figure 21.4 - Black blue background with green echogram in night mode

21.5 Radar echogram and settings

After the Radar is connected and configured to preference, the echogram displays on the “Radar” page. The echogram displays the information about the location of objects around the vessel, and you can zoom in to see the closest objects, or zoom out to see full picture.

You can place a mark or an event in anywhere on the echogram display page:

1. Press [LEFT]/[RIGHT] to place the cursor or tap in the desired position;

2. Call the contextual menu by pressing [ENTER] or by a long tap gesture;
3. Select “Save Mark” or “Save Event”.

To start navigation to the point:

1. Press [LEFT]/[RIGHT] to place cursor or tap in the desired position to place the cursor;
2. Call the contextual menu by pressing [ENTER] or by a long tap gesture;
3. Select “Go To”.

To edit EBL/VRM:

1. Press [LEFT]/[RIGHT] to place the cursor or tap in the desired position;
2. Call the contextual menu by pressing [ENTER] or by a long tap gesture;
3. Select “EBL/VRM”: the lines crossing will appear on the cursor position;
4. Change position with the joystick or drag touchscreen gesture;
5. Press [ENTER] to save the guard zone, or tap the “Save” button;

or

6. Press [CLEAR], or tap the “Cancel” button to dismiss the changes.

Zoom mode allows you to double the size of the area between your ship and any place on radar page:

1. Press [LEFT]/[RIGHT] to place the cursor or tap in the desired position;
2. Call the contextual menu by pressing [ENTER] or by a long tap gesture;
3. Enable the “Zoom Mode” switcher.



Figure 21.5.a – Cursor contextual menu

Guard zone

You can enable guard zones on the “Radar” page and set a notification for each one.
To enable guard zones display:

1. Open the main menu by pressing [MENU] on the “Radar” page;
2. Select “Quick Settings”;
3. Enable “Guard Zone #1” and / or “Guard Zone #2”.

Guard zones will appear on the screen. To edit a guard zone:

1. Place the cursor inside the guard zone and press [ENTER] to call the contextual menu;
2. Select “Edit Guard Zone”;
3. Place the cursor over one of the points and long press [ENTER] or long tap the point;
4. Keep the [ENTER] button pressed and move the joystick to the new position, or keep the finger pressed and drag the point;
5. Repeat for other points, if needed;
6. Press [ENTER] to save the guard zone, or tap the “Save” button;

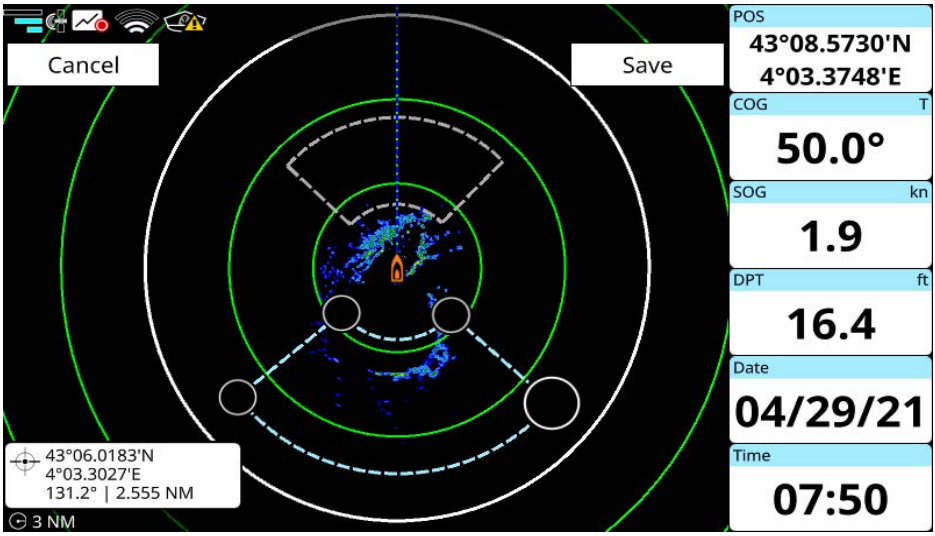
or

7. Press [CLEAR], or tap the “Cancel” button to dismiss the changes.

There are two types of guard zone notifications: “In” alarms, which sound when targets enter the guard zone; and “Out” alarms, which sound when targets exit the guard zone.

To enable guard zone notifications:

1. Place the cursor inside the guard zone and press [ENTER] to call the contextual menu;
2. Select “Notification”;
3. Choose between “In” (to sound in case a target enters or is detected inside the zone) or “Out” (to sound in case a target is exists or is outside the zone);
4. In case you no longer want to receive notifications, repeat the steps and select “Off”.



21.5.b – Guard zone edit mode

21.6 Radar tuning

Most of the menu items of “Radar Tuning” become available after an antenna is connected.
Please keep in mind that resetting the plotter to factory defaults will not affect these radar settings, as they are stored in the antenna itself (just as “Dead Sector” settings as described in the previous paragraph).

To reset radar antenna settings:

1. Open the main menu by pressing [MENU] on the “Radar” page;
2. Select “Radar Configuration ” > “Reset Radar HW to Factory Defaults”.

Auto clutter
The automatic clutter function attempts to find a compromise of clutter settings in order to favor target distinction (especially in case of heavy for sea clutter). Manually adjust Gain, Sea Anti-Clutter and Rain Anti-Clutter for your specific conditions.

Gain
To adjust the sensitivity of the radar signal receiver, change the gain value:
1. Open the main menu by pressing [MENU];
2. Select “Radar Tuning” > “Gain”;
3. Set the preferred value.

Gain adjusts the sensitivity of the the radar receiver. An ideal gain setting reduces sensitivity just enough so that background noise is barely visible onscreen, ensuring that both strong and weak targets remain as distinct as possible.

Sea and rain
Storm clouds and waves can produce false echos on the radar page, as they may reflect the radar signal. You can configure sea and rain clutter in order to eliminate false returns:
1. Open the main menu by pressing [MENU];
2. Select “Radar Tuning” > “Sea Anti-Clutter” or “Rain Anti-Clutter”;
3. Set the preferred value.

NOTE: If “Auto Sea Clutter” is turned on, you cannot manually set the value for Sea Anti-Clutter.

In general, excessively low clutter settings will result in targets being hidden in the clutter, whereas excessively high settings will result in targets being removed with the clutter.
For optimal sea clutter control, seek a compromise setting whereby minimal sea clutter remains visible to windward, but targets are sufficiently distinct.
For optimal rain clutter control, seek a compromise setting whereby air (precipitation) clutter remain visible in the area of weather, but again, targets are distinct.

Echo stretch
Echo stretch automatically magnifies small/weak targets. ES setting 1 is best for long range use only, and magnifies targets in bearing direction. ES setting 2 magnifies targets in both bearing direction and range direction.

NOTE: All targets will be magnified, and so take care in the use of Echo Stretch in combination with clutter and relative settings.

To adjust the echo stretch:
1. Open the main menu by pressing [MENU];
2. Select “Radar Tuning” > “Echo Stretch”;
3. Choose between “Off” or “On” for “Short Range” ;
4. Choose between “Off”, “Level 1” or “Level 2” for “Long Range”.

Echogram sharpness
To set the echogram sharpness value:
1. Open the main menu by pressing [MENU];
2. Select “Radar Tuning”;
3. Set the preferred value using “Echogram Sharpness” menu > slider;
4. Tap on the slider or press [Clear] to return to the Radar Tuning menu.

Sampling range
You can set “Sampling Range” to erase undesirable weak echos in “Radar Tuning” menu:

1. Open the main menu by pressing [MENU];
2. Select “Radar Tuning” > “Sampling Range”;
3. Choose between “Narrow”, “Middle” or “Wide”.

NOTE: “Narrow” erases weak echos, “Middle” is for normal use and “Wide” displays more weak echos compared to the “Narrow” setting. Narrow and Middle settings are generally used in river/inland navigation or similar situations. Middle and Wide settings are generally used for open water navigation.

Interference rejection
In case there are some other radars operating on the same frequency as your radar, interference may occur. To adjust the interference rejection level:

1. Open the main menu by pressing [MENU];
2. Select “Radar Tuning” > “Interference Rejection”;
3. Choose between “Disabled”, “1”, “2” or “3” (“3” is the highest level of rejection).

Tune mode
Auto tuning is used in case of signal reception issues, deviation or magnetron replacement.
Manual tuning is used during antenna and signal process testing and/or when auto tuning is not sufficient.

To set auto or manual tune:

1. Open the main menu by pressing [MENU] on the “Radar” page;
2. Select “Radar Tuning” > “Tune Mode”;
3. Set “Tune Mode” to “Auto”;

or

4. Set “Tune Mode” to “Manual” and select “Manual Tune” value.

21.7 Radar configuration

Tune/Video adjustment
Tune/video adjustment is run after antenna installation or service. To perform tune/video adjustment:

1. Open the main menu by pressing [MENU] on the “Radar” page;
2. Select “Radar Configuration” > “Tune/Video Adjustment”.

Antenna heading align
Even though a radar antenna may be installed with correct bow-facing orientation, minor bearing errors may occur. To adjust antenna alignment with the vessel, use the “Antenna Heading Align” slider:

1. Open the main menu by pressing [MENU] on the “Radar” page;
2. Select “Radar Configuration” > “Antenna Heading Align”;
3. Enter the desired correction value.

To calculate the heading correction value:

1. Select a stationary target (like buoy or another vessel) echo at a range between 0.125 and 0.25 NM, preferably near the heading line;
2. Use EBL to bisect the target echo and read the target bearing.
3. Measure the bearing of the stationary target on the navigation chart and calculate the difference between actual bearing and apparent bearing on the radar screen.
4. Use this difference to align heading.

Antenna install height

Correct install height setting permits the radar to refine wave suppression curve for better clutter control and target distinction. To adjust antenna install height:

1. Open the main menu by pressing [MENU];
2. Select “Radar Configuration” > “Antenna Install Height”;
3. Choose between “1”, “2”, “3” or “4” based on the actual height of your radar antenna.

NOTE: The antenna install height settings correspond respectively to: 10 - 15 meters (“1”), 6 - 10 meters (“2”), 3 - 6 meters (“3”) and 1 - 3 meters (“4”).

EBL reference

The electronic bearing line (EBL) can be drawn in relation to true North, or relative to the vessel heading. To set the preferred orientation:

1. Open the main menu by pressing [MENU] on the “Radar” page;
2. Select “Radar Configuration” > “EBL Reference”;
3. Choose between “True” and “Relative”.

Dead sector

You can define an area (an arc of the circular sweep) where the radar will not transmit. This is a useful feature, which allows you avoid the interference from large objects located close to the antenna, or to prevent microwave hazard.

To enable and adjust the dead sector:

1. Open the main menu by pressing [MENU] on the “Radar” page;
2. Select “Radar Configuration” > “Dead Sector”;
3. Enable “Dead Sector”: the menu buttons which call sliders below will be no longer disabled;
4. Set the starting angle (related to the heading) and the size of the sector.

Noise rejection

Electrical noise can be eliminated by turning on the noise rejection option:

1. Open the main menu by pressing [MENU];
2. Select “Radar Configuration” and enable the “Noise Rejection” switcher.

Timing

Adjusting antenna sweep timing can help to remove distortions to real-world objects onscreen (eg: straight objects, such as walls or piers, which may appear curved or bent on radar images). To apply timing adjustment:

1. Be sure that you have a straight object in close range and visible on the radar screen; and ensure that Gain and Antenna Height are properly set;
2. IF the object appears normal (straight) on the radar image, then no adjustment is needed;
3. IF however the object appears distorted, adjust the Timing setting to correct until the object appears as close to normal shape as possible.

MBS

MBS (Main Bang Suppression) adjustment helps to reduce or remove the loud radar echo (Main Bang) at the center of your radar screen at short range viewing (0.00~0.25NM), which obscures close-in targets. To apply MBS:

1. Transmit at long range for ~10 minutes, and adjust Gain to show a minimum of noise onscreen;
2. Change the radar display to short range (~0.125NM);
3. Adjust the MBS setting to gradually remove the main bang echo, and until it has just disappeared;
4. Return Gain to its optimal setting for correct sensitivity.

21.8 Radar overlay on the “Map” page

In addition to viewing radar information on the dedicated “Radar” page (or split “Map and Radar” page), it may actually be overlaid on the chart display.
By enabling radar overlay on the “Map” page the radar image is is scaled and drawn directly on the chart data. This display mode is particularly useful to compare chart and radar data, helping to better distinguish land and other fixed objects (especially in low visibility conditions), and to more easily identify and distinguish targets in the surrounding area.

To enable the radar overlay:

1. Open the “Map” page;
2. Press [MENU] > “Quick Settings”;
3. Enable “Show Radar” switcher: radar switch icon and the outer ring will appear on the “Map” page;
4. Enable “Show Radar Rings” in case you want to view range rings too.

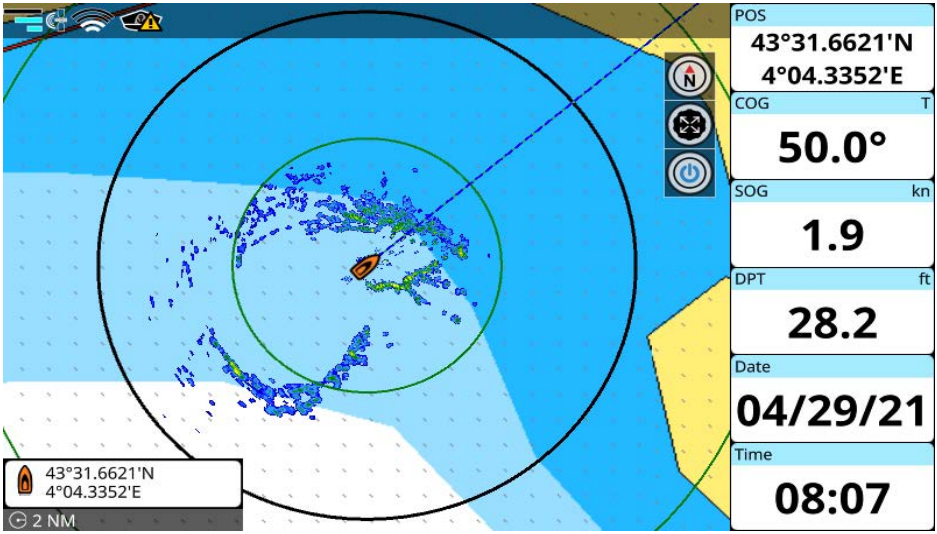


Figure 21.8 – Radar overlay (simulation mode)

NOTE: During radar overlay, chart scaling (zoom levels) will be limited to fewer levels, based on the ranges available for radar display (0.125 – 72 NM).

NOTE: “Show Radar”, “Show Radar Rings”, “Show Radar Range” switchers are absent on the quick settings for the Map view when in “Map / Radar” split page.

NOTE: To orient the radar image correctly on the map, the plotter needs to receive valid heading data. Without heading data, radar overlay will not be displayed and you will see the “No heading” icon on the status bar. This may be the case with only GPS input when the vessel is moving very slowly or when it is stopped. A dedicated heading sensor will resolve this issue.

22. Fishing Gears of BarentsWatch

The BarentsWatch service provides Fishing Gear data for fishermen that fish in the Norwegian sea area. To use the BarentsWatch feature, you need to create an account on https://id.barentswatch.no, authorize the plotter, and synchronize it with the BarentsWatch website.

NOTE: Make sure that your device is connected to a Wireless LAN.

22.1 Authorization the device with BarentsWatch

To authorize the plotter you need to:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “BarentsWatch”;
3. Select “Authorize Device”;
4. Enter received code on website https://id.barentswatch.no/Device, > select “Submit” and “Yes, Allow”;
5. Select “OK” on the device popup with code.

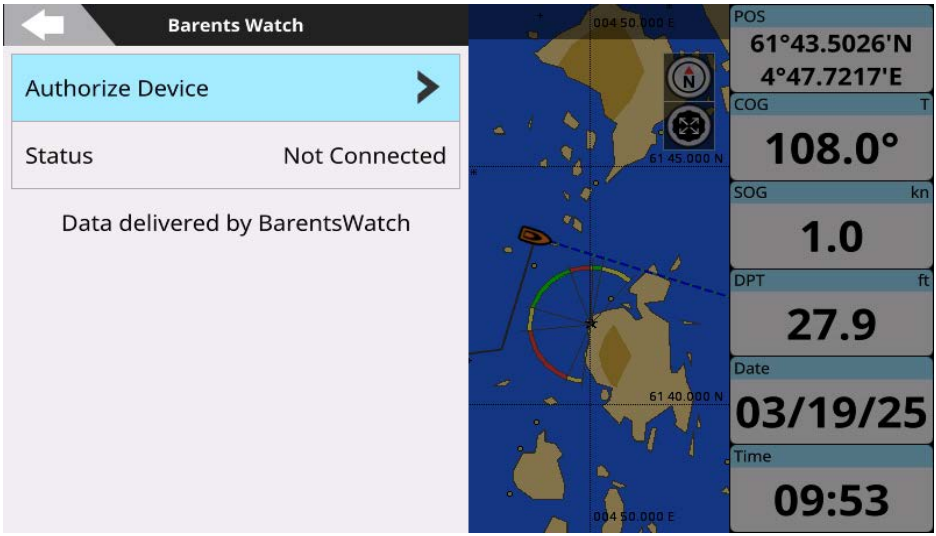


Figure 22.1 - Authorization menu page

In a few seconds, the status will be changed to “Connected”.

22.2 Synchronization the device with BarentsWatch

After the device is authorized, you can synchronize your plotter with the BarentsWatch website.
For synchronization, you need to:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “BarentsWatch”;
3. Select “Sync Data Interval” > select interval and get auto synchronization which will be automatically repeated in a set time interval;

or

4. Select “Sync Data” to force data synchronization.

Reported Fishing Gear from other vessels stored on BarentsWatch website will be imported to the plotter

NOTE: After successful device authorization the complete settings menu of BarentsWatch is displayed on the BarentsWatch settings menu.

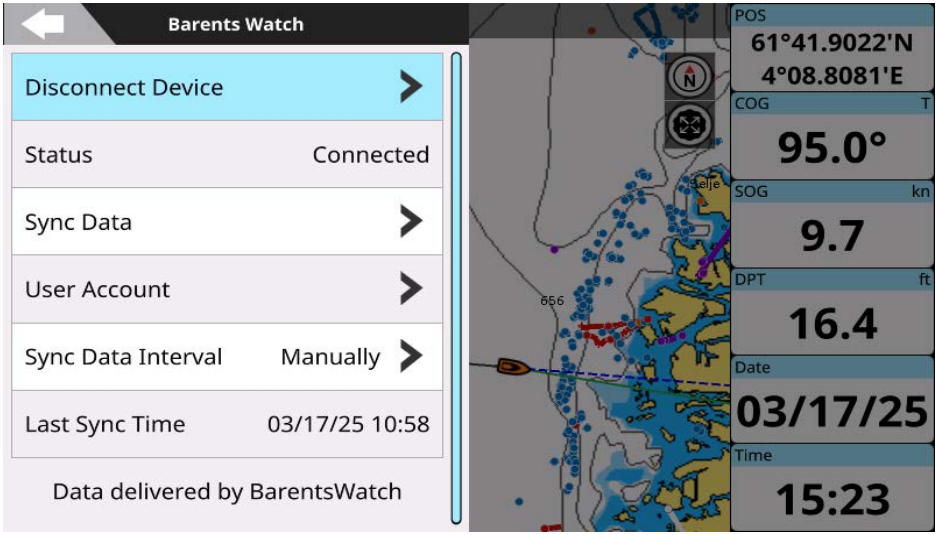


Figure 22.2 - Barents Watch page

22.3 Fishing Gear

After the device is connected and synchronized with the BarentsWatch website, the Fishing Gear of BarentsWatch functionality appears on your plotter.

To open the “Fishing Gear” page:

1. Open the main menu by pressing [MENU];
2. Select “Fishing Gear”.

On this page, you can observe pages of imported and own fishing gear that are stored on your plotter and fishing gear settings.

NOTE: Only when BarentsWatch data has been synchronized a menu “Fishing Gear” will be listed in the main Menu and the “Show Fishing Gear” menu button will appear in the Quick Settings menu of the Map and Radar pages, and “Add to Fishing Gear” will appear in the user data settings and contextual menus.

22.3.1 Imported Fishing Gear

To open the “Imported Fishing Gear” page:

1. Open the main menu by pressing [MENU];
2. Select “Fishing Gear”;
3. Select “Imported Fishing Gear”.

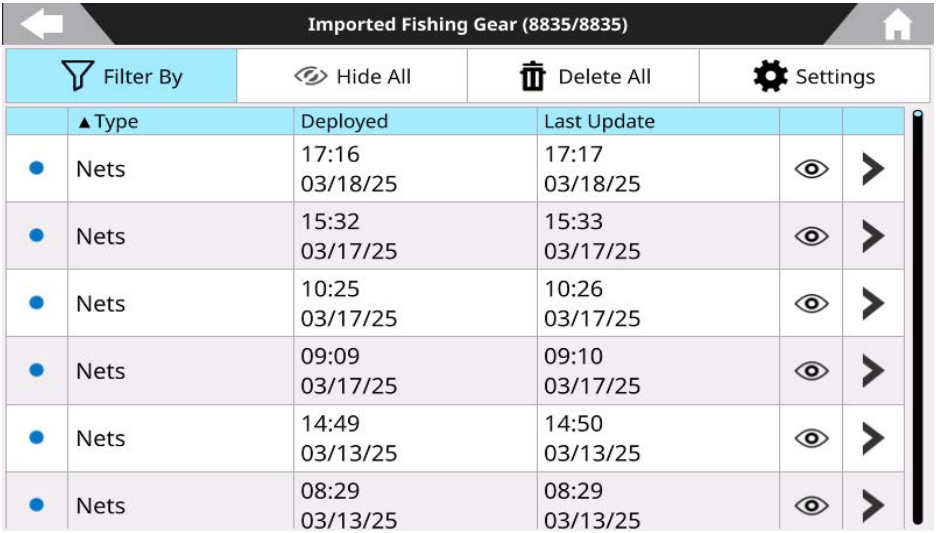


Figure 22.3.1 - Imported Fishing Gear page

You can filter, hide, show, and delete all imported fishing gear on the device with the appropriate top buttons on this page or manage these actions from the settings menu.
On the Manage gear types settings menu (see Par. 22.3.3), you can see the number of each imported fishing gear type.

NOTE: The deleted fishing gears will be re-downloaded at the next synchronization.

22.3.2 Add user data as fishing gear to BarentsWatch

Adding fishing gear can be accessed from the map and the dedicated pages of your user data. Operating on the map is possible via the contextual menu of your marks, routes, boundaries, and tracks. When you press [ENTER] on your user data or execute a tap gesture, the contextual menu appears.

To deploy user data from map:

1. Select user data to call contextual menu > select “Add to Fishing Gear”;
2. Confirm adding item to fishing gear by selecting “Yes”;
3. Select “Deploy”.

To deploy user data from user data page:

1. Open the main menu by pressing [MENU];
2. Select user data page;
3. Select user data from the list > select “Add to Fishing Gear”;
4. Confirm adding item to fishing gear by selecting “Yes”;
5. Select “Deploy”.

Before deploying you can select the gear type, enter the tool count (lenght in meters for nets, number of hooks for long line, number of crab pots for crab pots), change the deployment date and time, and contact e-mail and phone on the “Add to Fishing Gear” page.

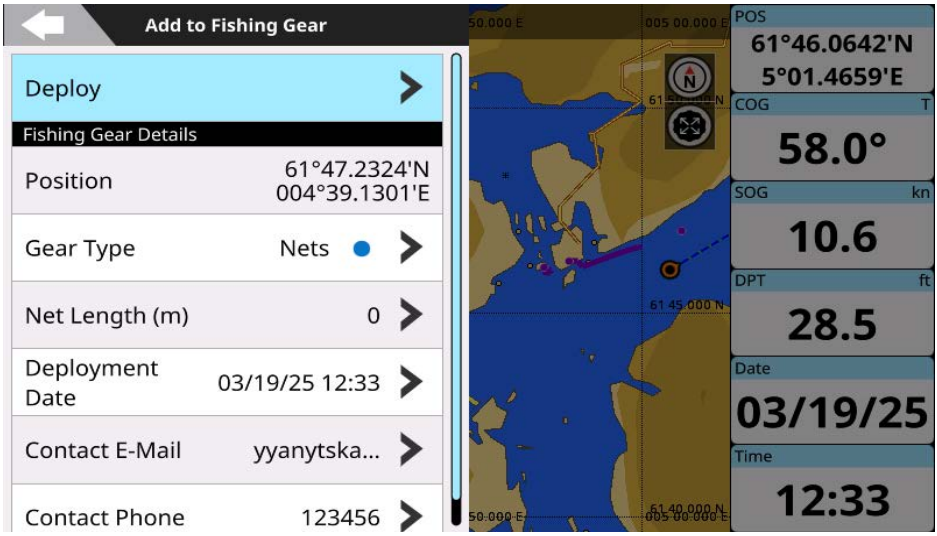


Figure 22.3.2 – Add to Fishing Gear page

22.3.3 My Fishing Gear page

To open the “My Fishing Gear” page:

1. Open the main menu by pressing [MENU];
2. Select “Fishing Gear”;
3. Select “My Fishing Gear”.

On this page, you can observe all your fishing gear that is stored on your plotter.

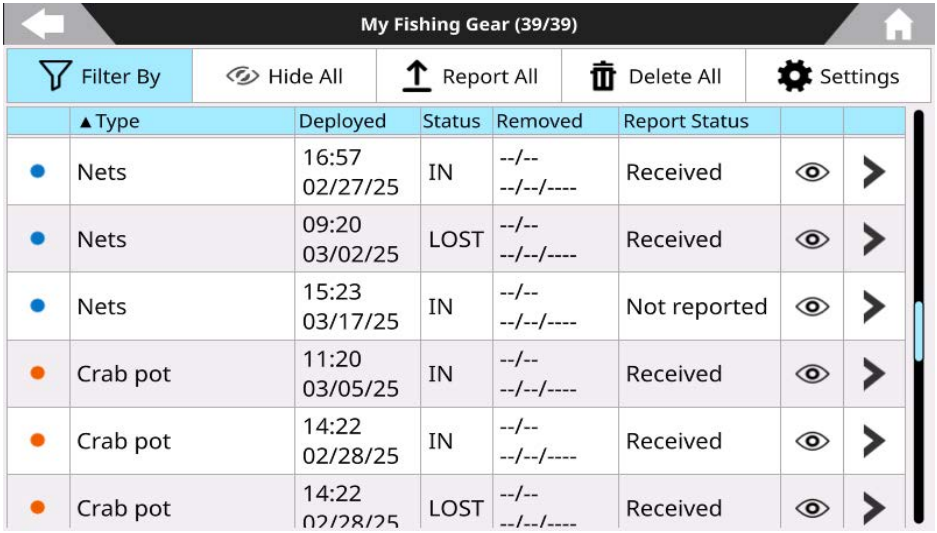


Figure 22.3.3 – My Fishing Gear page

You can filter, hide, show, delete, and report all your own fishing gear on the device with the appropriate top buttons on this page. Report all is an easy way to bulk report all your not reported fishing gear. From the own fishing gear settings menu you can set the default type and manually or automatically way to report your fishing gear to BarentsWatch.

NOTE: Report all is disabled if there are no not reported fishing gears in the list.
NOTE: The deleted fishing gears will be re-downloaded at the next synchronization.

22.3.4 Fishing Gear Settings

To open the “Fishing Gear Settings” page:

1. Open the main menu by pressing [MENU];
2. Select “Fishing Gear”;
3. Select “Fishing Gear Settings”.

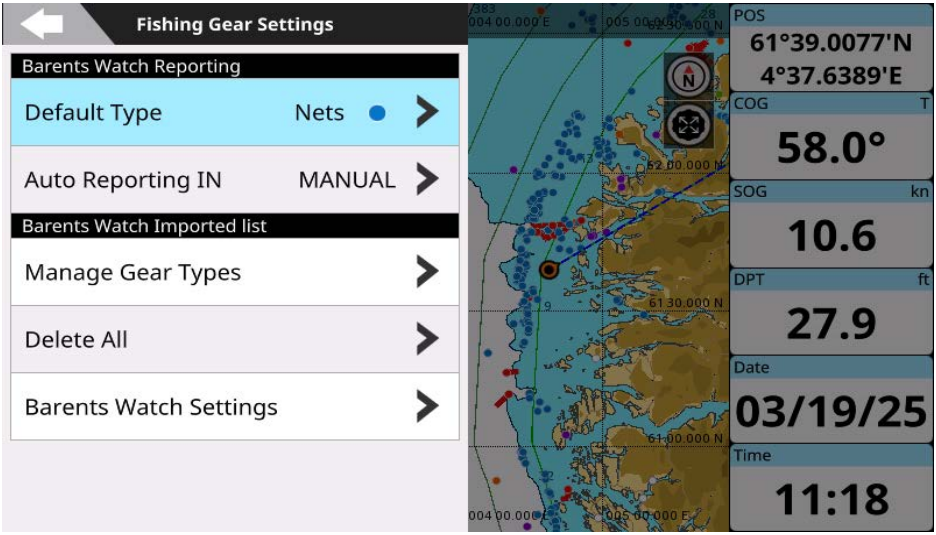


Figure 22.3.4 - Fishing Gear Settings

22.3.5 Report to BarentsWatch

You can manually or automatically report your fishing gears to the BarentsWatch site (Figure. 22.3.4). In the fishing gear settings menu select your reporting preference.

To deploy and manually report your user data to fishing gear on map:

1. Select user data to call contextual menu > select “Add to Fishing Gear”;
2. Confirm adding item to fishing gear by selecting “Yes”;
3. Select “Deploy”;
4. Confirm with “Yes” on the “Report to BarentsWatch” popup.

To deploy and auto report your user data to fishing gear on map:

1. Select user data to call contextual menu > select “Add to Fishing Gear”;

2. Confirm adding item to fishing gear by selecting “Yes”;
3. Select “Deploy”.

If you deployed but have not reported fishing gear to BarentsWatch, you can report from the map or the My Fishing Gear page later.

To report deployed but not reported fishing gear from the map:

1. Select fishing gear to call contextual menu > select “Report IN”;
2. Select “Deploy”.

To report deployed but not reported fishing gear from “My Fishing Gear” page:

1. Open the main menu by pressing [MENU];
2. Select “Fishing Gear”;
3. Select “My Fishing Gear”;
4. Select not reported fishing gear;
5. Select “Report to BarentsWatch”;
6. Select “IN” > select “Deploy”.

After reporting to the BarentsWatch your fishing gear will be in status pending which you can see on the My Fishing Gear page till the next synchronization is done.
After synchronization with the BarentsWatch site is done, the current fishing gear gets received status.

You can report your received by BarentsWatch fishing gears as retrieved, reset, or lost if you want to report to BarentsWatch the facility as removed, reset, or lost accordingly.
These operations are accessed from the map and the dedicated My Fishing Gear page.

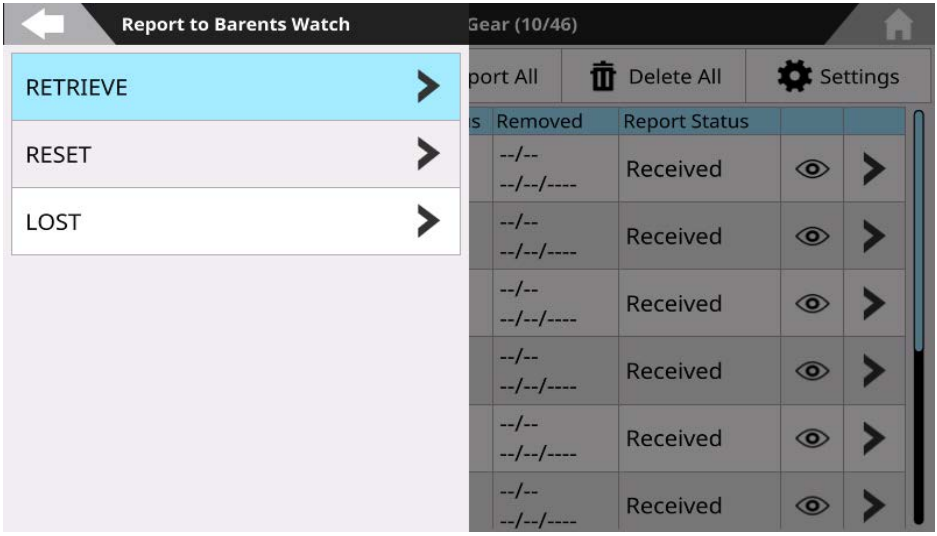


Figure 22.3.5a - Report as retrieved, reset or lost , to the BarentsWatch

To report fishing gear as retrieved from the map:

1. Select fishing gear to call contextual menu > select “Retrieve”;
2. Select “Retrieve” in menu.

To report fishing gear as retrieved from the “My Fishing Gear” page:

1. Open the main menu by pressing [MENU];
2. Select “Fishing Gear”;
3. Select “My Fishing Gear”;
4. Select reported IN fishing gear;
5. Select “Report to BarentsWatch”;
6. Select “RETRIEVE”;
7. Select “Retrieve” in menu.

Before reporting retrieved you can change the retrieval date and time on the “Retrieve Fishing Gear” page.

To report fishing gear as reset from the map:

1. Select fishing gear to call contextual menu > select “Reset”;
2. Select “Reset” in “Reset Fishing Gear” menu.

To report fishing gear as reset from the “My Fishing Gear” page:

1. Open the main menu by pressing [MENU];
2. Select “Fishing Gear”;
3. Select “My Fishing Gear”;
4. Select reported IN fishing gear;
5. Select “Report to BarentsWatch”;
6. Select “RESET”;
7. Select “Reset” in the menu.

Before reporting a reset you can change the reset date and time, contact e-mail, and phone on the “Retrieve Fishing Gear” page.

Reporting fishing gear as lost is useful to mark full or partially lost fishing facilities.

To report LOST from the map:

1. Select fishing gear to call contextual menu > select “Lost”;
2. Select “Lost” in the menu.

To report LOST from the “My Fishing Gear” page:

1. Open the main menu by pressing [MENU];
2. Select “Fishing Gear”;
3. Select “My Fishing Gear”;
4. Select reported IN fishing gear;
5. Select “Report to BarentsWatch”;
6. Select “LOST”;
7. Select “Lost” in the menu.

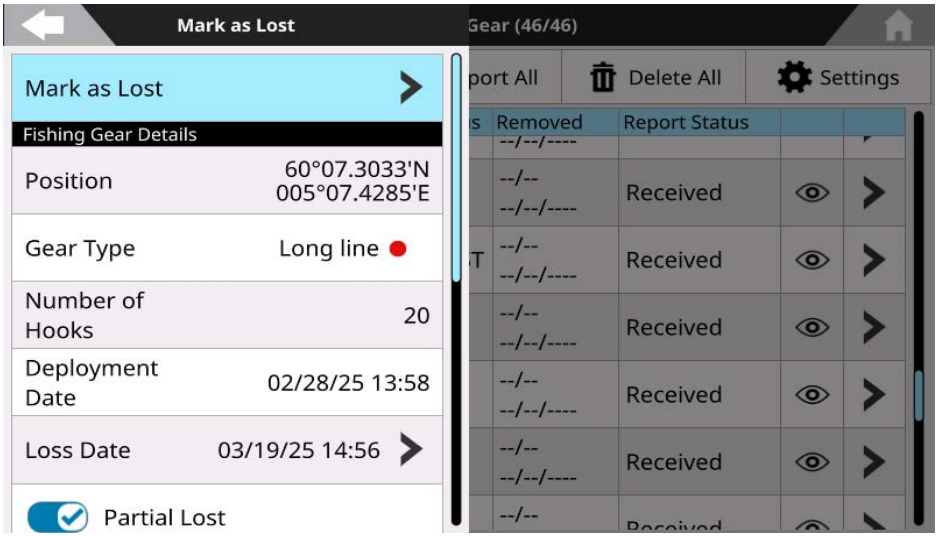


Figure 22.3.5b - Mark as lost page

Before reporting lost you can select if it is full or partially lost fishing gear, add the number of lost tool counts, cause of lost, comment, mark it is removed and add the removed date, change data of contact e-mail and phone on the “Mark as Lost” page.

NOTE: After the reporting, your fishing gear will be in status pending. To apply the status as received by BarentsWatch you need to to synchronize your plotter with the BarentsWatch website (Par. 22.2).

23. System messages

The “System Messages” page displays the history of all the warning messages and alarms with the date and time when they appeared.

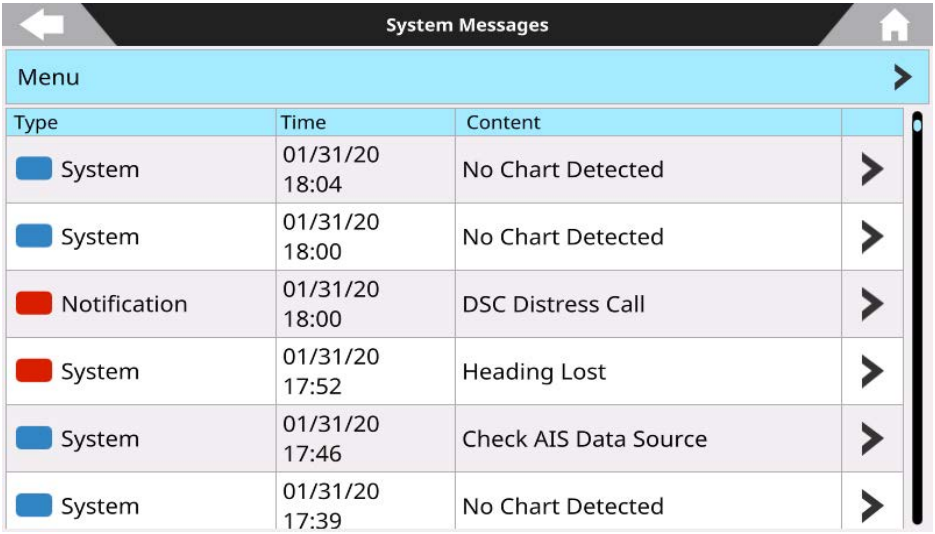


Figure 22 - System messages page

To access the “System Messages” page:

1. Open the main menu by pressing [MENU];
2. Select “System Messages”.

System messages can be filtered:

- by message type using “Show by Type” menu (choose “All”, “Notifications” or “System”);
- by date (choosing “From” and “To” date).

To save a specific system message or all system messages on the micro SD card:

1. Insert the micro SD card into the plotter;
2. Open the main menu by pressing [MENU];
3. Select “System Messages”;
4. Choose a system message and confirm the action by selecting “Yes” button in message dialog window;

or

5. Select “Menu” button on the top bar of the page > “Save All on micro SD” and confirm the action.

NOTE: Do not eject the micro SD card until the message “Data Exported” appears on your screen.

NOTE: All the system messages are cleared after restoring to factory defaults.

24. Updates

You can check your plotter software version on the “About” page:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “About”.

Ask your customer support center for software update procedures.
Alternatively, if your plotter is connected to the Internet, choose updating software via WiFi.

24.1 Software update via WiFi

Software update via WiFi is an easy way to have always the latest software updates. The software automatically checks for updates once you connect the plotter to the Internet, and suggests you download the software update package. You may update software immediately or any time later.

NOTE: You will need to restart plotter in order to apply the software update.

If you decide to update later, you need to select “Later” in the software update dialog.
When you decide to apply software update, restart the system to get software update dialog again and select “Download”. You can check the downloading status:

1. Open the main menu by pressing [MENU];
2. Select “General Settings” > “About”;
3. Wait for download process to finish. A popup message will inform you that download process has been successful;
4. Confirm reboot of the plotter in the dialog.

After reboot, you will be guided through the installation process. Do not restart the plotter until installation is finished.

25. Acronyms and definitions

AIS = Automatic Identification System
Automatic tracking system that uses transponders on boats and ships so their position can be viewed and monitored from other vessels and vessel traffic services, for safety and especially collision avoidance.

ALT = Altitude
Altitude of GPS Antenna on the medium sea level.

Alter = Alternate Solution (TD Coordinates System)
Parameter selected by the user that is applied in the conversion of TD values to geographical coordinates Lat/Lon. It defines which of the two possible solutions can be used.

ARPA = Automatic Radar Plotting Aid
A marine radar with automatic radar plotting aid (ARPA) capability can create tracks using radar contacts. The system can calculate the tracked object's course, speed and closest point of approach (CPA), thereby knowing if there is a danger of collision with the other ship or landmass.

AWA = Apparent Wind Angle
Angle from which the Wind appears to blow relative to a moving point (also called Relative Wind Angle).

AWS = Apparent Wind Speed
Speed at which the Wind appears to blow relative to a moving point (also called Relative Wind Speed).

BRG = Bearing
Angle between the North (True or Magnetic) and a destination. The horizontal direction of one terrestrial point from another referring to the North (True or Magnetic). It is often used to indicate the direction to follow to reach the destination.

Buoy
A floating object moored to the sea bottom in a particular (charted) place, as an aid to navigation.

Buoys and Beacons
Buoys and Beacons are used to indicate to mariners recommended or established routes, under water dangers, restrictions and regulations. They can be lighted or not and are colored according to their international code.

COG = Course Over Ground
Direction of the path over ground actually followed by a vessel.

Course Line (Time Line)
Graphical indication of the direction in which the Vessel is heading. The Course Line origin is the vessel's position so the time line movement is synchronized with the vessels Icon. Course Line "Course" is given by the value of COG (Course Over Ground) and its length is proportional to the SOG (Speed Over Ground).

Default
Original factory setting for any menu selection. The default values are set after a factory settings.

Depth Area
Sea areas included in the user selectable range of minimum and maximum depth limits. The sea area that is beyond the selected range is filled by a uniform white color, the sea area that is inside the selected range is filled by ordinary multicolor shading. The Spot Soundings and Depth Contours are displayed on the range only.

Depth Line (Also called Bathymetric Line)
Imaginary line connecting points of equal water depth.

Destination
In order to tag on the map the point, towards which the ship is Heading, you can use a special mark, called destination. When the destination is placed, all navigation data referred to this point.

DPT = Depth from Transducer
Water Depth below the Transducer. The Distance from the Depth Transducer to the ground.

DSC = Digital Selective Calling
Standard and functionality for semi-automatically transmitting pre-defined digital messages via VHF maritime radio systems, especially for distress messages in emergency situations.

DST = Distance
Geographical distance between two points on the map. It is possible to select the unit among Nm, Sm and Km.

EBL = Electronic Bearing (or Range) Line
Used to measure the distance and bearing from your boat to a radar target object. EBL appears as a line that begins at the present location of your boat and intersects the VRM. The point of intersection is the target of the VRM and the EBL. Also see VRM.

ETA = Estimated Time of Arrival
Predicted time of reaching a destination or Waypoint.

Fix
Current position of the vessel provided by the GPS (connected to the plotter or built-in) or other positioning systems.

Fuel Consumption Rate
Estimated fuel consumption rate (per hour) of an engine boat referred to its relative estimated cruising speed.

GNSS = Global Navigation Satellite System
Any single or combined navigation system based on satellites. The current available satellites systems are: GPS, GLONASS and the combined GPS and GLONASS.

Go To
Function that defines the destination point and activates the navigation to it. The destination can be placed on any location of the map, an existing Mark point or on a predefined Route.

GPS = Global Positioning System
Satellite based navigation system operated by the US Department of Defense. It gives the navigator a position 24 hours a day, 365 days a year under any weather conditions.

HDG = Heading
Horizontal direction in which a ship actually points or heads in any moment (see also COG).

HDOP = Horizontal Dilution Of Precision
Precision of the positioning system (GPS). The smaller HDOP value indicates higher position accurately.

Home mode
All operations refer to the vessel's position.

Landmarks
Landmarks are any prominent object such as monument, building, silo, tower, mast, etc on land which can be used in determining a location or a direction.

Lat/Lon
Coordinate system using Latitude and Longitude coordinates to define a position on earth.

Lat/Lon Grid
Grid of parallels (of Latitude) and meridians (of Longitude) drawn on the map.

Latitude
Angular distance North or South of the equator measured by lines encircling the earth parallel to the equator in degrees from 0° to 90°.

Longitude
Angular distance East or West of the prime meridian (Greenwich meridian) as measured by lines perpendicular to the parallels and converging at the poles from 0° to 180°.

Magnetic Deviation
Value, expressed in degrees East or West that indicates the direction in which the north indicator on the compass card is offset from the magnetic north (the difference expressed in degrees East or West between the compass north and the magnetic north).

Magnetic Variation
Angle between the magnetic and geographic meridians at any place, expressed in degrees West or East to indicate the direction of magnetic North from true North. It changes from point to point, and (at the same point) with time.

Mark
Reference point related to cursor position. Typically it represents by an icon and label under Mark.

Navigate mode
Operating mode (called also Home mode): all operations refer to the vessel's position. Navigate or Navigation mode is also used to indicate that the destination is placed.

NMEA 0183
The NMEA 0183 Data Interface Standard was developed by the National Marine Electronics Association of America. It is an international standard that enables equipment from many different manufactures to be connected together and share information.

Port Info
Port Info function is a combination of a Port Info database containing all the relevant Safety and Navigational information normally found in good pilot books and presentation software which displays special Port Facility Symbols.

Ports & Services
Areas along shore with facilities for mooring, downloading and uploading of ships, generally sheltered from waves and winds. Port installations are piers, wharves, pontoons, dry docks, cranes, etc.

Route
Sequence of Waypoints connected by segments (Route Legs). Among the available Routes, only one is the Active Route, which is shown by a straight line and arrows to indicate the direction.

SBAS = Satellite-based Augmentation Systems
The performance of Global Navigation Satellite Systems (GNSSs) can be improved by regional Satellite-based Augmentation Systems (SBASs), such as EGNOS, WAAS, MSAS, GAGAN etc. SBAS improves the accuracy and reliability of GNSS information by correcting signal measurement errors and by providing information about the accuracy, integrity, continuity and availability of its signals.

Scale
Allows the display of Map Scale (magnitude of the reference scale expressed in the actual unit of measure) and the current Map Datum.

SNR = Signal to Noise Ratio
Ratio between the magnitude of a radio signal and the magnitude of the noise (that is, the interferences). The SRN is expressed in decibels and it is associated to the GPS satellites signal quality.

SOG = Speed Over Ground
Current velocity at which the vessel is travelling, relative to a ground location. The SOG is normally provided by the GPS sensor.

Spot Sounding
Depth of the water in a specific and charted position. It is represented on the map by its own value expressed in the current depth unit.

STR = Steering
Difference between COG and CTS. If COG is 25° and CTS is 30°, then STR is 5° Right.

Tide
Periodic rise and fall of the surface of oceans, bays, etc., due principally to the gravitational interactions between the Moon and Earth.

Tide Graph
Calculates the tide heights for any past or future date and as a by-product of this calculation will also display the Maximum and Minimum Tide height and time for the day selected plus the times of Sunrise and Sunset. At some map levels, the plotter will display a new Tide Diamond Symbol for every Port or tide point in the database covered by that particular Data Media.

Tracks & Routes
Recommended and established routes for ships at sea, including traffic separation schemes, deep water routes.

TTG = Time To Go
Estimated time needed to reach your destination, based on your current speed and the distance to destination.

TWA = True Wind Angle
Angle of the Wind relative to a fixed point on the earth.

TWS = True Wind Speed
Velocity of the Wind relative to a fixed point on the earth.

Underwater Objects
Objects like obstruction, wreck, cable, etc.

User Point
Object you place on the map identified by its coordinates and displayed on the screen with a reference symbol (see Mark, Waypoint).

UTC = Universal Time Coordinated
Time scale based on the rotation of the earth that is used by most broadcast time services.

UTM = Universal Transverse Mercator
Metric Grid system used on most large and intermediate scale land topographic maps.

VMG = Velocity Made Good
It is a measurement of how quickly a ship moves toward or away from the wind direction.

VMC = Velocity Made Good to Waypoint
It is a measurement of how quickly a ship moves toward or away from the active waypoint.

VRM = Variable Range Marker
Used to measure the distance and bearing from your boat to a radar target object. VRM appears as a circle that is centered on the present location of your boat. The point of intersection is the target of the VRM and the EBL. Also see EBL.

WAAS = Wide Area Augmentation System
The Federal Aviation Administration (FAA), in cooperation with other DOT organizations and DOD, is augmenting the GPS/SPS with a satellite-based augmentation system, the WAAS. It will provide a signal-in-space to WAAS users to support en route through precision approach navigation. After achieving initial operational capability, the WAAS will then be incrementally improved over the next years to expand the area of coverage, increase the availability of precision approaches, increase signal redundancy and reduce operational restrictions.

Water Speed
Speed of the vessel relative to the water.

Waypoint
Any point to which one intends to navigate. A sequence of Waypoints makes up a Route plan.

XTD = Cross Track Distance
Distance from the ship's present position to the closest point on a line between the origin and destinations waypoints of the navigation.

Zoom-In
Shows more detail in a smaller area.

Zoom-Out
Operates similarly to zoom -in, but in the reverse, showing a wider but less detailed view.

26. Contextual menu diagram

NOTE: In navigation means that the user is following destination of any kind (Mark, WP, Route, etc...)

Ownship no nav: 1. Record Track 2. Save Event 3. Anchor Watch 4. Heading Line 5. Course Line 6. A-B 7. Chart Info 8. End Simulation[1]	Ownship during navigation: 1. Stop Nav 2. Record Track 3. Save Event 4. Anchor Watch 5. Heading Line 6. Course Line 7. A-B 8. Chart Info 9. End Simulation[1]	Map background no navigation: 1. Save Mark 2. Go To 3. New Route 4. New Boundary 5. Chart Info 6. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 7. A-B 8. Save Event 9. Move Vessel Here[1] 10. Calculate Fix Offset[3]
Map background during navigation: 1. Save Mark 2. Go To 3. Stop Nav 4. Restart Nav 5. New Route 6. Chart Info 7. Easy Routing (C-Map 4D)/ Dock-to-dock Autorouting (Navionics) 8. New Boundary 9. A-B 10. Move Vessel Here[1] 11. Calculate Fix Offset[3]	Map background during navigation (Active route): 1. Stop Nav 2. Go To 3. Save Mark 4. Insert WP 5. Append WP 6. New Route 7. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 8. A-B 9. Chart Info 10. Move Vessel Here[1] 11. Calculate Fix Offset[3]	Route leg no navigation: 1. Start Nav 2. Start Here (next WP after the leg) 3. Start Reverse 4. Go To 5. Insert (a WP in the selected point) 6. Extend 7. Save Mark 8. Add to Fishing Gear[4] 9. Chart Info 10. A-B 11. Leg Easy Routing (C-Map 4D)/Leg Dock-to-dock Autorouting (Navionics) 12. Edit Route
Route leg during navigation (Active route, Not current leg): 1. Stop Nav 2. Restart Nav 3. Insert 4. Extend 5. Go To 6. Save Mark 7. Chart Info 8. A-B 9. Edit Route 10. Reverse 11. Start Here (next WP after the leg)	Route leg during navigation (Active route, current leg): 1. Stop Nav 2. Restart Nav 3. Extend 4. Edit Route	Route WP no navigation: 1. Start Here 2. Reverse 3. Go To 4. Move 5. Edit Waypoint 6. Edit Route 7. Add to Fishing Gear[4] 8. A-B 9. Save Mark 10. Chart info 11. Start Nav
Route WP during navigation (Active route, Not current destination WP) 1. Stop Nav 2. Start Here 3. Go To 4. Move 5. Edit Waypoint 6. Extend 7. Skip 8. Save Mark 9. Edit Route 10. Reverse 11. A-B 12. Chart Info	Route WP during navigation (Active route, current destination WP) 1. Stop Nav 2. Restart Nav 3. Skip 4. Edit Route 5. Reverse 6. A-B 7. Chart Info	Route WP during navigation (Not active route) 1. Stop Nav 2. Start Here 3. Go To 4. Move 5. Edit Waypoint 6. Extend 7. Save Mark 8. Edit Route 9. Add to Fishing Gear[4] 10. Reverse 11. A-B 12. Chart Info

AIS or DSC target 1. Record Track (for AIS targets) 2. Go To 3. Easy Routing (C-Map 4D)/ Dock-to-dock Autorouting (Navionics) 4. Save Mark 5. Chart Info 6. AIS List / DSC List	Boundary vertex 1. Start Watch 2. Move 3. Edit Boundary 4. Delete Vertex 5. Add to Fishing Gear[4]	Boundary leg 1. Start Watch 2. Insert 3. Edit Boundary 4. Extend 5. Add to Fishing Gear[4]
Route last WP in navigation, current destination 1. Stop Nav 2. Extend 3. Edit Route 4. Reverse 5. A-B 6. Chart Info	A-B no navigation 1. Go To 2. New Route 3. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 4. Edit A-B 5. Delete A-B 6. Chart Info 7. Calculate Fix Offset[3]	A-B in navigation 1. Stop Nav 2. Go To 3. New Route 4. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 5. Edit A-B 6. Delete A-B 7. Chart Info 8. Calculate Fix Offset[3]
Fish finder 1. Go To 2. Save Mark	Track in navigation 1. Stop Nav 2. Go To 3. Save Mark 4. Add to Fishing Gear[4] 5. New Route 6. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 7. Edit Track 8. A-B 9. Chart Info	Track no navigation 1. Go To 2. Save Mark 3. Add to Fishing Gear[4] 4. New Route 5. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 6. Edit Track 7. A-B 8. Chart Info
Active track in navigation 1. Stop Nav 2. Go To 3. Save Mark 4. New Route 5. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 6. Edit Track 7. A-B 8. Chart Info	Active track no navigation 1. Go To 2. Save Mark 3. New Route 4. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 5. Edit Track 6. A-B 7. Chart Info	Tide Station 1. Go To 2. Show graph 3. Chart Info
Mark/Event in navigation 1. Stop Nav 2. Go To 3. Move To Vessel 4. Move 5. Edit Mark 6. Add to Fishing Gear[4] 7. New Route 8. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 9. A-B 10. Chart Info 11. Calculate Fix Offset[3]	Mark/Event no navigation 1. Go To 2. Move To Vessel 3. Move 4. Edit Mark 5. Add to Fishing Gear[4] 6. New Route 7. Easy Routing (C-Map 4D)/Dock-to-dock Autorouting (Navionics) 8. A-B 9. Chart Info 10. Calculate Fix Offset[3]	

[1] Only during simulation
[2] If WP is a Mark
[3] If "Fix Offset" is enabled in "Ports and Connectivity" > "Offset"
[4] Only when BarentsWatch data has been synchronized.

NMEA0183 Sentence Name INPUT
VDM : UAIS VHF Data-link Message
DBT : Depth Below Transducer
DPT : Depth
DSC : Digital Selective Calling Information
DSE : Expanded Digital Selective Calling
GGA : Global Positioning System Fix Data
GLL : Geographic Position – Latitude/Longitude
GNS : GNSS Fix Data
GSA : GNSS DOP and Active Satellites
GSV : GNSS Satellites In View
HDG : Heading, Deviation & Variation
HDT : Heading, True
MTW : Water Temperature
MWV : Wind Speed & Angle
RMA : Recommended Minimum Specific Loran-C Data
RMC : Recommended Minimum Specific GNSS Data
ROT : Rate Of Turn
RSA : Rudder Sensor Angle
THS : True Heading and Status
TLL : Target Latitude and Longitude
TTM: Tracked Target Message
VDR : Set & Drift
VHW : Water Speed and Heading
VTG : Course Over Ground & Ground Speed
ZDA : Time & Date

NMEA0183 Sentence Name OUTPUT
AAM : Waypoint Arrival Alarm
APB : Heading/Track Controller (Autopilot) Sentence "B"
BOD : Bearing - Origin to Destination
BWR : Bearing & Distance to Waypoint – Rhumb Line
DBT : Depth Below Transducer
DPT : Depth
GGA : Global Positioning System Fix Data
GLL : Geographic Position – Latitude/Longitude
GNS : GNSS Fix Data
GSA : GNSS DOP and Active Satellites
GSV : GNSS Satellites In View
HDG : Heading, Deviation & Variation
HDT : Heading, True
MTW : Water Temperature
MWV : Wind Speed & Angle
RMA : Recommended Minimum Specific Loran-C Data
RMB : Recommended Minimum Navigation Information
RMC : Recommended Minimum Specific GNSS Data
RTE : Routes RTE – Routes
THS : True Heading and Status
TLL : Target Latitude and Longitude
VDR: Set & Drift
VHW : Water Speed and Heading
VTG : Course Over Ground & Ground Speed
WPL : Waypoint Location
XTE : Cross-Track Error, Measured
ZDA : Time & Date

PGN NUMBER	PGN Name INPUT
59392	ISO Acknowledgement
59904	ISO Request
60160	ISO Transport Protocol, Data Transfer
60416	ISO Transport Protocol, Connection Management BAM group function
60928	ISO Address Claim
65240	ISO Commanded Address
126208	NMEA - Request group function
126208	NMEA - Command group function
126208	NMEA – Acknowledge group function
126992	System Time
126996	Product Information
127245	Rudder
127250	Vessel Heading
127251	Rate of Turn
127257	Attitude
127258	Magnetic Variation
127488	Engine Parameters, Rapid Update
127489	Engine Parameters, Dynamic
127493	Transmission Parameters, Dynamic
127497	Trip Fuel Consumption, Engine
127498	Engine Parameters, Static
127505	Fluid Level
127508	Battery Status
128259	Speed, Water referenced
128267	Water Depth
128275	Distance Log
128520	Tracked Target Data
129025	Position, Rapid Update
129026	COG & SOG Rapid Update
129029	GNSS Position Data
129038	AIS Class A Position Report
129039	AIS Class B Position report
129040	AIS Class B Extended Position report
129041	AIS Aids to Navigation (AtoN) Report
129284	Navigation Data
129285	Navigation – Route / WP Information
129538	GNSS Control Status
129540	GNSS Sats in view
129793	AIS UTC and Date Report
129794	AIS Class A Static and Voyage Related Data
129798	AIS SAR Aircraft Position Report
129808	DSC Call Information
129809	AIS Class B “CS” Static Data Report, Part A
129810	AIS Class B “CS” Static Data Report, Part B
130306	Wind Data
130310	Environmental Parameters
130311	Environmental Parameters
130312	Temperature
130313	Humidity
130314	Actual Pressure
130316	Temperature, Extended Range
130576	Small Craft Status
130577	Direction Data

PGN NUMBER	PGN Name OUTPUT
59392	ISO Acknowledgement
59904	ISO Request
60928	ISO Address Claim
126208	NMEA - Request group function
126208	NMEA - Command group function
126208	NMEA – Acknowledge group function
126464	PGN List - Transmit PGN's group function
126464	PGN List - Received PGN's group function
126992	System Time
126993	Heartbeat
126996	Product Information
126998	Configuration Information
127245	Rudder
127250	Vessel Heading
127251	Rate of Turn
127257	Attitude
127258	Magnetic Variation
127505	Fluid Level
128259	Speed, Water referenced
128267	Water Depth
128275	Distance Log
129025	Position, Rapid Update
129026	COG & SOG Rapid Update
129029	GNSS Position Data
129033	Local Time Offset
129283	Cross Track Error
129284	Navigation Data
129285	Navigation - Route/WP Information
130306	Wind Data
130310	Environmental Parameters
130312	Temperature
130316	Temperature, Extended Range

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