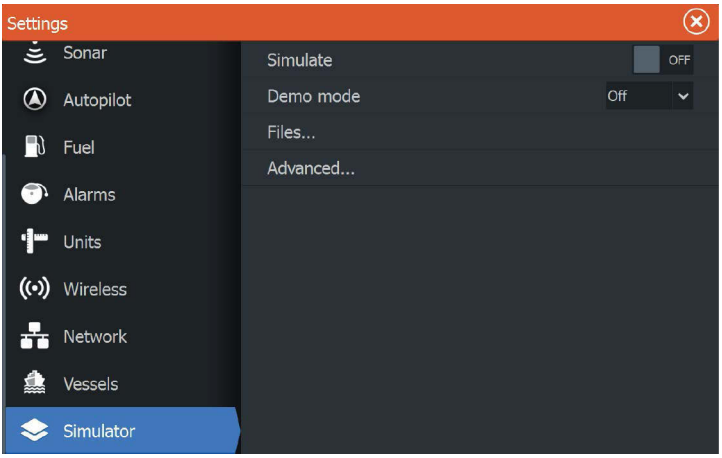
13 Simulator

The simulation feature lets you see how the unit works in a stationary position and without being connected to sensors or other devices.



Demo mode

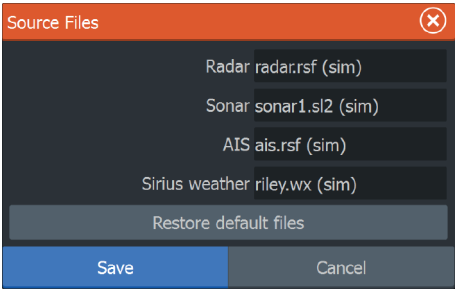
In this mode the unit automatically runs through the main features of the product; it changes pages automatically, adjusts settings, opens menus, etc.

If you tap on a touchscreen or press a key when demo mode is running, the demonstration pauses. After a time-out period, demo mode resumes and any changed settings are restored to default.

→ ***Note:*** Demo mode is designed for retail/showroom demonstrations.

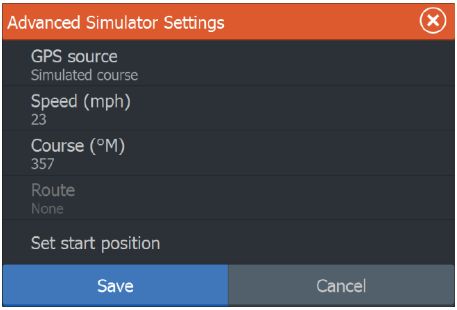
Simulator source files

You can select which data files are used by the simulator. A set of source files is included in your system, and you can import files by using a card inserted into the card reader. You can also use your own recorded log data files in the simulator.



Advanced simulator settings

The Advanced simulator settings allows for manually controlling the simulator.



GPS source

Selects where the GPS data is generated from.

Speed, Course and Route

Used for manually entering values when GPS source is set to Simulated course or Simulated route. Otherwise, GPS data including speed and course come from the selected source file.

Set start position

Moves your vessel to the current cursor position.

→ ***Note:*** This option is only available when the GPS source is set to Simulated course.

14 Trolling motor autopilot

If a MotorGuide Xi5 trolling motor with Pinpoint GPS is connected to the network, then the SmartSteer (autopilot) functionality is available on your HDS Gen3.

To use trolling motor autopilot functionality, you need the following:

- MotorGuide Xi5 trolling motor with Pinpoint GPS (available from MotorGuide)
- MotorGuide Pinpoint GPS Gateway (available from MotorGuide)
- NMEA 2000 network

For details about installing this equipment, refer to the separate installation manuals that come with the equipment.

The Autopilot can automatically control the trolling motor to:

- Maintain a set heading
- Maintain the vessel's position
- Navigate to the cursor position, to a waypoint, or along a route
- Follow pre-defined turn patterns
- Control the speed of the trolling motor

Xi5 trolling motor software

If at any time there is an update required for your Xi5 trolling motor, instructions will be made available by MotorGuide, and posted on lowrance.com.

Follow the onscreen instructions to update Xi5 software.

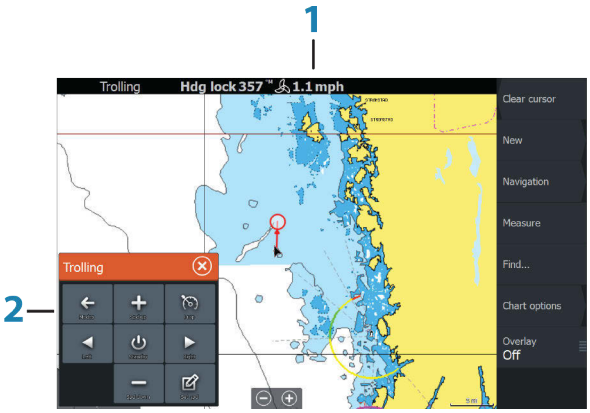
Safe operation with the autopilot

⚠ Warning: An autopilot is a useful navigational aid, but DOES NOT replace a human navigator.

Switching from automatic navigation to standby mode

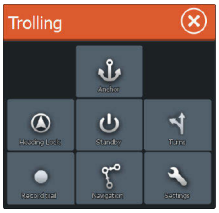
To switch from autopilot to handheld remote or foot pedal steering, set the autopilot to standby mode. You can select standby mode from the **Autopilot Controller** or the **System Controls** dialog.

Autopilot interface



1 Autopilot information bar

2 Autopilot Controller



The Autopilot Controller

The autopilot is controlled from the **Autopilot Controller**, activated from the **System Controls** dialog displayed by pressing the **Power** key.

You can select the position of the Autopilot Controller on the page. Refer to *"Autopilot settings"* on page 109.

→ ***Note:*** As long as the **Autopilot Controller** is active, you cannot operate the background panel or its menu.

The **Autopilot Controller** can also be set up as a panel in a split panel page by using the Page Editor to make a Favorite page. For information about Favorite pages, refer to *"Adding new favorite pages"* on page 32.

The Autopilot information bar

The **Autopilot information bar** is displayed when an autopilot mode is selected. The bar includes information about the autopilot mode and navigational information. The bar is present on all pages if the autopilot is in an active mode. In the Autopilot settings dialog,

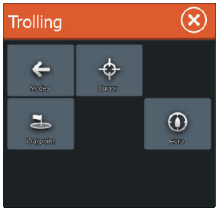
you can select that the bar is off when the autopilot is in standby mode. Refer to *"Autopilot settings"* on page 109.

Autopilot control of the trolling motor

Selecting an Arrival mode

The autopilot switches from navigation mode to the selected arrival mode when your vessel reaches the destination. Arrival mode is set to Standby by default. Before starting a navigation mode or a turn pattern, it is important to select an arrival mode that fits your navigation needs. Refer to *"Arrival mode"* on page 110.

Anchor mode



Maintains your vessel position at a selected location.

→ ***Note:*** When in anchor mode, your vessel orientation can be affected by wind or currents.

The following occurs when you select to anchor at:

- **Waypoint**
  Enables anchor mode when your vessel arrives at a selected waypoint.
- **Cursor**
  Enables anchor mode when your vessel arrives at the cursor position.
- **Here**
  Enables anchor mode at your current location.

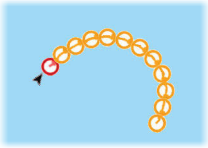
Heading Lock mode

Locks and maintains the current vessel heading. Use the left and right arrow buttons in the **Autopilot Controller** to make heading adjustments. To make small heading adjustments, single-select the left or right buttons. For larger adjustments, select and hold the left or right buttons.

Standby mode

Cancels autopilot activity and returns the vessel to handheld remote or foot pedal steering control.

Turn pattern steering



Steers the vessel in predefined turn patterns. When you select a turn pattern, the system creates temporary waypoints on the turn. The last waypoint on the turn is the final waypoint. When the vessel reaches the final waypoint, the vessel goes into arrival mode. Refer to *"Arrival mode"* on page 110.

Setting up a turn pattern

1. Select a turn pattern.
2. Enter the desired value(s) in the turn pattern dialog or use default settings.
3. Select the direction of the turn.

→ ***Note:*** Selecting a turn radius smaller than the GPS accuracy may result in incomplete navigation of the turn pattern.

U-turn

Changes the current set heading to be 180° in the opposite direction.

C-turn

Steers the vessel in a C-shaped pattern.

Spiral turn

Steers the vessel in a spiral with a decreasing or increasing radius. Negative values indicate decreasing radius while positive values indicate increasing radius.

Zigzag turns

Steers the vessel in a zigzag pattern.

Square turn

Makes the vessel automatically turn 90° after having travelled a defined leg distance.

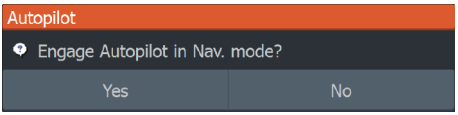
Lazy S-turn

Makes the vessel yaw around the main heading.

Navigation mode

In Nav. mode you can use the autopilot to steer the boat to cursor position, to a waypoint position, or along a pre-defined route. The position information from the GPS is used to keep the boat on the track line towards the destination point.

When you start navigating from an application (from chart, steering, radar, etc) you are prompted to engage the autopilot in Nav. mode.



You can also initiate Nav. mode from the **Autopilot Controller** after navigation is started.

When you reach the destination, the autopilot switches to your **Arrival mode** setting. Refer to *"Autopilot settings"* on page 109.

Trolling motor speed control

In navigation modes (Heading lock mode, Nav. mode, and Turn pattern steering) there are two ways to control speed:

- Prop - selects a target propeller rate (percentage of power) shown as **%** in the Autopilot information bar.

- Cruise - selects a target cruise control speed shown as **mph**, **kn**, or **kph** in the Autopilot information bar.

→ ***Note:*** Cruise set speed sets the target speed for your vessel. Your vessel may not be able to achieve the set target. The Cruise set speed (not your current speed) is displayed in the Autopilot information bar.

Speed adjustments

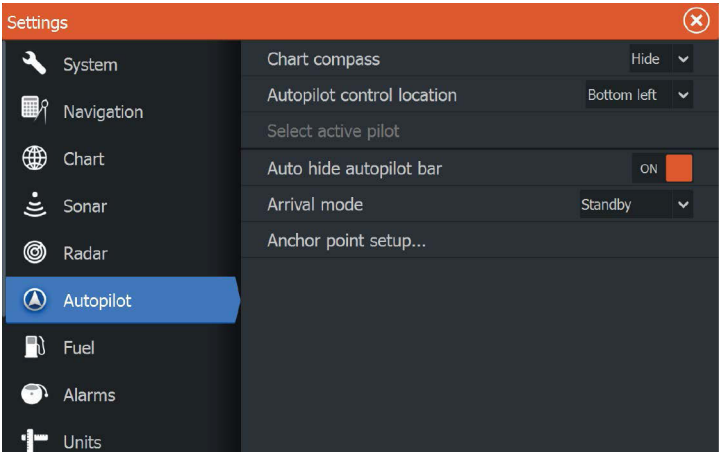
You can make speed adjustments on the Heading lock and Navigation control dialogs by selecting the Spd up (+) and Spd down (-) buttons, or by selecting the **Set Spd** or **Set prop** option and entering your desired speed or propeller rate.

Recording and converting a trail to a route

The **Record trail** button is used to record and convert a trail or part of a trail to a route.

1. Select **Record trail** at the desired location to start recording a new trail.
2. Select **Save route** to select the end location of the route. The Edit trail dialog appears.
3. Select **Create route**. The Edit route dialog appears.
4. Enter the route details and save it.

Autopilot settings



→ ***Note:*** Options shown on the Autopilot setting dialog varies depending on if the trolling motor or outboard motor autopilot is active.

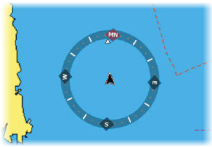


Chart compass

You can select to show a compass symbol around your boat on the chart panel. The compass symbol is off when the cursor is active on the panel.

Autopilot control location

Controls the location of the **Autopilot controller** on the panel.

Select active autopilot

Selects if the autopilot controls the trolling motor or the outboard motor(s).

Auto hide autopilot bar

Controls whether the Autopilot information bar is shown when the autopilot is in Standby mode.

Arrival mode

The trolling motor autopilot switches from navigation mode to the selected arrival mode when your vessel reaches the destination.

→ ***Note:*** Before starting a navigation mode or a turn pattern, it is important to select an arrival mode that fits your navigation needs.

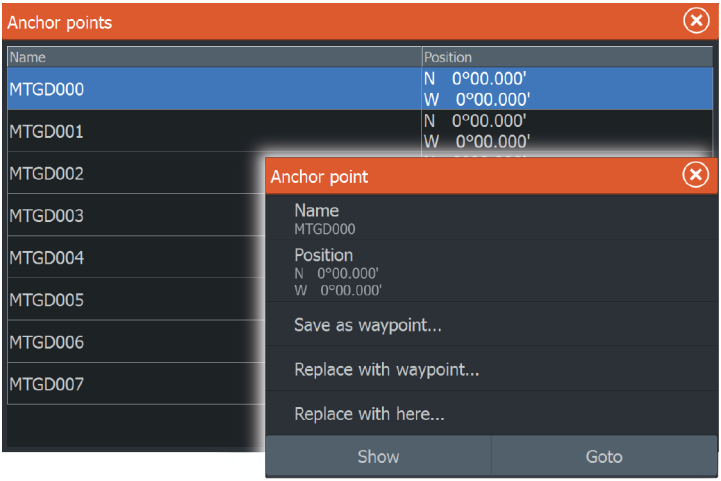
Arrival modes are:

- **Standby**
  Cancels autopilot activity and returns the vessel to handheld remote or foot pedal control.
- **Heading lock**
  Locks and maintains the last vessel heading.
- **Anchor**
  Anchors the vessel at the current destination.

→ ***Note:*** We recommend only using heading lock in open water.

Anchor point setup

Anchor points can be saved as a new waypoint, replaced with an existing waypoint, or set as your current coordinates.



Anchor points are synced with the Xi5 trolling motor. If any anchor points are stored in the motor, they appear in the anchor points list.

15 Outboard motor autopilot

The Lowrance SmartSteer interface (Autopilot Controller) provides outboard motor control. The outboard autopilot can steer on a set heading, to a waypoint, or along a route.

To use outboard autopilot functionality the following are required:

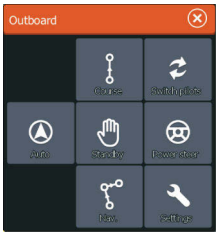
- NAC-1 Autopilot computer
- Point-1AP GPS/Heading sensor or RC42N Heading sensor and a separate GPS antenna
- Pump or drive unit connected to the steering system

For details about installing this equipment, refer to the separate installation manuals that come with the equipment. After installation is complete you must set up the outboard autopilot, for instructions refer to the HDS Gen3 Installation Manual.

Safe operation with the autopilot

> ⚠ Warning: An autopilot is a useful navigational aid, but DOES NOT replace a human navigator.

Autopilot control of the outboard motor(s)



The autopilot is controlled from the **Autopilot Controller**, activated from the **System Controls** dialog displayed by pressing the **Power** key.

The **Autopilot Controller** can also be set up as a panel in a split panel page by using the Page Editor to make a Favorite page.

The options in the **Autopilot Controller** vary with active mode.

Selecting the trolling or outboard motor autopilot

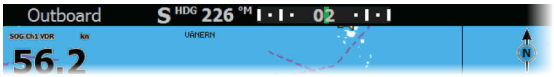
If autopilot control of the trolling motor and outboard motor are installed on the same vessel, only one of the auto steering options can be active at a time. When both options are installed, a button to switch between them is included in the **Autopilot Controller**.

Mode overview

Standby mode

Standby mode is used when you want to disable the autopilot and manually steer the boat.

The autopilot information bar is hidden when the autopilot is in Standby mode. To view the autopilot bar, disable **Autohide** from the Autopilot settings dialog.



Power steer mode

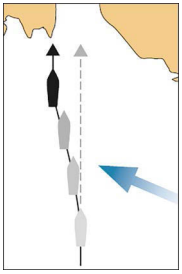
In this mode you use the port and starboard arrow buttons in the **Autopilot Controller** to turn the outboard motor(s). The motor turns as long as the button is pressed and remains at the set angle.

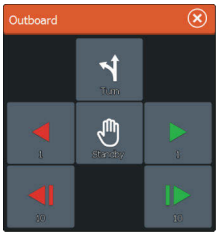
Auto mode

In AUTO mode, the autopilot steers the boat automatically on a set heading.

When the mode is activated, the autopilot selects the current compass heading as the set heading.

→ ***Note:*** Strong wind and current might affect the steering of the vessel in AUTO mode. While the autopilot compensates for any heading change, the wind and current could cause the course of the boat to differ significantly from the heading.





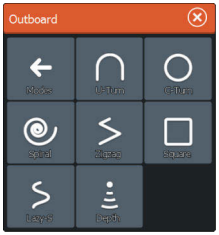
Changing set heading in AUTO mode

You adjust the set heading by using the port and starboard (1 or 10 degrees) arrow buttons in the **Autopilot Controller**.

When you select the button, an immediate heading change takes place. The new heading is maintained until a new heading is set or until you select another mode for the autopilot.

Turn pattern steering

The autopilot includes a number of automatic turn steering features when the autopilot is in AUTO mode.



→ ***Note:*** Turn pattern steering for outboard motors uses heading information only, while turn pattern steering for the trolling motor uses both GPS and heading information. Therefore, with outboard turn pattern steering, waypoints in the turns are not created and displayed as they are with trolling motor turn patterns.

Initiating a turn

You start the turn by selecting the relevant turn icon, followed by selecting the port or starboard options in the turn dialog to select the turn direction.

Stopping the turn

You can stop the turn from within the turn dialog.

At any time during a turn you can select **Autopilot standby** in the System Controls dialog to return to STBY mode and manual steering.

Turn variables

The turn steering options have settings that you can adjust before you start a turn and at any time when the boat is in a turn.

U-turn

U-Turn changes the current set heading to be 180° in the opposite direction.

The turn rate is identical to Rate limit settings. This cannot be changed during the turn.

C-turn

Steers the vessel in a circle.

You can adjust the Rate of turn from the turn dialog before the turn is initiated and during the turn. Increasing the turn rate makes the vessel turn a smaller circle.

Spiral turn

Spiral-turn makes the vessel turn in a spiral with a decreasing or increasing radius. You set the initial radius before the turn is initiated, and the change per turn during the turn. If the change per turn is set to zero, the vessel turns in a circle. Negative values indicate decreasing radius while positive values indicate increasing radius.

Zigzag turns

Steers the vessel in a zigzag pattern.

For navigating in a zigzag pattern, you set the initial heading change before the turn is started.

During the turn you can alter the main heading, the heading change, and the leg distance.

Square turn

Makes the vessel automatically turn 90° after having travelled a defined leg distance.

At any time during the turn you can change the main heading and the distance of the leg until the vessel makes a new 90° turn.

Lazy S-turn

Makes the vessel yaw around the main heading.

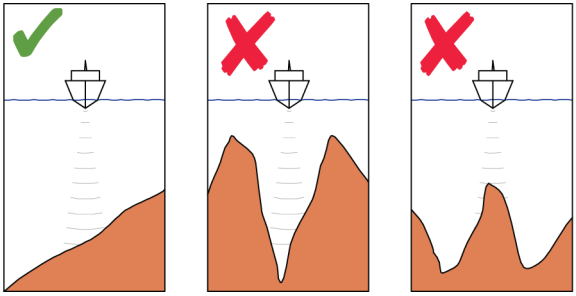
You set the selected heading change before the turn is started.

During the turn you can alter the main heading, the heading change and the turn radius from within the turn dialog.

Depth contour tracking, DCT™

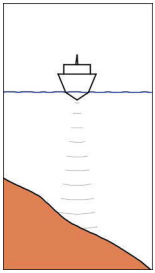
If the system has Sonar input, the autopilot can be set to follow a depth contour.

> ⚠ Warning: Do not use this feature unless the seabed is suitable. Do not use it in rocky waters where the depth is varying significantly over a small area.

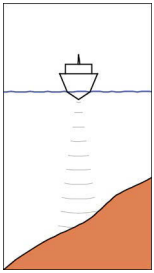


Use the following process to initiate DCT steering:

1. Ensure that you have depth reading on the panel or on a separate depth instrument.
2. Steer the boat to the depth you want to track, and in the direction of the depth contour.
3. Activate **AUTO** mode, select depth contour steering and monitor the depth reading.
4. Select the port or starboard option in the turn dialog to initiate the depth contour steering to follow the bottom sloping to starboard or to port:



Port option
(depth decreases to port)



Starboard option
(depth decreases to starboard)

The following parameters are available for depth contour tracking:

Depth gain

This parameter determines the ratio between commanded rudder and the deviation from the selected depth contour. The higher depth gain value the more rudder is applied.

If the value is too small, it takes a long time to compensate for drifting off the set depth contour, and the autopilot fails to keep the boat on the selected depth.

If the value is set too high, the overshoot increases and the steering is unstable.

Contour Cross Angle (CCA)

The CCA is an angle that is added to or subtracted from the set course.

With this parameter you can make the boat yaw around the reference depth with lazy-s movements.

The larger the CCA, the bigger yawing is allowed. If you the CCA set to zero there are no lazy-s movements.

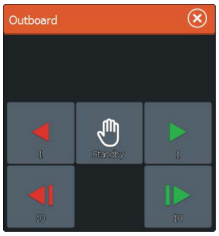
Ref. depth

Use this parameter to change the reference depth which the boat will yar around when making Lazy-s movements.

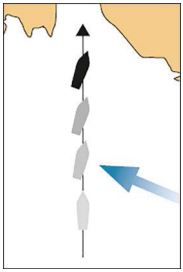
Course mode

The Course mode combines the heading information from the steering compass and the positioning information from the GPS. In this mode, the vessel is steered along a calculated track line in a direction set by the user. If the vessel's heading is drifting away from the original heading due to current and/or wind, the vessel follows the line with a crab angle.

1. Turn the vessel to the desired heading.
2. Activate Course mode. The autopilot draws an invisible bearing line based on the current heading from the boat's position.



In Course mode, the autopilot uses position information to calculate the cross track error, and to automatically keep your track straight.



Use the port and starboard (1 or 10 degrees) arrow buttons in the **Autopilot Controller** to change the bearing line while in Course mode.

NAV mode

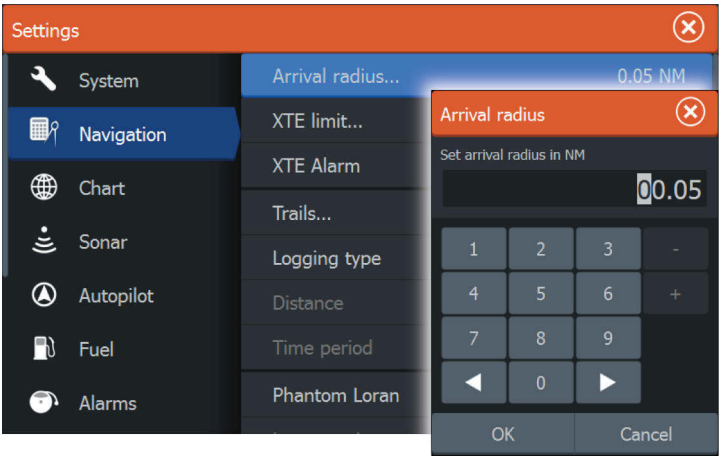
You can use the autopilot to automatically steer the boat to the cursor position, to a waypoint position, or along a pre-defined route. The position information from the GPS is used to change the course to steer to keep the boat on the track line towards the destination point.

> ⚠ Warning: NAV mode should only be used in open waters.

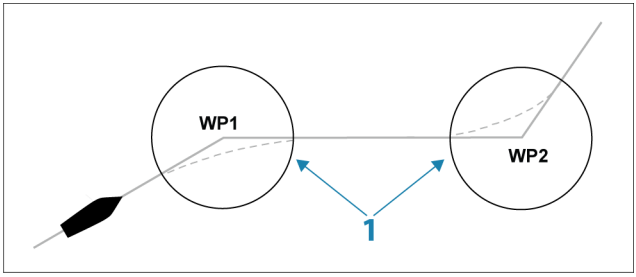
→ ***Note:*** To use navigation mode, the system must have valid position input.

When the vessel reaches the arrival circle for a waypoint, the autopilot gives an audible warning and displays a dialog with the new course information. If the required course change to the next waypoint is less than 30°, the autopilot automatically changes the course. If the required course change to next waypoint in a route is more than 30°, you are prompted to verify that the upcoming course change is acceptable.

Waypoint arrival circle

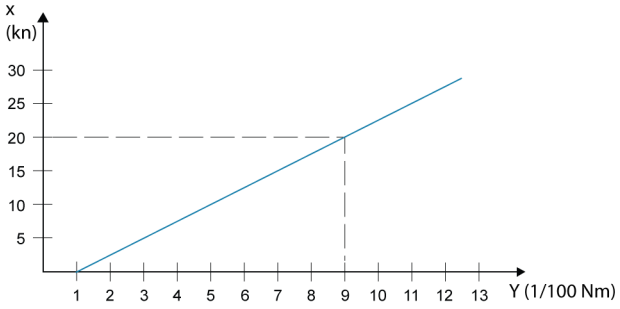


The Arrival radius defines the point at which a turn is initiated when you are navigating a route.



The arrival circle (**1**) should be adjusted according to boat speed. The higher the speed, the wider the circle. The intention is to make the autopilot start the heading change in due time to make a smooth turn onto the next leg.

The figure below may be used to select the appropriate waypoint circle when creating the route.



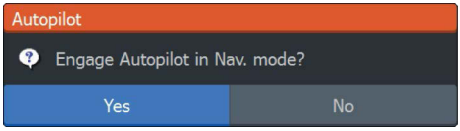
X axis = Boat speed in knots
Y axis = Arrival circle, radius in 1/100 Nm

Example: With the speed of 20 knots you should use a waypoint circle with radius 0.09 Nm.

→ ***Note:*** The distance between any waypoints in a route must not be smaller than the radius of the waypoint arrival circle.

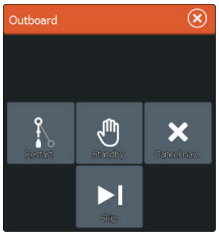
Start automatic navigating

1. Start navigating a route, or start navigation to a waypoint or to the cursor position from the Chart panel or from the Steer panel.
2. Engage the autopilot in NAV mode when prompted.



- If you reject this request, you can later start NAV mode from the **Autopilot Controller**.

3. Accept the required course change to activate NAV mode.
   - If the course change is not accepted within 8 seconds, the dialog is removed and the autopilot remains in the current active mode.



After the autopilot is engaged in NAV mode, the **Autopilot Controller** shows NAV steering options.

Restart

Restarts the navigation from the vessel's current position.

Cancel

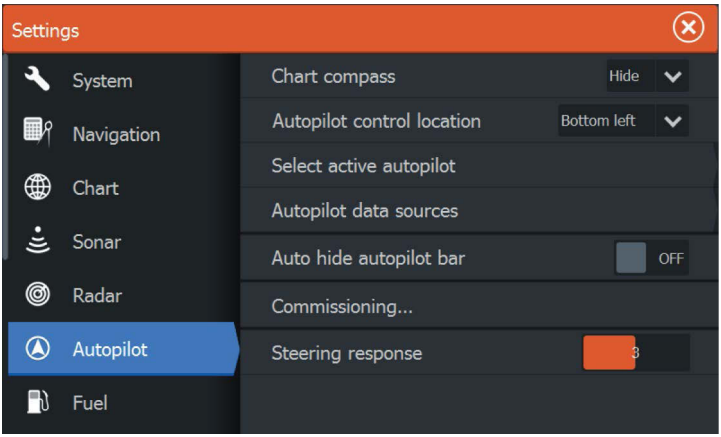
Cancels active navigation and deselects the current route or waypoint navigation. The autopilot is switched to AUTO mode, steering the vessel on the heading that was active when the Cancel button was selected.

→ ***Note:*** This is different from selecting Standby mode which does not stop current navigation. From Standby mode you can later restart the active route.

Skip

Skips the active waypoint and steers towards the next waypoint when you are navigating a route.

Autopilot settings



→ ***Note:*** Options shown on the Autopilot setting dialog varies depending on if the trolling motor or outboard motor autopilot is active.

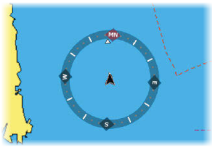


Chart compass

You can select to show a compass symbol around your boat on the chart panel. The compass symbol is off when the cursor is active on the panel.

Autopilot control location

Controls the location of the **Autopilot controller** on the panel.

Select active autopilot

Selects if the autopilot controls the trolling motor or the outboard motor(s).

Autopilot data sources

Provides automatic and manual data source selection for your outboard autopilot.

Auto hide autopilot bar

Controls whether the Autopilot information bar is shown when the autopilot is in Standby mode.

Commissioning

Used to calibrate your outboard motor's steering (Cablesteer or Hydraulic steering) with the NAC-1.

Steering response

Used to increase or decrease the steering sensitivity. A low response level reduces the rudder activity and provides a more ***loose*** steering. A high response level increases the rudder activity and provides more ***tight*** steering. Too high a response level will cause the boat to make "S" movements.

16 Wireless connection

GoFree wireless connectivity gives you the ability to:

- Use a wireless device to remotely view (smartphone and tablet) and control the system (tablet only).
- Access the GoFree Shop.
- Upload your Sonar logs to create custom maps at Insight Genesis.
- Download software updates
- Connect to third party applications

→ ***Note:*** Maps, charts, software updates, and other data files can be large. Your data provider may charge you based on the amount of data you transfer. If you are unsure contact the service provider for information.

The unit includes:

- Built-in wireless functionality for connecting to the internet and wireless devices such as smartphones and tablets.
- Built-in Bluetooth wireless technology.
  The built-in Bluetooth wireless technology gives you the ability to connect the unit to Bluetooth enabled devices. For more information, refer to *"Bluetooth wireless technology"* on page 126.

Initial configuration and setup of the built-in wireless functionality is described in your system's Installation Manual.

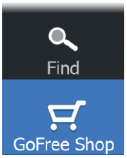
Connect and disconnect from a wireless hotspot

To connect to a wireless hotspot, select the Wireless option in the System Controls dialog and then select Not Connected. This opens the Wireless Devices dialog. Use this dialog to select the desired hotspot, enter the login information and then select Connect. Connecting to a wireless hotspot changes the wireless mode to **Client mode**. In this mode, you can access the GoFree Shop.

To disconnect from a wireless hotspot, select the Wireless option in the System Controls dialog, then select Connected *hotspot_name*, and then Disconnect. This changes the wireless mode to **Access point**

mode. In this mode, you can connect a wireless device so that Apps such as GoFree Link can access the vessel's navigation information.

GoFree Shop



The wireless must be connected to an external wireless hotspot in order to access the GoFree Shop.

At the GoFree Shop you can browse, purchase and download compatible content for your system including navigation charts and Insight Genesis Maps. When you log on, the system automatically gives you a notification if a new software version is available for your system. If an update is available, you can download it to a card slot or defer the download until later. If you defer the download until later, the notification is available in the About dialog accessible from the System Settings.

GoFree Link

The wireless functionality lets you use a wireless device to remotely view (smartphone and tablet) and control the system (tablet only). The system is viewed and controlled from the wireless device by the GoFree Link Apps downloaded from their relevant Application store. When remote control is accepted, the active page is mirrored to the wireless device.

→ ***Note:*** To use smartphones and tablets to view and control the system, wireless functionality must be disconnected from the wireless hotspot (in **Access point mode**).

→ ***Note:*** For safety reasons, Autopilot and CZone functions cannot be controlled from a wireless device.

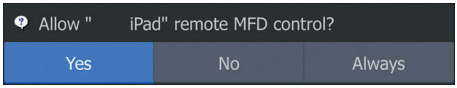
Connecting a tablet

Install the GoFree App on the tablet before following this procedure.

1. Set the internal wireless to **Access Point** mode. To do this, select the **Wireless devices** page in the Wireless settings dialog and then select the Internal wireless. Next, select the **Mode** option and then select **Internal Access Point**.
2. Select a device on the **Wireless devices** page to view its network key.
3. Navigate to the wireless network connection page on the tablet, and find the unit or GoFree wireless *xxxx* network. If more than

one is in range, review the **Wireless devices** page on the unit to confirm which wireless device is connected to the unit.

4. Enter the Network Key in the tablet to connect to the network.
5. Open the GoFree application - the unit should be automatically detected. The name displayed will be either the default, or that assigned in the Device Name setting. If the unit does not appear, follow the on screen instructions to manually find the device.
6. Select the graphic icon of the unit. The unit displays a prompt similar to the following:



7. Select **Yes** for one-time connection, or **Always** if device is to be remembered for regular connection. This setting can be changed later if required.

→ ***Note:*** The internal wireless module only supports GoFree connection to itself. Other units connected on the network are not visible.

Connecting a smartphone

Install the GoFree App on the smartphone before following this procedure.

1. Set the internal wireless to **Access Point** mode. To do this, select the **Wireless devices** page in the Wireless settings dialog and then select the unit's Internal Wireless. Next, select the **Mode** option and then select **Internal Access Point**.
2. Select a device on the **Wireless devices** page to view its Network Key.
3. Navigate to the wireless network connection page on the smartphone, and find the unit or GoFree wireless *xxxx* network. If more than one is in range, review the **Wireless devices** page from the unit's Wireless settings dialog to confirm which wireless device is connected to the unit.
4. Enter the Network Key in the smartphone to connect to the network.
5. Open the GoFree application on the smartphone, the unit should be automatically detected. The name displayed will be either the default, or that assigned in the Device Name setting. If

the unit does not appear, follow the on screen instructions to manually find the device.

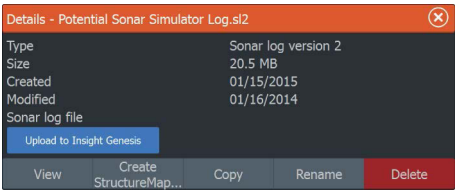
The MFD's display is shown on the smartphone. To change the MFD's display on the smartphone, use the MFD to change the display on the MFD. The display change on the MFD is reflected on the smartphone.

Uploading log files to Insight Genesis

To upload a recorded Sonar log file to Insight Genesis, select the file you want to upload from the Files panel and select the upload to Insight Genesis option.

→ ***Note:*** You must be connected to a wireless hotspot to upload recorded log files to Insight Genesis.

→ ***Note:*** Recorded log files can also be uploaded to Insight Genesis if you have specified **Upload to Insight Genesis** in the Log Sonar dialog. For more information, refer to *"Start Recording log data"* on page 73.



Bluetooth wireless technology

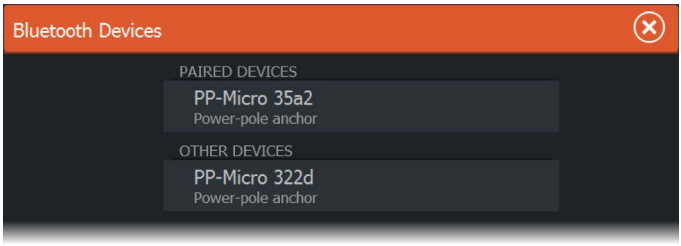
The HDS Gen3 includes built-in Bluetooth wireless technology. To connect the HDS Gen3 to Bluetooth enabled devices you must *pair* them.

Pairing Bluetooth devices

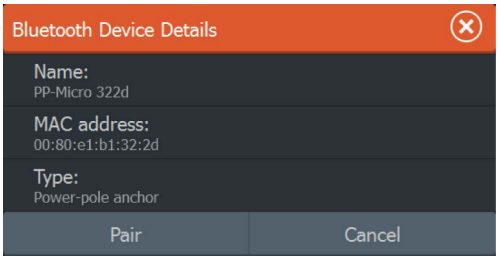
To *pair* the unit with a Bluetooth enabled device, do the following:

1. Turn on the Bluetooth enabled device so that it is able to send and receive Bluetooth signals.
2. Open the Wireless settings dialog in the HDS Gen3 and turn on Bluetooth, if it is not already enabled.
3. Select **Bluetooth devices**. The system searches for Bluetooth enabled devices, and lists them in the Bluetooth Devices dialog.

Devices that are already paired are listed under **Paired Devices**. Devices that are not paired are listed under **Other Devices**.



4. Select the Bluetooth enabled device you want to *pair* with in the list under **Other Devices**. The **Bluetooth Device Details** dialog opens.



5. Select **Pair** to *pair* the HDS Gen3 to the device.
6. Repeat these steps for each device you want to *pair* with the HDS Gen3.

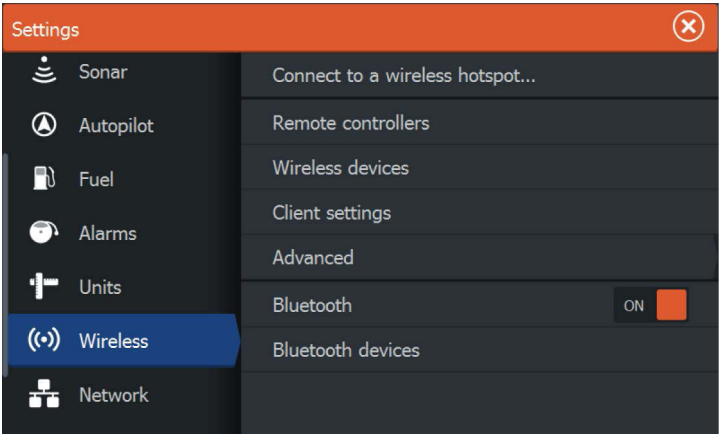
Pairing with dual Power-Poles

If dual Power-Poles are installed on your boat, the one that is paired first automatically becomes **Port** and the second is set to **Starboard** in the Power-Pole controls.

To swap them around, unpair the connected Power-Poles. And then, toggle off and on **Bluetooth** in the Wireless settings dialog to reset the Bluetooth memory. Once Bluetooth has been toggled back on, proceed in pairing the Power-Poles in the correct order.

Wireless settings

Provides configuration and setup options for the wireless functionality.



Connect to a wireless hotspot

Displays the Wireless device dialog that you can use to connect the wireless functionality to a wireless hotspot.

Remote controllers

When a wireless device (smart phone or tablet) is connected, it should appear in the Remote controllers list. Selecting 'Always allow' means the device can automatically connect without needing a password each time. This menu also allows you to disconnect devices that no longer require access.

Wireless devices

This dialog shows the internal wireless and any connected WIFI-1 devices, as well as their IP and channel number. Selecting the internal wireless or a WIFI-1 device provides additional detail.

To view and change internal wireless detail values (Network Name (SSID), Network Key, or Channel) the internal wireless must be in **Access Point** (Internal Wifi) mode. To select a network (hotspot) to connect to, the internal wireless must be in **Client Mode**. Use the Mode option to change modes.

Client settings

Displays information about the wireless hotspot your unit is connected to or the last one your unit was connected to. You can

select the hotspot in the dialog to set it as a hotspot you want to always connect to when in range or you can select to delete it.

Advanced

Initiates the Iperf and DHCP Probe tools that help in fault-finding and setting up the wireless network.

→ ***Note:*** Iperf and DHCP Probe are tools provided for diagnostic purposes by users familiar with network terminology and configuration. Navico is not the original developer of these tools, and does not provide support related to their use.

Bluetooth

Enables the built-in Bluetooth wireless technology functionality.

Bluetooth devices

Displays the Bluetooth Device list dialog. Use the Bluetooth Device List dialog to pair or remove pairing to Bluetooth enabled devices.

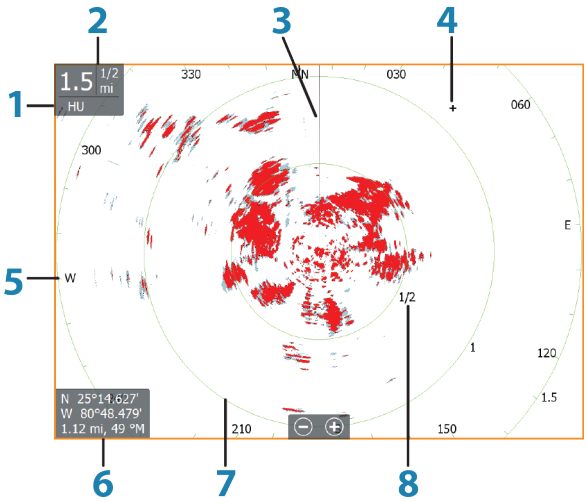
17 Radar

The radar panel can be set up as a full screen view or combined with other panels.

The radar image can also be displayed as an overlay on a chart panel. For more information, see *"Chart overlay"* on page 40.

→ ***Note:*** Radar overlay requires data from a heading sensor or compass to ensure proper orientation with the chart.

The Radar panel



1. Orientation
2. Range
3. Heading line*
4. Cursor
5. Compass*
6. Cursor position window
7. Range rings*
8. Range markers*

* Optional radar symbology.

Radar symbology can be turned ON/OFF collectively from the Radar menu, or individually as described in Radar settings panel.

Radar overlay

You can overlay the Radar image on the Chart. This can help you to easily interpret the radar image by correlating the radar targets with charted objects.

When the radar overlay is selected, basic radar operational functions are available from the Chart panel's menu.

Selecting radar overlay source on chart panels

To select the radar source of the radar overlay displayed on the chart panel, use the **Radar options** and then **Source** chart panel menu options to select the radar source.

For chart pages with more than one chart with radar overlay, it is possible to set up different radars sources for each chart panel. Activate one of the chart panels and then select one of the available radars in the radar source menu option. Repeat the process for the second chart panel with radar overlay, and select an alternative radar for this panel.

Radar operational modes

The radar's operational modes are controlled from the HDS Gen3 unit. The following modes are available:

Off

The power to the radar scanner is turned off.

Standby

The power to the radar scanner is on, but the radar is not transmitting.

Transmit

The scanner is on and transmitting. Detected targets are drawn on the radar PPI (Plan Position Indicator).

Radar Range

You adjust radar range by selecting the zoom (+ or -) buttons on the radar panel or using the zoom (**+** or **-**) keys.

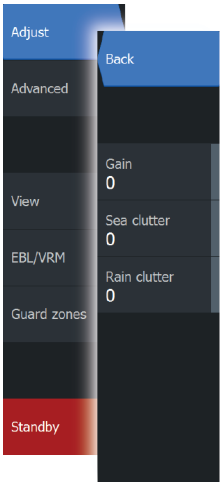
Using the cursor on a radar panel

By default, the cursor is not shown on a radar panel.

When you position the cursor on the radar panel, the cursor position window is activated and the cursor menu options are displayed.

To remove the cursor and cursor elements from the panel, select **Clear cursor** or press the **X** key.

Adjusting the radar image



You may be able to improve the radar image by adjusting the radar sensitivity, and by filtering out the random echoes from sea and weather conditions.

You can adjust the image settings from the radar menu.

Directional clutter rejection

(Broadband 4G Radar only)

This mode automatically works when GAIN = AUTO and SEA = HARBOR or OFFSHORE. The purpose is to allow smaller vessels to be seen in the leeward direction of the sea clutter. The GAIN of the radar receiver is increased dynamically during the sweep, in the leeward direction, for increased target sensitivity in heavier sea states.

When GAIN or SEA = MANUAL, the Directional Clutter Rejection mode will be OFF (non-directional).

In addition, CALM, MODERATE or ROUGH STC Curve settings are available in the Radar options menu to better optimize the radar image to your liking.

Gain

The gain controls the sensitivity of the radar receiver.

A higher gain makes the radar more sensitive to radar returns, allowing it to display weaker targets. If the gain is set too high, the image might be cluttered with background noise.

Gain has a manual and an automatic mode. You toggle between automatic and manual mode in the slide bar.

Sea clutter

Sea clutter is used to filter the effect of random echo returns from waves or rough water near the vessel.

When you increase Sea clutter, filtering the on-screen clutter caused by the echoes of waves is reduced.

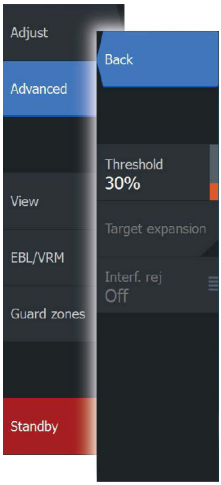
The system includes predefined Sea clutter settings for harbor and offshore conditions, in addition to the manual mode where you can adjust the settings. You select Sea clutter modes from the menu. You can only adjust the Sea clutter value in manual mode.

Rain clutter

Rain clutter is used to reduce the effect of rain, snow or other weather conditions on the radar image.

The value should not be increased too much as this may filter out real targets.

Advanced radar options



Noise Rejection

(Broadband 4G radar only)

The Noise Rejection control sets the amount of noise filtering applied by the radar. Target sensitivity is increased at longer ranges when this control is set to Low or High, but does cause some loss of target discrimination.

Tip: To get maximum range performance from Broadband 4G Radar, transmit on one range only, set the Noise Reject control to High and the threshold as low as possible. The default is 30% for less clutter on the screen. If OFF is selected for the HDS Gen3, the range performance is about equal to 3G radar. In some areas where extreme high interference may exist, try OFF for best radar image.

Radar threshold

The threshold sets required signal strength for the lowest radar signals. Radar returns below this limit are filtered and are not displayed.

Default value: 30%.

Target expansion

Target expansion increases the length of targets in range, making them easier to see.

Rejecting radar interference

Interference could be caused by radar signals from other radar units operating in the same frequency band.

A high setting reduces the interference from other radars.

In order not to miss weak targets, the interference rejection should be set to low when no interference exists.

Target separation

(Broadband 4G Radar only)

The **Target separation** control allows you to control the target discrimination of the radar (separation between objects is more prominent).

Fast scan

(Broadband Radar only).

Sets the speed of the radar antenna rotation. This option gives faster target updates.

→ ***Note:*** Maximum speed may not be achieved depending on the radar Settings, Mode, and Range selected. The radar will only rotate as fast as the current control settings allow.

Sea State

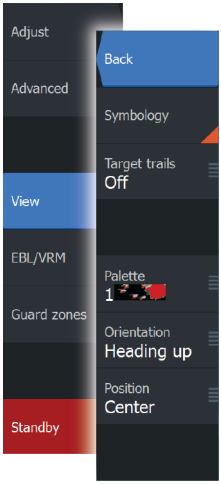
Set the Sea State control according to current sea conditions for best sea clutter rejection.

Target boost

(3G and 4G Broadband, and Pulse Radar only)

The target boost control increases pulse length or reduces radar bandwidth to make targets appear larger in range and increase radar sensitivity.

Radar view options



Radar symbology

Radar symbology defined in the Radar Settings panel can be turned on/off collectively. See the radar panel illustration showing optional radar items.

Target trails

You can set how long the trails generated from each target on your radar panel remain. You can also turn OFF target trails.

→ ***Note:*** True motion is recommended when using Target trails

Clearing target trails from the panel

When target trails are displayed on the panel, the radar menu expands to include an option where you can clear target trails from your radar panel temporarily. The target trails start to appear again unless you switch them off as described above.

The radar palette

Different colors (palettes) can be used to represent detail on your radar panel.

Radar orientation

Radar orientation is indicated on the upper left corner of the radar panel as either HU (Heading UP), NU (North Up) or CU (Course up).

Heading up

Rotates the radar image to display the current heading directly up on the radar image.

North up

Rotates the radar image with the north direction upwards.

Course up

Rotates the radar image to display the current navigation course directly up.

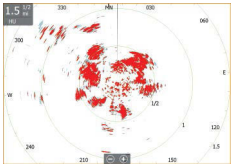
This option works only when the system is navigating an active route. If you are not navigating an active route, the heading up orientation is used until the navigation function is started.

Positioning the radar center

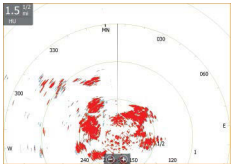
You can move the radar PPI (Plan Position Indicator) center to different positions within the radar panel, and select how your vessel symbol moves on the radar image.

Radar motion is indicated on the upper left corner of the radar panel as either TM (True motion) or RM (Relative motion).

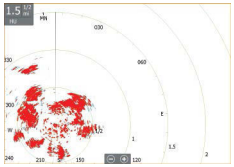
The radar position can only be changed when the radar is transmitting.



Center



Look ahead



Custom offset

Center

Default setting. The radar PPI center is centered on the radar panel.

Look Ahead

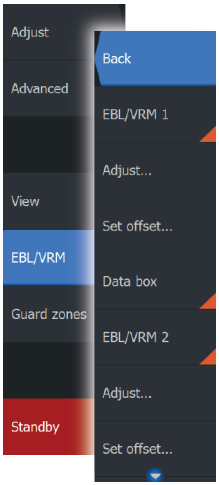
Moves the radar PPI center to the bottom of the panel to maximize the view ahead.

Offset

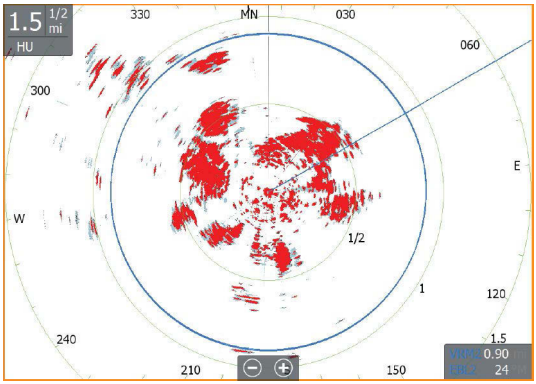
Allows you to move the PPI center to any location on the radar panel.

1. Select the offset option from the menu
2. Move the cursor to where you want to position the radar center
3. Confirm the setting by selecting the save offset option in the menu.

EBL/VRM markers



The electronic bearing line (EBL) and variable range marker (VRM) allows quick measurements of range and bearing to vessels and landmasses within radar range. Two different EBL/VRMs can be placed on the radar image.



The EBL/VRMs are by default positioned from the center of the vessel. It is, however, possible to offset the reference point to any selected position on the radar image.

When positioned, you can turn the EBL/VRM on/off by selecting the relevant markers on the data bar, or by deselecting the marker from the menu.

Defining an EBL/VRM marker

1. Ensure that the cursor is not active
2. Activate the menu, select **EBL/VRM**, then select **EBL/VRM 1** or **EBL/VRM 2**
   - The EBL/VRM is now positioned on the radar image
3. Select the adjustment option from the menu if you need to reposition the marker, then adjust the marker by dragging it into position on the radar image
4. Select the save option in the menu to save your settings

Placing EBL/VRM markers by using the cursor

1. Position the cursor on the radar image
2. Activate the menu
3. Select one of the EBL/VRM markers

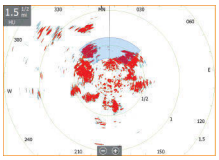
- The EBL line and the VRM circle are positioned according to the cursor position.

Offsetting an EBL/VRM marker

1. Ensure that the cursor is not active
2. Activate the menu, select **EBL/VRM**, then select the marker you wish to offset
3. Select the set offset option
4. Position the cursor on the radar panel to set the offset position
5. Select the save option in the menu to save your settings.

You can reset the EBL/VRM center to vessel position from the menu.

Setting a guard zone around your vessel

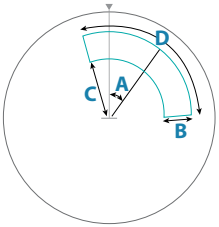


A guard zone is an area (either circular or a sector) that you can define on the radar image. When activated, an alarm alerts you when a radar target enters or exits the zone.

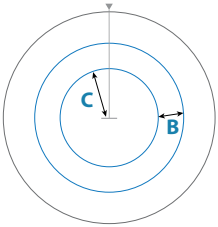
Defining a guard zone

1. Ensure that the cursor is not active
2. Activate the menu, select **Guard zones**, then select one of the guard zones
3. Select the shape for the zone
   - The adjustment options depend on the guard zone shape
4. Select **Adjust** to define the settings for the guard zone. The values can be set from the menu or by dragging on the radar panel.
   - **A**: Bearing, relative to the vessel heading
   - **B**: Depth
   - **C**: Range, relative to vessel center
   - **D**: Width
5. Select the save option in the menu to save your settings.

When positioned, you can turn the guard zones on/off by selecting the relevant section on the data bar.



Shape: Sector



Shape: Circle

Alarm settings

An alarm is activated when a radar target breaches the guard zone limits. You can select if the alarm is activated when the target enters or exits the zone.

Sensitivity

The guard zone sensitivity can be adjusted to eliminate alarms for small targets.

MARPA targets

If the system includes a heading sensor, the MARPA function (Mini Automatic Radar Plotting Aid) can be used to track up to ten radar targets.

You can set alarms to notify you if a target gets too close. Refer to *"Radar settings"* on page 142.

MARPA tracking is an important tool for collision avoidance.

→ ***Note:*** MARPA requires heading data for both the radar and the HDS Gen3.

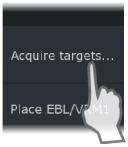
MARPA target symbols

The system uses the target symbols shown below.

⌜ ⌝ ⌞ ⌟	Acquiring MARPA target. Typically it takes up to 10 full rotations of the scanner.
◯	Tracking MARPA target, not moving or at anchor.

	Tracking and safe MARPA target with extension lines.
	Dangerous MARPA target. A target is defined as dangerous when it enters the guard zone defined on the radar panel.
	When no signals have been received within a time limit a target will be defined as lost. The target symbol represents the last valid position of the target before the reception of data was lost.
	Selected MARPA target, activated by positioning the cursor on the target icon. The target returns to the default target symbol when the cursor is removed.

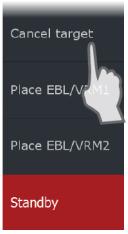
Tracking MARPA targets



1. Position the cursor on the target on the radar image
2. Select **Acquire targets** from the menu
3. Repeat the process if you want to track more targets

After your targets are identified, it may take up to 10 radar sweeps to acquire and then track the target.

Cancelling MARPA target tracking

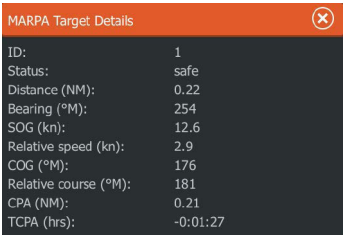


When targets are being tracked, the radar menu expands to include options for cancelling individual targets or to stop the tracking function.

Cancel tracking individual targets by selecting the target icon and then selecting **Cancel target** on the menu.

Viewing MARPA target information

Detailed information for MARPA targets can be displayed. Select the desired target and then either select the target pop-up, or select **Target details** in the menu.



MARPA alarm settings

You can define the following MARPA alarms:

- **MARPA target lost**
  Controls whether an alarm is activated when a MARPA target is lost.
- **MARPA unavailable**
  Controls whether an alarm is activated if you do not have the required inputs for MARPA to work (valid GPS position and heading sensor connected to the radar server).

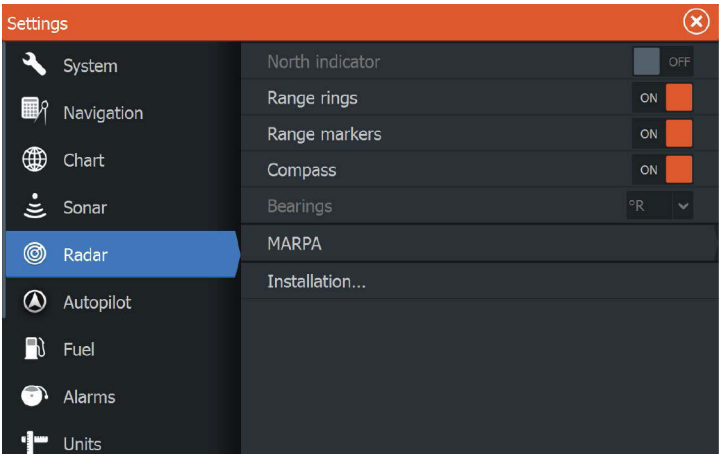
You can also set up a guard zone around your vessel and when a target comes with in this zone, an alarm can be triggered. For more information, refer to Marpa settings under *"Radar settings"* on page 142.

Recording radar data

You can record radar data and save the file internally in the HDS Gen3 unit, or save it onto a memory card inserted into the unit's card reader.

A recorded radar file can be used for documenting an event or an operational error. A logged radar file can also be used by the simulator.

Radar settings



Radar symbology

You can select which optional radar items that should be turned on/off collectively from the menu. Refer to the Radar panel illustration.

Bearings

Used for selecting whether the radar bearing should be measured in relation to True/Magnetic North (°T/°M) or to your relative heading (°R).

Data bar

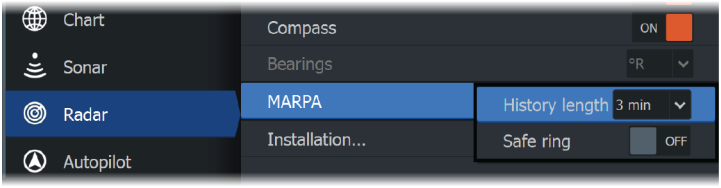
Turns on/off the radar data bar. Refer to the radar panel illustration.

The data bar can show up to 3 targets, arranged with the most dangerous targets on top. You can select to show MARPA targets on top and before any AIS targets, even if the AIS targets are closer to your vessel.

MARPA settings

You can define the length of the MARPA trail making it easier to follow target movement.

A circle can be added around your vessel to present the danger zone. The radius of the ring is the same as the closest point of approach as set in the Dangerous Vessels dialog. Refer to *"Defining dangerous vessels"* on page 150. An alarm triggers if a vessel is tracking into your safe zone.



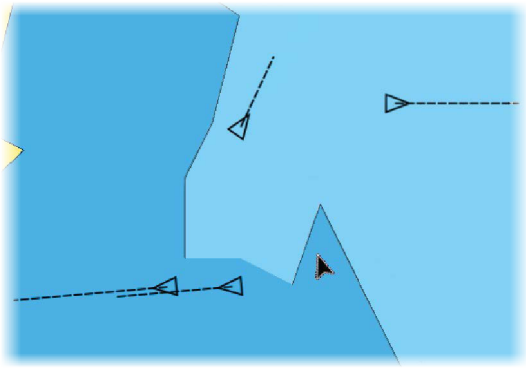
Installation

The Installation option is used for radar installation, described in the separate Radar or HDS Gen3 Installation manuals.

18 AIS

If an NAIS400, an AI50 or an NMEA 2000 VHF that can do AIS (Automatic Identification System) is connected to the network, then any targets detected by these devices can be displayed and tracked. You can also see messages and position for DSC transmitting devices within range.

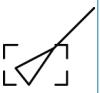
AIS targets can be displayed as overlay on chart images, making this feature an important tool for safe travelling and collision avoidance. You can set alarms to notify you if an AIS target gets too close or if the target is lost.



AIS target symbols

The system uses the AIS target symbols shown below:

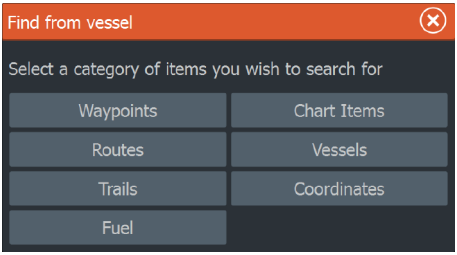
	Sleeping AIS target (not moving or at anchor).
	Moving and safe AIS target with course extension line.
	Dangerous AIS target, illustrated with bold line. A target is defined as dangerous based on the CPA and TCPA settings. Refer to *"Defining dangerous vessels"* on page 150.

	Lost AIS target. When no signals have been received within a time limit, a target is defined as lost. The target symbol represents the last valid position of the target before the reception of data was lost.
	Selected AIS target, activated by selecting a target symbol. The target returns to the default target symbol when the cursor is removed from the symbol.

Searching for AIS items

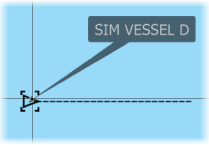
You can search for AIS targets by using the **Find** option in the Tools panel.

From a chart panel you can search for AIS targets by using the **Find** option in the menu. If the cursor is active, the system searches for vessels around the cursor position. Without an active cursor, the system searches for vessels around your vessel's position.



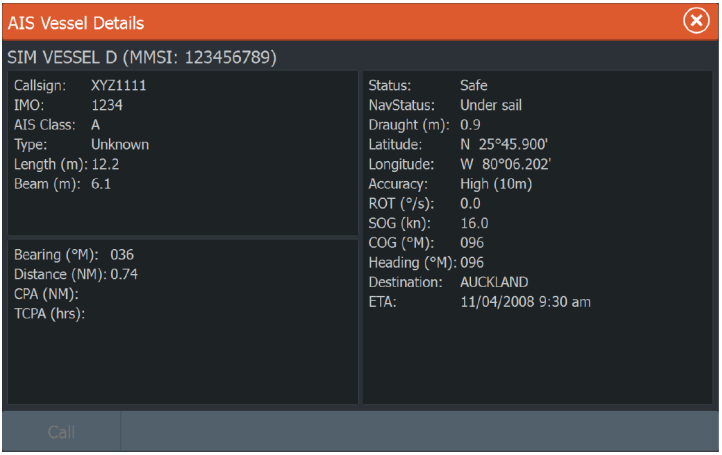
→ ***Note:*** You must have a SIRIUS data package subscription to search for fueling stations.

Viewing information about single AIS targets

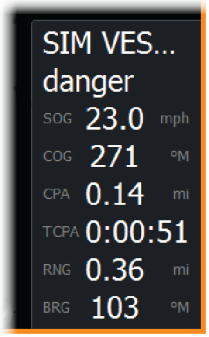


When you select an AIS icon on the chart or radar panel the symbol changes to Selected target symbol, and the vessel's name is displayed.

You can display detailed information for a target by selecting the AIS pop-up, or from the menu when the target is selected.



AIS information on radar panels



The radar data bar includes information on up to 3 AIS targets.

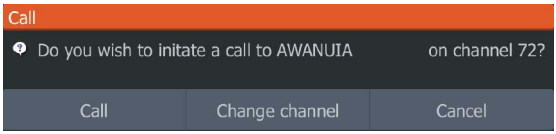
The targets are listed with the closest target on top, and are color coded to indicate target status.

Calling an AIS vessel

If the system includes a VHF radio supporting DSC (Digital Select Calling) calls over NMEA 2000, you can initiate a DSC call to other vessels from the HDS Gen3.

The call option is available in the **AIS Vessel Details** dialog, and in the **Vessel** status dialog activated from the **Tools** panel.

From the **Call** dialog you can change channel or cancel the call. The **Call** dialog is closed when the connection is established.



AIS SART

When an AIS SART (Search and Rescue beacon) is activated, it starts transmitting its position and identification data. This data is received by your AIS device.

If your AIS receiver is not compliant with AIS SART, it interprets the received AIS SART data as a signal from a standard AIS transmitter. An icon is positioned on the chart, but this icon is an AIS vessel icon.

If your AIS receiver is compliant with AIS SART, the following takes place when AIS SART data is received:

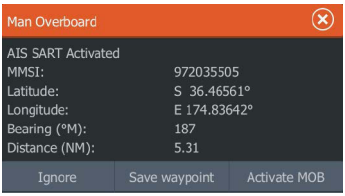
- An AIS SART icon is located on the chart in the position received from the AIS SART
- An alarm message is displayed

If you have enabled the siren, the alarm message is followed by an audible alarm.

➔ ***Note:*** The icon is green if the received AIS SART data is a test and not an active message.

AIS SART alarm message

When data is received from an AIS SART, an alarm message is displayed. This message includes the AIS SART's unique MMSI number, and its position, distance, and bearing from your vessel.



You have the following options:

- Ignore the alarm
  - The alarm is muted and the message closed. The alarm does not reappear

➔ ***Note:*** If you ignore the alarm, the AIS SART icon remains visible on your chart, and the AIS SART remains in the Vessels list.

- Save the waypoint

- The waypoint is saved to your waypoint list. This waypoint name is prefixed with MOB AIS SART - followed by the unique MMSI number of the SART. For example, MOB AIS SART - 12345678.

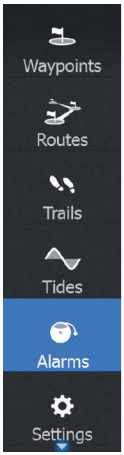
• Activate the MOB function
  - The display switches to a zoomed chart panel, centered on the AIS SART position
  - The system creates an active route to the AIS SART position

➔ ***Note:*** If the MOB function is already active, this will be terminated and replaced by the new route towards the AIS SART position!

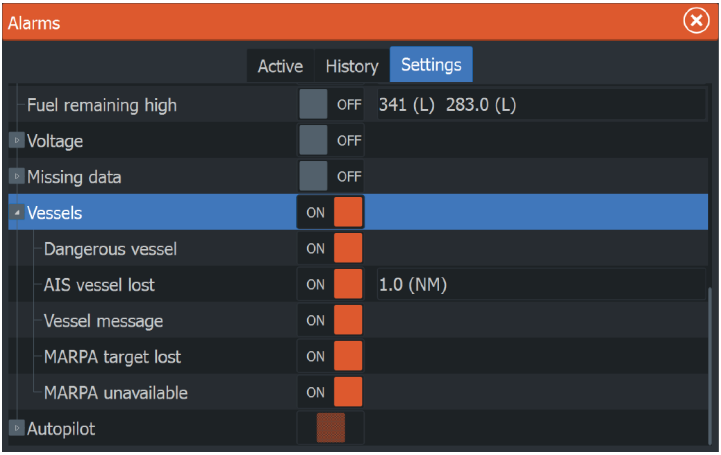
➔ ***Note:*** If the AIS stops receiving the AIS SART message, the AIS SART remains in the Vessels list for 10 minutes after it receives the last signal.

If you select the AIS SART icon on the chart panel, then you can see the AIS MOB details.

Vessel alarms



You can define several alarms to alert you if a target shows up within predefined range limits, or if a previously identified target is lost.



Dangerous vessel

Controls whether an alarm will be activated when a vessel comes closer than the distance for CPA within the time limit for TCPA. Refer to *"Defining dangerous vessels"* on page 150.

AIS vessel lost

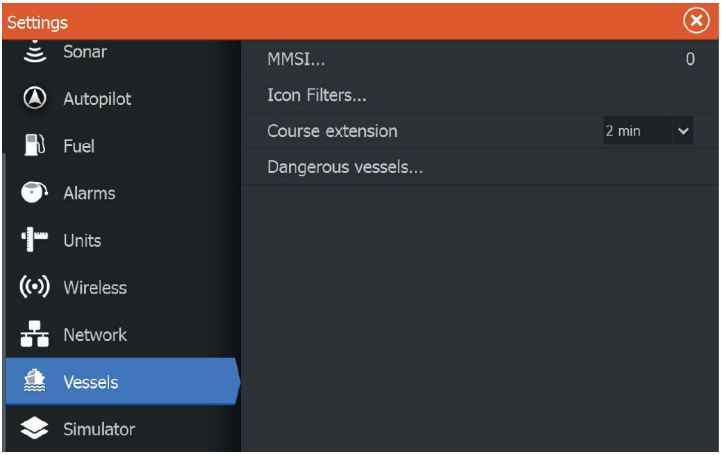
Sets the range for lost vessels. If a vessel is lost within the set range, an alarm occurs.

→ ***Note:*** The check box controls whether the alarm pop-up box is displayed and if the siren goes on. The CPA and TCPA define when a vessel is dangerous regardless of the enabled or disabled state.

Vessel message

Controls whether an alarm will be activated when a message is received from an AIS target.

Vessel settings



Your vessel's MMSI number

You need to have your own MMSI (Maritime Mobile Service Identity) number entered in the system to receive addressed messages from AIS and DSC vessels.

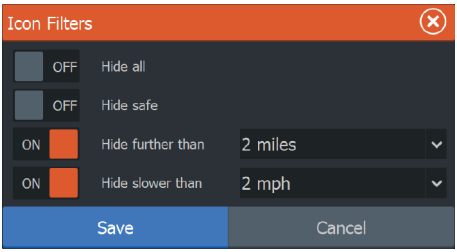
It is also important to have the MMSI number entered to avoid seeing your own vessel as an AIS target on the chart.

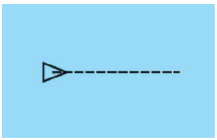
→ ***Note:*** The Vessel message option in the alarm settings must be toggled on for any MMSI message to be displayed.

Icon filters

By default, all targets are shown on the panel if an AIS device is connected to the system.

You can select not to show any targets, or to filter the icons based on security settings, distance, and vessel speed.



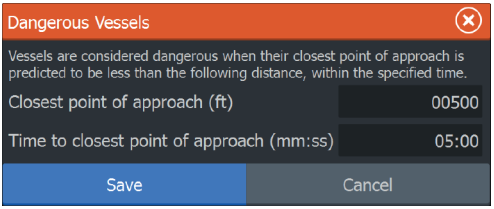


Course extension lines

You can set the length of the Course Over Ground (COG) extension lines for other AIS vessels. The length of the extension lines is either set as off, as a fixed distance, or to indicate the distance the vessel will move in the selected time period. If Off is selected, then no COG extension lines are shown for the vessel. For information about extension lines for your vessel, refer to *"Extension lines"* on page 52.

Defining dangerous vessels

You can define an invisible guard zone around your vessel. When a target comes within the set limits, the symbol changes to the Dangerous target symbol. An alarm is triggered if activated in the Alarm settings panel.


Dangerous Vessels
Vessels are considered dangerous when their closest point of approach is predicted to be less than the following distance, within the specified time.
Closest point of approach (ft)
00500
Time to closest point of approach (mm:ss)
05:00
Save
Cancel

19 Audio

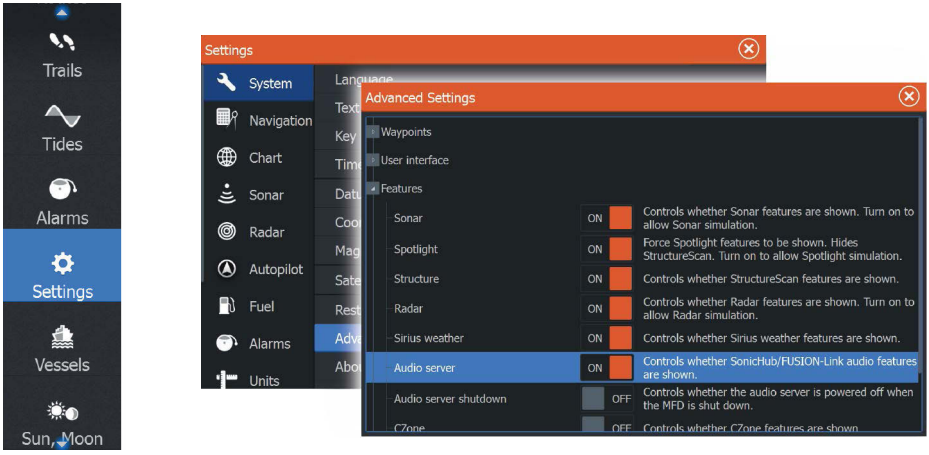
If a SonicHub server, a FUSION marine entertainment system, or NMEA 2000 audio system is connected to the NMEA 2000 network, you can use the HDS Gen3 to control and customize the audio system on your vessel.

When connected to a WM-3 Satellite module with an active subscription, you can include SiriusXM products on your system. You can also connect a SiriusXM radio to a FUSION system. Sirius audio and weather service covers inland U.S. waters and coastal areas into the Atlantic and Pacific oceans, Gulf of Mexico, and the Caribbean Sea. The SiriusXM products received vary depending on your selected subscription package. For more information refer to www.siriusXM.com.

Before you can start using your audio equipment, it must be installed according to the HDS Gen3 Installation manual and to the documentation included with the audio device.

Enabling audio

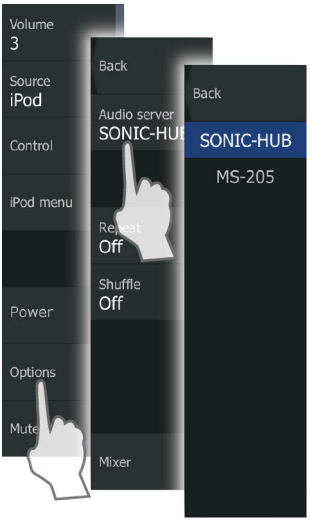
A compatible audio device connected to the NMEA 2000 network should automatically be identified by the system. If not, enable the feature from the **Advanced Settings** dialog.



Audio server

If a SonicHub server and a FUSION system are connected to the same network, one of the devices must be selected as the Audio

server. If only one of the devices is present, it is the selected Audio server by default.

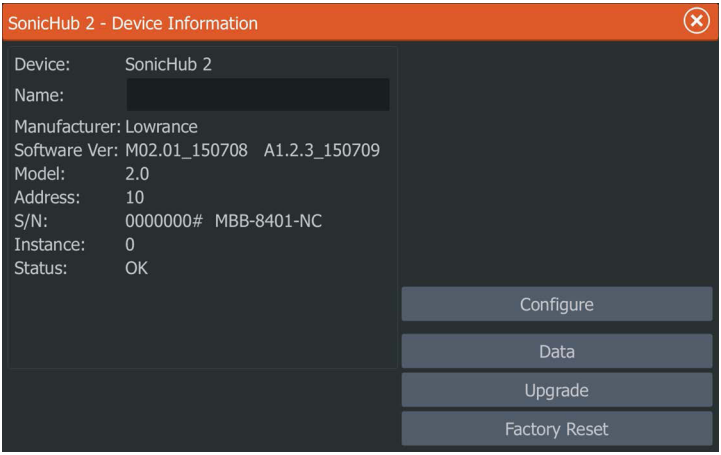


SonicHub 2

A SonicHub 2 connected to the NMEA 2000 network is supported.

SonicHub 2 Device Information

Open the Network Settings dialog and select the SonicHub 2 device in the Device list. This opens the SonicHub 2 Device Information dialog.



Configure

Select to configure the device.

Upgrade

Updates the device software.

→ ***Note:*** A USB memory stick with the software upgrade must be plugged into the device. Periodic software updates may be available from the product website. Detailed instructions for how to install the software are included with the upgrade files.

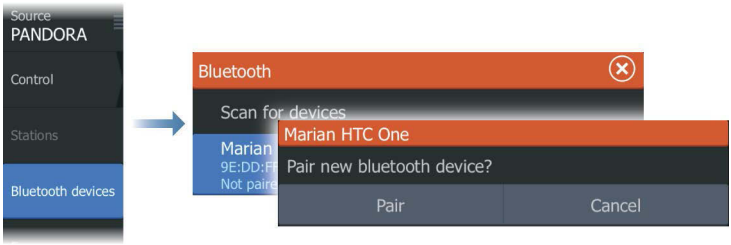
Factory Reset

Resets the device to factory defaults.

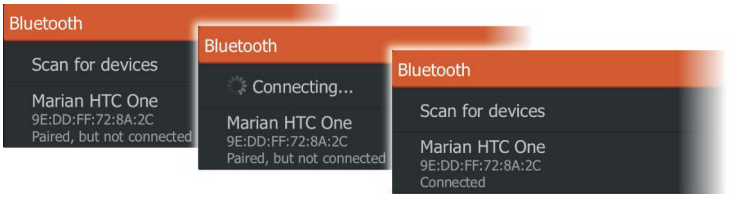
SonicHub 2 is Bluetooth enabled

The SonicHub 2 is a Bluetooth enabled device. You can use the SonicHub 2's built-in Bluetooth wireless to connect it to Bluetooth enabled audio devices.

To pair the SonicHub 2 to a Bluetooth enabled device select the Bluetooth devices option. Choose the Bluetooth device you want to pair to from the list of available devices and then select Pair.



The SonicHub 2 connects to the paired device.

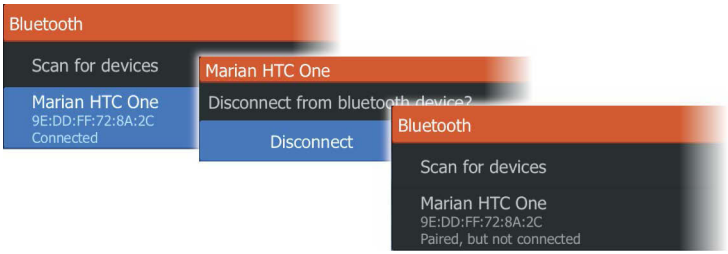


Connecting and disconnecting paired devices

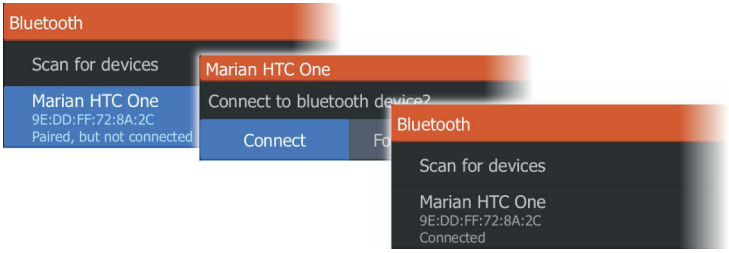
The SonicHub 2 automatically connects to a device when you pair them. You can pair it to several devices but only one device can be connected at a time.

You can manually disconnect and connect the SonicHub 2 to paired devices.

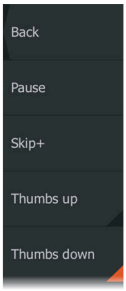
To disconnect a paired device, select the paired device in the device list and then select **Disconnect**.



To connect to a paired device, select the paired device in the device list and then select **Connect**.



Pandora



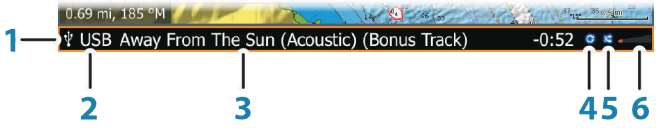
The SonicHub 2 supports streaming music from Pandora from an Android device (over Bluetooth) or IOS device (over USB and Bluetooth).

→ ***Note:*** You must be in a valid location to use Pandora. Refer to the Pandora website for more information.

Use menu controls to run Pandora on the smart device.

The Media bar

When audio is enabled, the Media bar appears at the bottom of the screen on all pages. The information in the Media bar varies depending on the active audio source. Select the Media bar to replace the application menus with Audio menus.



1 Media bar

2 Audio source

3 Track, file, or station information

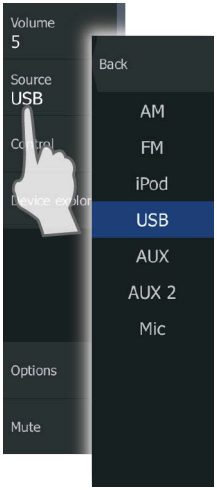
4 Repeat - shown only when repeat is on

5 Shuffle - shown only when shuffle is on

6 Volume level

Setting up the audio system

Selecting audio source



You can switch between available audio sources from the menu.

→ ***Note:*** The Mic source selects a high voltage level input allowing you to broadcast loud hailer messages over the audio system.

Volume

Master volume control

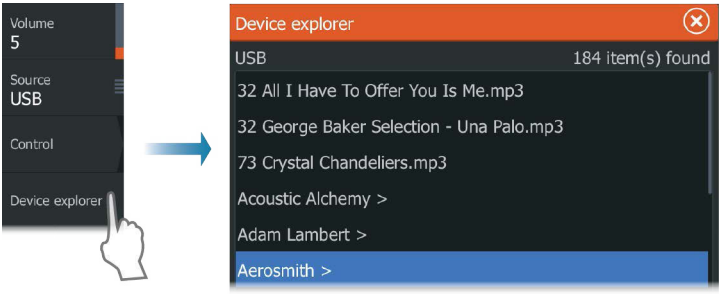
By default the volume for all speaker zones are adjusted when you adjust the master volume.

Audio controls

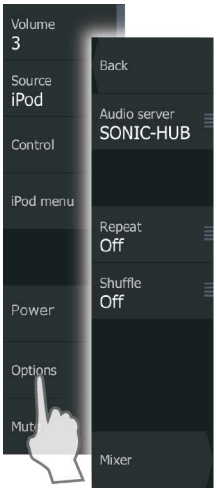
Use the menu to control the playback. The menu options vary depending on the active audio device.

Device explorer

You can use the **device menu** or **Device explorer** menu options to access the source's native menu or file structure, which can be used to select tracks. An example of an USB Device explorer:



Audio options



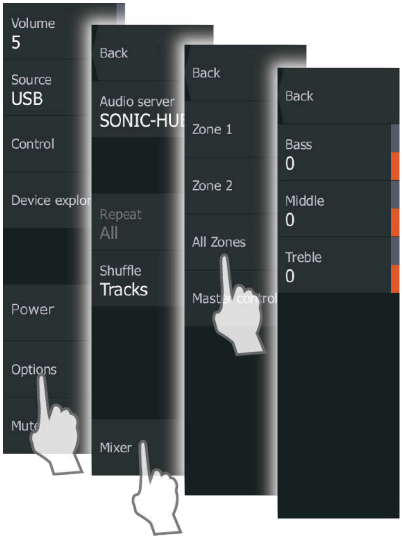
Use the **Options** menu option to repeat or shuffle tracks or albums, and to open the Mixer. The options vary depending on the active audio device.

Audio mixer

Use the Mixer to:

- Adjust the balance, volume, and volume limits individually for each zone.
- Adjust the bass and treble, and the balance between zones.
- Turn on or off individual speaker zones in the **Master control**.

The Mixer options vary depending on the activated audio device. The following is an example of the USB source mixer option for the **All Zones**:



Auxiliary sources

AUX and AUX 2 (labeled AUX and SAT IN on the SonicHub) can be used for Sirius radio and external audio devices that support RCA connectivity. Sirius radio playback can be controlled when a Lowrance weather module is connected to SAT IN. Other auxiliary audio sources only have volume control.

Detaching Sirius from the AUX source

If a Sirius radio is connected to the FUSION radio/server, the AUX source is automatically attached to the Sirius feed. **Sirius** then appears in the source list when the FUSION server is active.

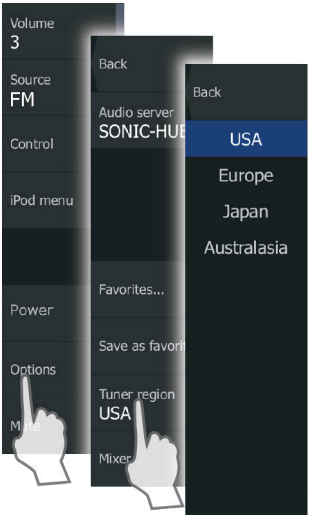
To use the AUX source for a different device, the Sirius must be detached from the AUX source.

→ ***Note:*** To use SiriusXM, an optional SiriusXM tuner must be connected to the FUSION server.

Radio

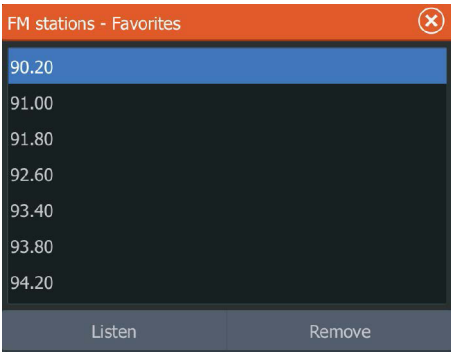
Selecting tuner region

Before playing FM or AM radio, and using a VHF radio, you must select the appropriate region for your location.



Radio favorites

When a channel is tuned in, you can add the station to the favorite's list. All favorite channels can be viewed, selected, and deleted from the Favorites dialog.



Sirius radio (North America only)

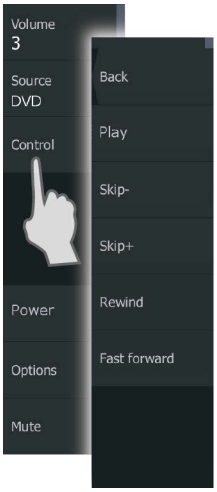
Channels list
The channels list displays all available Sirius channels, whether or not you have a subscription for the channel.

Favorites list
You can create a list of your favorite Sirius channels from within the channels list. You cannot add unsubscribed channels.

Locking channels
You can lock selected Sirius channels from being broadcasted. A 4-digit-code must be entered to lock channels and the same code entered to unlock the channels.

DVD video
You can view DVD video from a FUSION-Link device on units with a Video Adapter cable (000-11010-001), sold separately.

Controlling DVD video



1. Insert a DVD into the device.
2. Open the **Home** page and select the **Video** page.
3. Activate the Audio panel and select **DVD** as the source on the menu.
4. Select the **Control** menu option.
5. Use the menu options to control the playback.

20 SiriusXM weather

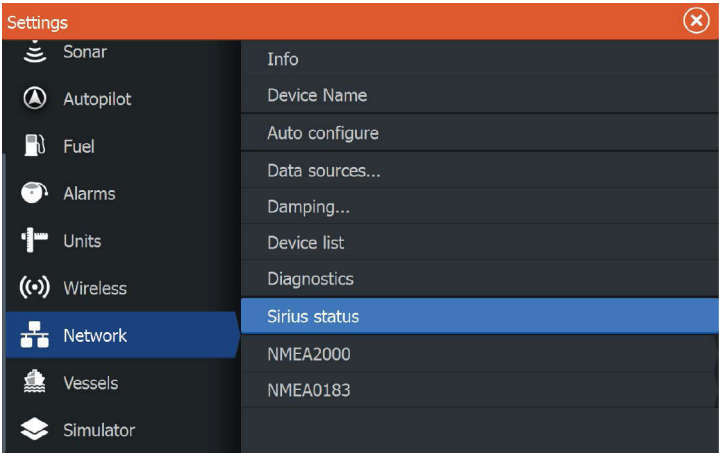
When connected to a Navico Weather module, you can subscribe and include Sirius audio and Sirius Marine Weather Service on your system (North America only).

Depending on your selected subscription package, Sirius audio and weather service covers a variety of North American inland waters and coastal areas. For more information refer to www.siriusxm.com/marineweather

Sirius status panel

When the weather module is connected to the system, you get access to the Sirius status panel.

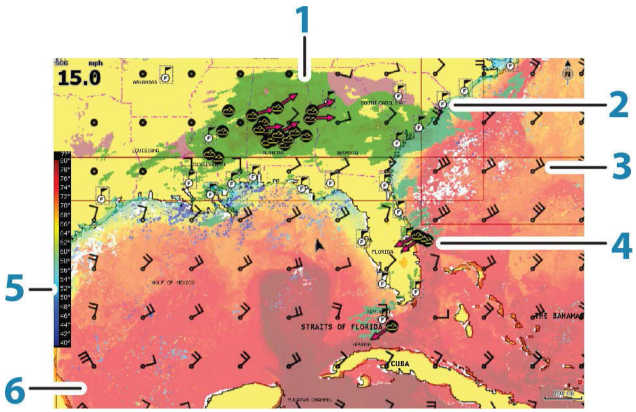
The status panel shows signal strength is indicated as 1/3 (weak), 2/3 (good) or 3/3 (preferred). It also includes antenna status, service level, and the electronic serial number for the weather module.



Sirius weather display

Sirius weather can be displayed as an overlay on your chart panel.

When weather overlay is selected, the chart menu increases to show the available weather options.



1 Precipitation color shading
2 City forecast icon
3 Wind barb
4 Storm icon
5 SST color bar
6 SST color shading

Use the Sirius weather option menu to select which weather symbology that should be displayed and how they should appear on the chart panel.

Wind barbs

The rotation of the wind barbs indicate the relative wind direction, with the tail showing the direction the wind is coming from. In the graphics below, the wind comes from the northwest.

Wind speed is indicated by a combination of small and large barbs at the end of the wind tail.

◎	Zero knots / Indeterminate wind direction
	Small barb = 5 knots
	Large barb = 10 knots

	Arrow barb = 50 knots

If a combination of 5 and 10 knot barbs are shown on a tail, then add them together to give you the total wind speed. The example below shows 3 x large barb + 1 x small barb = 35 knots, and 60 knots indicated with 1 x arrow barb + 1 x large barb.

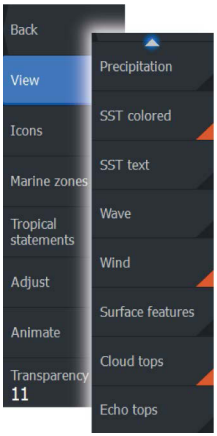
Wind speed: 35 knots

Wind speed: 60 knots

Showing weather details

If pop-up is enabled, you can select a weather icon to display the identity of the observation. If you select the pop-up, detailed information about the observation is displayed. You can also display the detailed information from the menu when the weather icon is selected.

Sirius view options



Precipitation

Shades of color are used to show precipitation type and intensity. The darkest color indicates the highest intensity.

Rain	From light green (light rain) - yellow - orange - to dark red (heavy rain)
Snow	Blue
Mixed	Pink

Sea Surface Temperature (SST)

You can show the sea surface temperature as color shading or as text.

When color coding is selected, the SST color bar is shown on the left side of the display.

You define how the color codes are used to identify sea surface temperature. See *"Adjusting color codes"* on page 167.

Wave indication

Colors are used to indicate forecasted wave height. The highest waves are dark red, while the lowest are blue.

You can define how the color codes are used to identify the wave height. Refer to *"Adjusting color codes"* on page 167.

Surface features

Turns surface features on/off. Surface features include fronts, isobars, and pressure points. Surface features cannot be shown at the same time as Wind.

Cloud tops

Turn Cloud tops on/off. Cloud tops indicate the height of the top of the clouds. The color palette used is grey with darker greys indicating lower clouds. Cloud tops cannot be shown at the same time as Precipitation or Echo Tops.

→ ***Note:*** This feature is only available for certain SiriusXM subscriptions.

Echo tops

Turns Echo tops on/off. Echo tops indicate the tops of storms. The color palette used is the same as for Precipitation. Echo tops cannot be shown at the same time as Precipitation or Cloud Tops.

→ ***Note:*** This feature is only available for certain SiriusXM subscriptions.

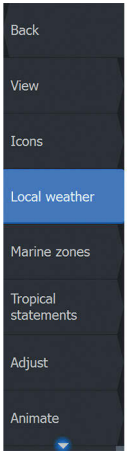
Weather icons

Several weather icons are available to show current or predicted weather conditions. You can select an icon to display detailed weather information.

	City forecast
	Surface observation

	Tropical storm tracking; past (grey) - present (red) - future (yellow)
	Hurricane (category 1-5) tracking; past (grey) - present (red) - future (yellow)
	Tropical disturbance/depression tracking; past (grey) - present (red) - future (yellow)
	Storm attributes
	Lightning
	Watch box location and warning
	Marine zone location

Local weather



Select the Local weather menu option to display the Local weather dialog. This dialog shows weather forecast and alerts for the area.

Select a time-slot tab to see the forecast for it.

Marine zones

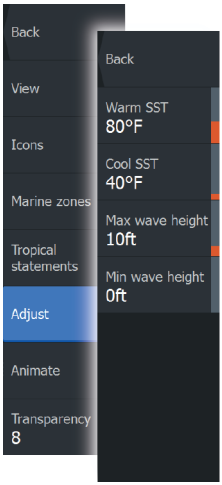
Depending on your selected subscription, SiriusXM services includes access to weather reports for U.S. and Canadian Marine Zones, with the exception of the high seas zones.

You can select a marine zone on a chart and view its forecast. You can also select a marine zone as your current zone of interest and you will be notified of any weather warnings in that zone.

Tropical statements

You can read tropical statements including information about tropical weather conditions. These statements are available for the entire Atlantic and the Eastern Pacific.

Adjusting color codes



You can define the sea surface temperature range and wave height color coding.

The temperature above warm and below cool values is displayed as progressively darker red and darker blue.

Waves higher than the maximum value are indicated with progressively darker red. Waves lower than the minimum value are not color coded.

Animating Sirius weather graphics

The HDS Gen3 records the weather information you have turned on, and this information can be used to animate past or future weather conditions. The amount of information available in the system depends on the amount of weather activity; the more complex it is, the less time that is available for animation.

You can animate the past or the future, depending on which weather view you have turned on:

- With precipitation overlay, you can animate for the past and only assume weather conditions in the immediate future.
- With colored wave height overlay, you can animate the future (the predictions).

When activated, the time for the current graphic animation is displayed in the lower left corner of the chart panel.

Weather alarms

You can setup lightning or storm alarms to occur when the conditions are within a certain range of your vessel.

You can also set up an alarm as a severe weather forecast alarm issued for your chosen marine zone.

A watchbox is defined by the National Weather Service. When the alarm for watchbox is turned on, an alarm occurs when your vessel is entering or inside a watchbox.

21 Tools

By default, the Tools panel includes icons used for accessing options and tools that are not specific to any panel.

When external equipment is integrated to the unit, new icons might be added to the Tools panel. These icons are used for accessing the external equipment's features.

Waypoints/routes/trails

List of waypoints, routes, and trails with details.

Select the waypoint, route, or trail you want to edit or delete.

Tides

Displays tide information for the tide station nearest to your vessel.

Select the arrow panel buttons to change the date, or select the date field to access the calendar function.

Available tide stations can be selected from the menu.

Alarms

Active alarms
List of active alarms.

Alarm history
List of all alarms with time stamp.

Alarm settings
List of all available alarm options in the system, with current settings.

Settings

Provides access to application and system settings.

System settings

The system settings provides access to the following:

Language
Controls the language used on this unit for panels, menus, and dialogs. Changing the language causes the unit to restart.

Text size

Used for setting the text size in menus and dialogs.

Default setting: Normal

Key beeps

Controls the loudness of the beep sound when a key is pressed.

Default setting: Loud

Time

Controls the local time zone offset, and the format of the time and date.

Datum

Most paper charts are made in the WGS84 format, which also is used by the HDS Gen3.

If your paper charts are in a different format, you can change the datum settings accordingly to match your paper charts.

Coordinate system

Several coordinate systems can be used to control the format for latitude and longitude coordinates displayed on the chart panel.

Magnetic variation

Magnetic variation is the difference between true bearings and magnetic bearings, caused by different locations of the Geographic and the Magnetic north poles. Any local anomalies such as iron deposits might also affect the magnetic bearings.

When set to Auto, the system automatically converts magnetic north to true north. Select manual mode if you need to enter your own local magnetic variation.

Satellites

Status page for active satellites.

WAAS (and EGNOS) differential position correction can be configured to ON or OFF.

Restore defaults

Allows you to select which settings are to be restored to their original factory settings.

⚠ Warning: If waypoints, routes, and trails are selected, they are permanently deleted.

Advanced

Shows a panel with more advanced settings. Used for setting how your system displays various user interface information. In addition, controls which features are shown in the interface.

About

Displays copyright information, software version, and technical information for this unit.

The Support option accesses the Network analyzer and service assistant, refer to *"Network analyzer and service assistant"* on page 179.

Navigation

Provides options and dialogs where you specify settings for your navigation, such as arrival radius, XTE limit, XTE Alarm, Trails, and Logging Type. Refer to *"Navigation settings"* on page 66.

Chart

Provides options and dialogs where you specify settings for your charts. Settings and display options made in the Chart settings page are common for all chart panels. Refer to *"Chart settings"* on page 51.

Sonar

Provides options and dialogs where you specify settings for your sonar. Refer to *"Sonar settings"* on page 78.

Radar

Provides options and dialogs where you specify settings for your radar. Refer to *"Radar settings"* on page 142.

Autopilot

Provides options where you specify settings for your autopilot. Refer to *"Autopilot settings"* on page 109.

Fuel

Provides a dialog showing total fuel used, fuel used per trip, and fuel used per season. In addition, it provides access to configuration engine and tanks, and calibration of tanks (refuel) dialogs. Refer to the Installation Manual.

Alarms

Provides the option to enable the siren. It also provides a dialog where you specify turning on alarms for items, and includes active alarm information and alarm history.

Units

Provides setup of units of measure used on various data types.

Wireless

Provides dialogs where you set remote controllers, view wireless devices, and customize advanced settings. For more information about using this panel, refer to *"Wireless settings"* on page 127.

Network

Provides information about your network, settings options, and configuration options. For more information about using this panel, refer to the Installation Manual.

Vessels

Provides dialogs where you define your vessel's MMSI, set icon filters, set course extension length, and specify dangerous vessels settings of closest point of approach and time to closest point of approach. For more information about using this panel, refer to *"Vessel settings"* on page 149.

Simulator

Provides for manually controlling the simulator. For more information, refer to *"Simulator"* on page 102.

Vessels

Status listing
List of all AIS, MARPA, and DSC vessels with available information.

Message listing
List of all messages received from other AIS vessels with time stamp.

Sun, Moon

Displays sunrise, sunset, moonrise and moonset for a position based on entered date and the position's latitude/longitude.

Trip calculator

Trip 1 / Trip 2
Displays voyage and engine information, with reset option for all data fields.

Today
Displays voyage and engine information for current date. All data fields are automatically reset when the date changes.

Files

File management system, used to browse the contents of the unit's internal memory and inserted SD card.

Viewing files

Select a file in the Files panel and then the view file option in the **Details** dialog.

Copying files to a card in the card reader

You can copy screen captures and logs to a card in the card reader. You can also export System Settings, Waypoints, Routes, and Trails to a card. Exporting files is covered in the section *"Maintenance"* on page 178.

Find

Search function for chart items (waypoints, routes, trails, etc.).

GoFree Shop

→ ***Note:*** The built-in wireless functionality must be connected to an external wireless hotspot in order to access the GoFree Shop. Refer to *"Connect and disconnect from a wireless hotspot"* on page 123.

Opens the GoFree Shop web site. At the GoFree Shop you can browse, purchase, and download compatible charts for your system. You can also upload your Sonar logs to be shared on Social Map charts. When you log on, the system automatically gives you a notification if a new software version is available for your system. If an update is available, you can download it to a card slot or defer the download until later.

22 Alarms

Alarm system

The system continuously checks for dangerous situations and system faults while the system is running. When an alarm situation occurs, an alarm message pops up on the screen.

If you have enabled the siren, the alarm message is followed by an audible alarm, and the switch for external alarm becomes active.

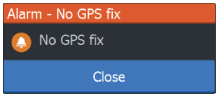
The alarm is recorded in the alarm listing so that you can see the details and take the appropriate corrective action.

Type of messages

The messages are classified according to how the reported situation affects your vessel. The following color codes are used:

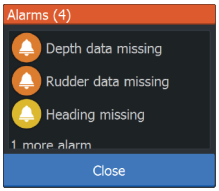
Color	Importance
Red	Critical
Orange	Important
Yellow	Standard
Blue	Warning
Green	Light warning

Single alarms



A single alarm is displayed with the name of the alarm as the title, and with details for the alarm.

Multiple alarms



If more than one alarm is activated simultaneously, then the alarm message displays a list of up to 3 alarms. The alarms are listed in the order they occur with the alarm activated first at the top. The remaining alarms are available in the Alarms dialog.

Acknowledging a message

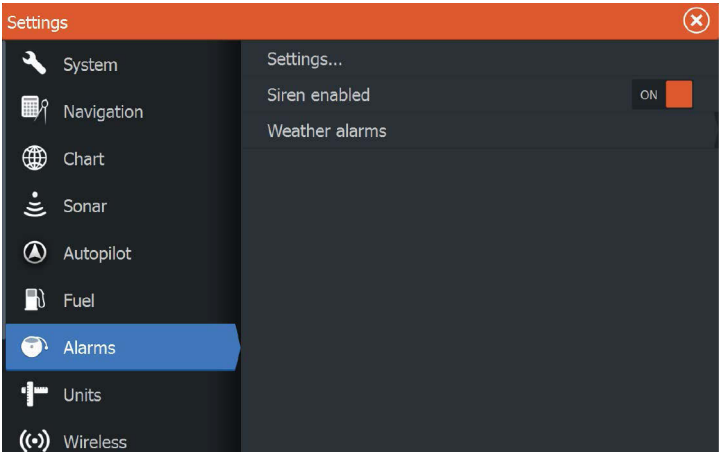
The following options are available in the alarm dialog for acknowledging a message:

- **Close**
  Sets the alarm state to acknowledged, meaning that you are aware of the alarm condition. The siren / buzzer stops and the alarm dialog is removed.
  However, the alarm remains active in the alarm listing until the reason for the alarm has been removed.
- **Disable**
  Disables the current alarm setting. The alarm does not show again unless you turn it back on in the Alarms dialog.

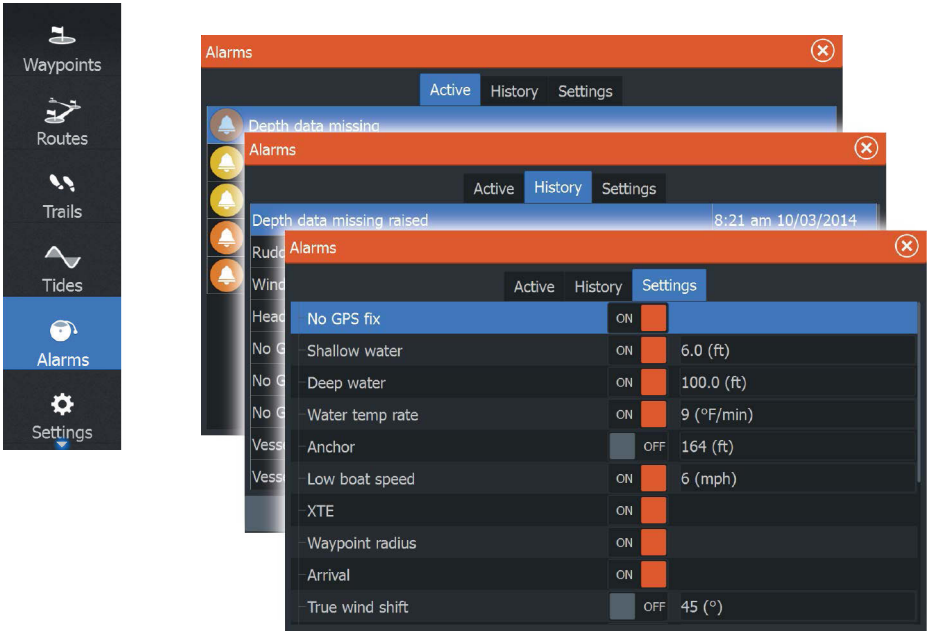
There is no time-out on the alarm message or siren. They remain until you acknowledge the alarm or until the reason for the alarm is removed.

Alarms dialog

All alarms are setup in the Alarms Settings dialog.



The alarm dialogs can also be activated from the Tools panel. The alarm dialogs include information about active alarms and alarm history.


Waypoints
Routes
Trails
Tides
Alarms
Settings
Alarms
Active
History
Settings
Depth data missing
Alarms
Active
History
Settings
Depth data missing raised
8:21 am 10/03/2014
Alarms
Active
History
Settings
No GPS fix ON
Shallow water ON 6.0 (ft)
Deep water ON 100.0 (ft)
Water temp rate ON 9 (°F/min)
Anchor OFF 164 (ft)
Low boat speed ON 6 (mph)
XTE ON
Waypoint radius ON
Arrival ON
True wind shift OFF 45 (°)

23 Maintenance

Preventive maintenance

The unit does not contain any field serviceable components. Therefore, the operator is required to perform only a very limited amount of preventative maintenance.

It is recommended that you always fit the supplied protective sun cover when the unit is not in use.

Checking the connectors

The connectors should be checked by visual inspection only.

Push the connector plugs into the connector. If the connector plugs are equipped with a lock, ensure that it is in the correct position.

Touchscreen calibration

→ ***Note:*** Ensure the screen is clean and dry before doing the calibration. Do not touch the screen unless prompted to do so.

In some cases it may be required to re-calibrate the touch screen. To re-calibrate your touchscreen, do the following:

1. Turn the unit off
2. Press and hold the **Waypoint** key, and turn the unit on
3. Continue to press in the **Waypoint** key during power on, until the calibration utility screen comes up
4. Follow the instructions on the screen to perform the calibration.

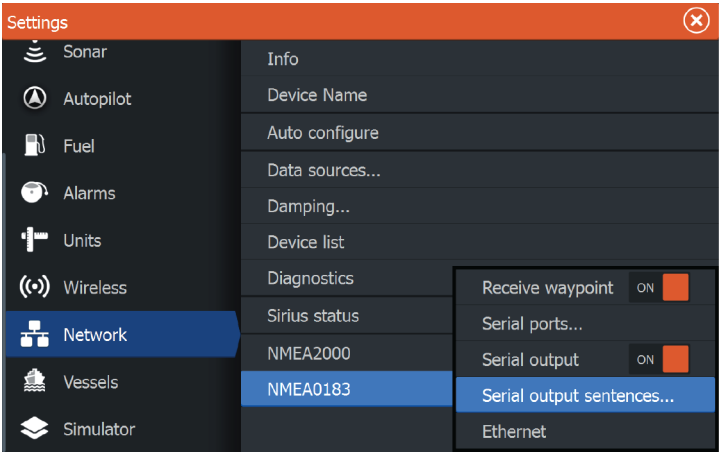
When completed, the unit returns to the application screen.

NMEA Data logging

All serial output sentences sent over the NMEA TCP connection are logged to an internal file. You can export and review this file for service and fault finding purposes.

The maximum file size is predefined. If you have added several other files to the system (file recordings, music, pictures, PDF files), this may reduce the allowed file size for the log file.

The system logs as much data as possible within the file size limitation, and then it starts overwriting the oldest data.



Exporting the log file

The log file can be exported from the files dialog.

When you select the Log database you are prompted to select a destination folder and filename. Once accepted, the log file is written to the chosen location.

Software upgrades

The latest software is available for download from our website, www.lowrance.com.

Before initiating an update to the unit itself, be sure to back up any potentially valuable user data. Refer to *"Backing up your system data"* on page 181.

The system or the Network analyzer and service assistant can advise software updates are available.

Network analyzer and service assistant

The system has a built-in service assistant that creates a report of the devices installed on the NMEA 2000 and Ethernet network such as the software versions, serial numbers, and information from the settings file to assist in technical support enquiries.

To use the analyzer, open the About page of the System settings dialog and select Support. Two options are displayed:

Create report

Analyzes your network and prompts you for information required for support and creates the report with information automatically gathered from the network. You can add screenshots and log files that will be attached to the report. There is a 20MB limit for the report attachments. You can save the report to a memory card and email it to support or upload it directly if you have an internet connection. If you call technical support first, you can enter an incident number to assist with tracking.

Check system for updates

Analyzes your network and checks if updates are available for compatible devices.

→ ***Note:*** Connect your unit to the internet to check for the latest available software versions. The software versions will be up to date as of the last time you updated your unit or connected to the internet.

Update software

→ ***Note:*** Remove any mapping cards from your unit and install a memory card with sufficient storage before downloading software updates or creating and saving reports to the memory card.

→ ***Note:*** Do not turn off the MFD or device until the update is completed or you are prompted to restart the unit or device being updated.

1. If your MFD is connected to the Internet, you can download the software update from the **Updates Dialog** into a memory card. You can also download the software update from www.lowrance.com to a memory card inserted in a smart device or PC connected to the internet.
2. Insert the card containing the software updates in your MFD.
3. Select the item to be updated in the **Updates Dialog** and follow the prompts.

As you respond to the prompts the update occurs. Prompts may request that you restart the device to complete the update. You can restart devices to complete the update later at a more convenient time.

Backing up your system data

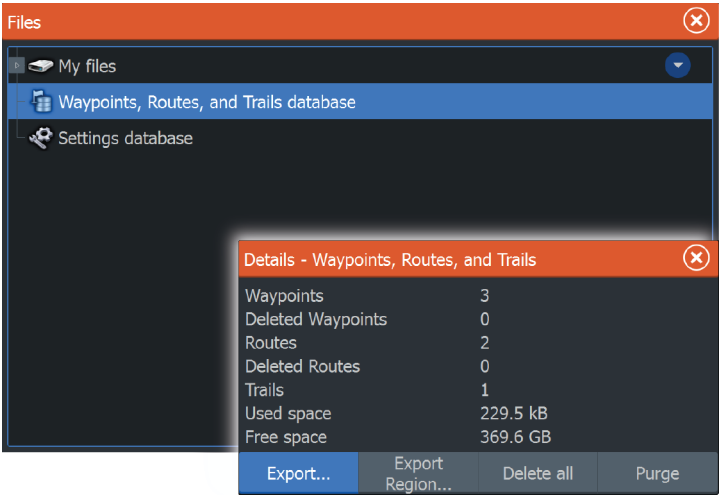
Waypoints, Routes, and Trails that you create are filed in your system. It is recommended to regularly copy these files and your system settings files as part of your back-up routine. The files can be copied to a card inserted in the card reader.

There are no export file format options for the system settings file. The following output formats are available for exporting Waypoints, Routes, and Trails files:

- **User Data File version 5**
  This is used to import and export waypoints and routes with a standardized universally unique identifier (UUID), which is very reliable and easy to use. The data includes such information as the time and date when a route was created.
- **User Data File version 4**
  This is best used when transferring data from one system to another, since it contains all the extra bits of information these systems store about items.
- **User Data file version 3 (w/depth)**
  Should be used when transferring user data from one system to a legacy product (Lowrance LMS, LCX)
- **User data file version 2 (no depth)**
  Can be used when transferring user data from one system to a legacy product (Lowrance LMS, LCX)
- **GPX (GPS Exchange, no depth)**
  This is the format most used on the web that shares among most GPS systems in the world. Use this format if you are taking data to a competitor's unit.

Export all Waypoints, Routes and Trails

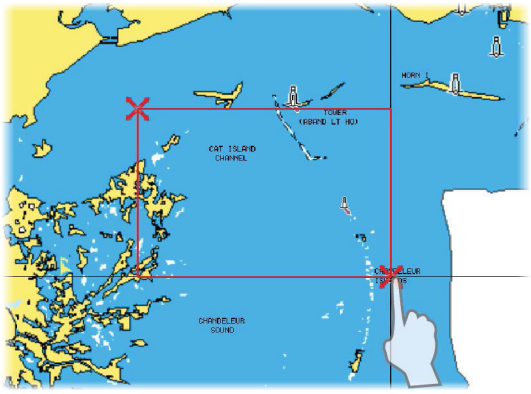
Use the export option if you want to backup all Waypoints, Routes, and Trails on your system.



Export region

The export region option allows you to select the area from where you want to export data.

1. Select Export region
2. Drag the boundary box to define the desired region



3. Select the export option from the menu
4. Select the appropriate file format
5. Select the serial port field to start the export

Purging Waypoints, Routes and Trails

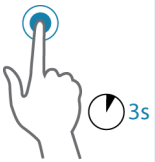
Deleted Waypoints, Routes and Trails are stored in the display unit's memory until the data is purged. This is necessary to allow user data to be synchronized across multiple units on an Ethernet network. If you have numerous deleted, unpurged Waypoints, purging may improve the performance of your system.

→ ***Note:*** When user data is purged from the memory, it cannot be recovered.

24 Touchscreen operation

Basic touchscreen operation on the different panels is shown in the table below.

The panel sections in this manual have more information about panel specific touchscreen operation.

Icon	Description
	Tap to: • Activate a panel on a multi-panel page • Position the cursor on a panel • Select a menu and a dialog item • Toggle a checkbox option on or off • Show basic information for a selected item
	Press and hold: • On any panel with a cursor to activate the cursor assist feature • On a panel button to see available split screen options • On a favorite button to enter edit mode
	Scroll through a list of available options without activating any option.
	Flick to quickly scroll through e.g. the waypoint list. Tap the screen to stop the scrolling.
	Pan to position a chart or Sonar image on the panel.

Icon	Description
	Pinch to zoom out on the chart or on an image.
	Spread to zoom in on the chart or on an image.

Index

A

B

C

D

E

F

G

H

I

Q

R

S

T

U

V

W

X

Z