LOWRANCE®

ADDENDUM HDS Gen3
• sw releases 1.5 and 2.0

This addendum covers changes to HDS Gen3 included in software upgrade versions 1.5 and 2.0.

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

The HDS Gen3 includes:

- Built-in wireless functionality for connecting to the internet and wireless devices such as smartphones and tablets.
  Initial configuration and setup of the built-in wireless functionality is described in the HDS Gen3 Installation Manual.
- Built-in Bluetooth wireless technology.
  The built-in Bluetooth wireless technology gives you the ability to connect the HDS Gen3 to Bluetooth enabled devices. For more information, refer to *"Bluetooth wireless technology"* on page 4.

Configuration and setup of the built-in wireless functionality is described in the HDS Gen3 Installation Manual.

Connect and disconnect from a wireless hotspot

To connect to a wireless hotspot, select the Connect Wireless option in the System Controls dialog. This opens the Wireless Devices dialog. Use this dialog to select the desired hotspot, and enter the login information. 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 disconnect wireless option in the System Controls dialog. This changes the wireless mode to **Access point mode**. In this mode you can connect a wireless device so that Apps such as GoFree Controller & Viewer can access the vessel's navigation information.

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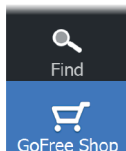
The built-in wireless functionality must be connected to an external wireless hotspot in order to access the GoFree Shop.

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.
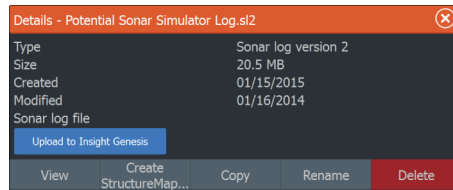
GoFree Controller & Viewer

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 Controller & Viewer 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.

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 *"Recording log data"* on page 30.

Details - Potential Sonar Simulator Log.sl2	⊗
Type	Sonar log version 2
Size	20.5 MB
Created	01/15/2015
Modified	01/16/2014
Sonar log file	
Upload to Insight Genesis	

View	Create StructureMap...	Copy	Rename	Delete

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 HDS Gen3 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.
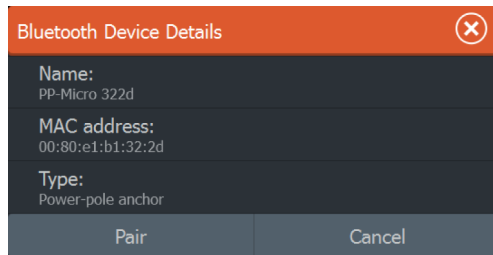

5. Select **Pair** to *pair* the HDS Gen3 to the device.
6. Repeat these steps for each device you want to *pair* with the HDS Gen3.

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
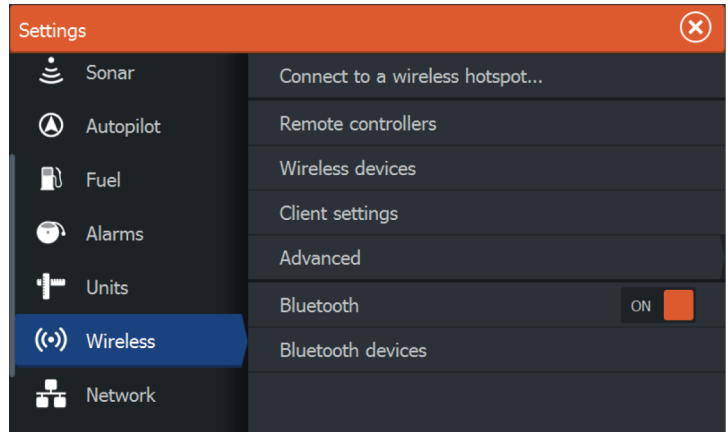
Provides configuration and setup options for the wireless functionality. Setup for the Wireless settings dialog is described in the Installation Manual with the exception of the following new options:

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

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.

Bluetooth
Enables the built-in Bluetooth wireless technology functionality.
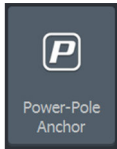
Bluetooth devices
Displays the Bluetooth Device list dialog. Use the Bluetooth Device List dialog to pair or remove pairing to Bluetooth enabled devices.

Power-Pole anchors

Power-Pole anchors which can be controlled by the C-Monster Control System installed on your boat, can be controlled from the HDS Gen3. To control the Power-Poles, you 'pair' the Power-Poles with the HDS Gen3 using Bluetooth wireless technology available in both products.
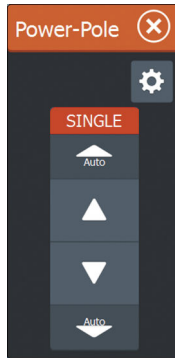
Power-Pole controls

When Power-Poles are paired with the HDS Gen3, the Power-Pole button becomes available in the System Controls dialog. Select it to display the Power-Pole controller. For pairing Bluetooth devices, refer to *"Pairing Bluetooth devices"* on page 4. If you are pairing dual Power-Poles, also review *"Pairing with dual Power-Poles"* on page 5.

When the Power-Pole controller is opened, the system connects to paired Power-Poles. When the connection is confirmed the control buttons are enabled.

➔ **Note:** The controls are grayed out until the system connects with the Power-Poles. Once connected and functional the arrows in the dialog turn white.

The Power-Pole controller displays control buttons for each Power-Pole that is paired to the HDS Gen3. Single press the Auto buttons to raise and lower the Power-Poles automatically all the way up and down. The manual up and down buttons raise and lower them as quickly, and as high or low as you want.

Single Power-Pole controller

Dual Power-Poles controller

On a dual controller you can raise and lower the Power-Poles separately, or press the sync (links) button to allow for control of both with a single press of the auto buttons or the manual up and down buttons.

Stay connected

Select the Stay connected (cog) button on the Power-Pole controller to open the Power-Pole settings dialog where you can select to stay connected to all paired Power-Pole anchors.

➔ **Note:** Selecting to **Stay connected** speeds up access to the controls, but the anchors cannot be controlled from another display when it is selected. Turn off this option to allow connection from other displays.

Jeppesen charts
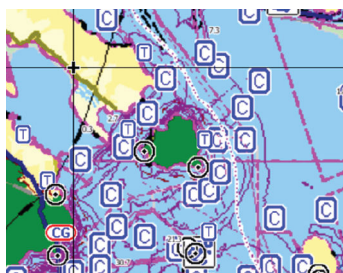
Jeppesen tides and currents

The system can display Jeppesen tides and currents. With this information it is possible to predict the time, level, direction and strength of currents and tides. This is an important tool when considering planning and navigation of a trip.

In large zoom ranges the tides and currents are displayed as a square icon including the letter **T** (Tides) or **C** (Current). When you

select one of the icons, tidal or current information for that location are displayed.

Dynamic current data can be viewed by zooming inside a 1-nautical mile zoom range. At that range, the Current icon changes to an animated dynamic icon that shows the speed and direction of the current. Dynamic icons are colored in black (greater than 6 knots), red (greater than 2 knots and less than or equal to 6 knots), yellow (greater than 1 knot and less than or equal to 2 knots) or green (equal to or less than 1 knot), depending on the current in that location.

If there is no current (0 knots) this will be shown as a white, square icon.
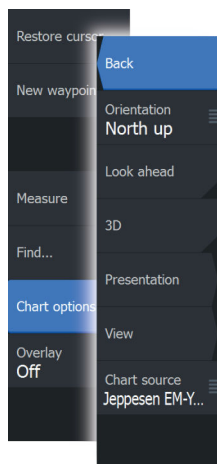

Static Current and Tide icons
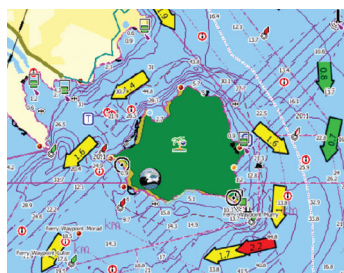
Dynamic Current icons

Jeppesen specific chart options

Orientation, Look ahead, 3D, and change Chart source (previously described in this section) are common for all chart types.
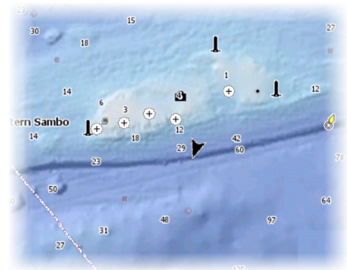
Presentation
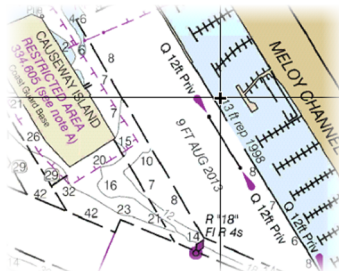The charts can be displayed in different imagery styles.

Shaded relief

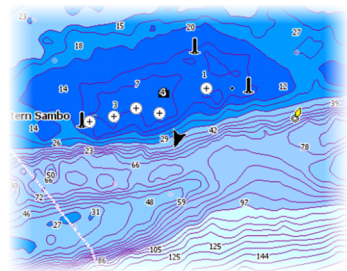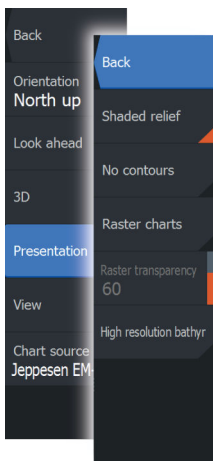*No contours*

Raster imagery

High resolution bathymetry

Shaded relief
Shades seabed terrain.

No contours
Removes contour lines from the chart.

Raster charts
Changes the view to that of a traditional paper chart.

Raster transparency
Controls the transparency of raster imagery.

High resolution bathymetry
Enables and disables higher concentration of contour lines.
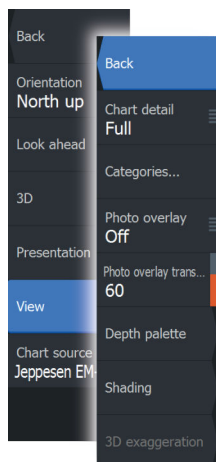
Jeppesen view options

Chart detail
* **Full**
  All available information for the chart in use.
* **Medium**
  Minimum information sufficient for navigation.
* **Low**
  Basic level of information that cannot be removed, and includes information that is required in all geographic areas. It is not intended to be sufficient for safe navigation.

Jeppesen chart categories
Jeppesen charts include several categories and sub-categories that you can turn on/off individually depending on which information you want to see.

Photo overlay
Photo overlay enables you to view satellite photo images of an area as an overlay on the chart. The availability of such photos is limited to certain regions, and cartography versions.

You can view photo overlays in either 2D or 3D modes.
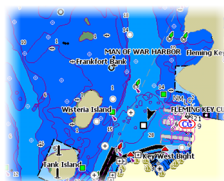
No Photo overlay *Photo overlay, land only* *Full Photo overlay*

Photo transparency
The Photo transparency sets the opaqueness of the photo overlay. With minimum transparency settings the chart details are almost hidden by the photo.

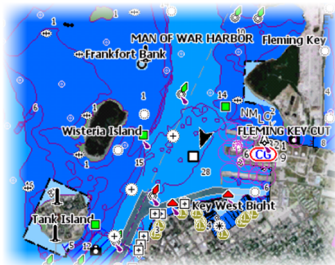*Minimum transparency*   *Transparency at 80*

Depth palette

Controls the Depth palette used on the map.

Paper chart
Changes the appearance of the map to a paper chart style.

Safety depth
Jeppesen charts use different shades of blue to distinguish between shallow (lighter shades) and deep (darker shades) water. After enabling Safety depth, specify the desired safety depth limit. The Safety depth sets the limit at which depths will be drawn without blue shading.

Depth filter
Filters out depth values shallower than the selected depth filter limit.
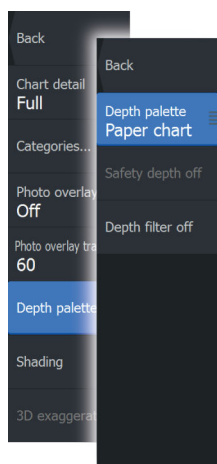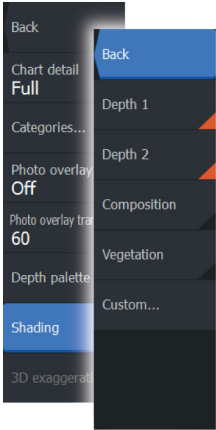
Shading

Shades different areas of the seabed, depending on the selected Shading category. Shading options only work for certain Jeppesen charts.

➔ **Note:** Composition and Vegetation shading are not applicable to Jeppesen charts.

Depth 1 and Depth 2
Depth presets that shade different depths in different colors.

Custom
You can adjust the depth threshold, color and opacity (transparency) of color shading for Depth 1 and Depth 2.

Custom Shading	⊗

Depth 1	Depth 2	Composition	Vegetation

Depth (m)	Color	Opacity (%)
0		100
12		100
24		100
37		100
49		100
61		100
73		100

3D exaggeration
Graphical settings that are available in 3D mode only. Exaggeration is a multiplier applied to the drawn height of hills on land, and troughs in water to make them look taller or deeper.

➔ **Note:** This option is grayed out if the data is not available in the map card inserted.

Left menu panels:

Back
Chart detail
Full
Categories...
Photo overlay
Off
Photo overlay tra
60
Depth palette
Shading
3D exaggera

Back
Depth 1
Depth 2
Composition
Vegetation
Custom...

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, refer to *"Autopilot setup"* on page 25.

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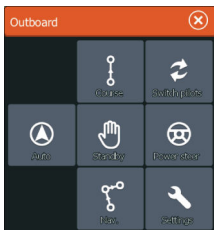
The autopilot is controlled from the **Autopilot Controller**, activated from the **System Controls** dialog displayed by pressing the **Power** key.

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**.
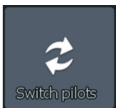
Mode overview

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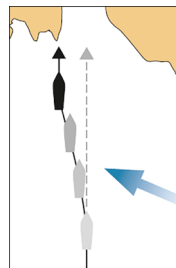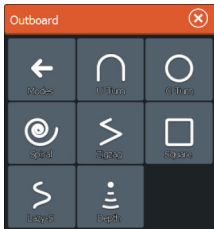
Changing set heading in AUTO mode
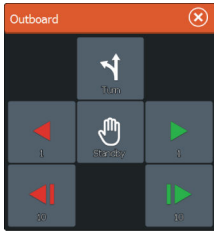
You adjust the set heading by using the port and starboard (1 or 10 degrees) arrow buttons in the **Autopilot Controller**.

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.

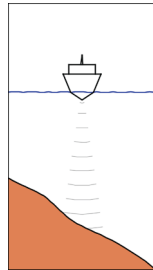### Depth contour tracking, DCT^{TM}
If the system has Sonar input, the autopilot can be set to follow a depth contour.

> ⚠ 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.
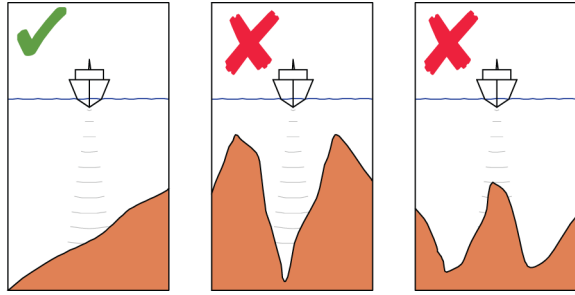
Use the following process to initiate DCT steering:

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)
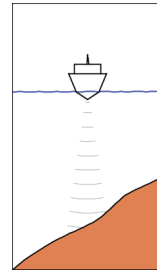
Starboard option
(depth decreases to starboard)

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.
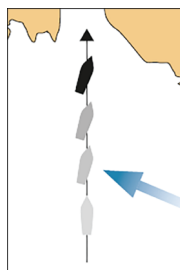
Course mode

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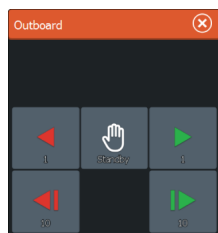
In Course mode, the autopilot uses position information to calculate the cross track error, and to automatically keep your track straight.

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
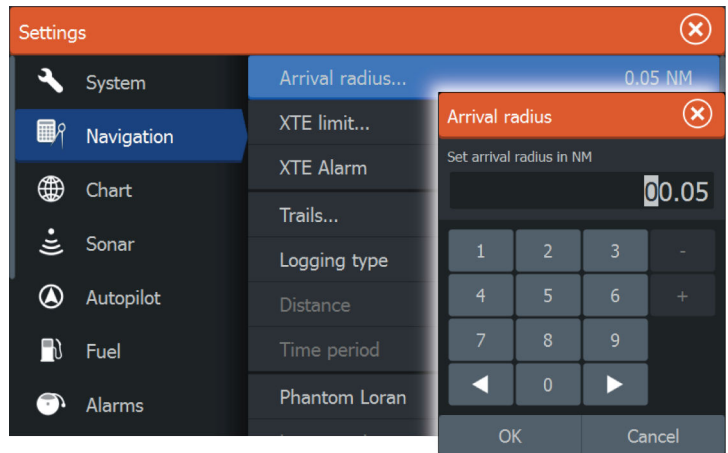
The Arrival radius defines the point at which a turn is initiated when you are navigating a route.
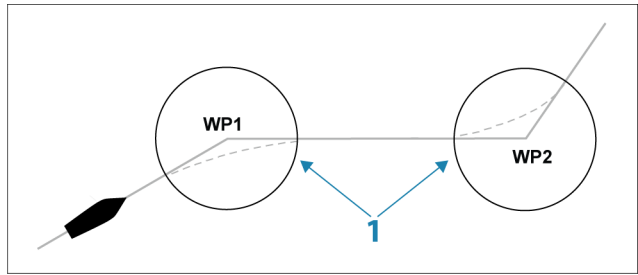
The arrival circle (**1**) should be adjusted according to boat speed. The higher the speed, the wider the circle. The intention is to make the autopilot start the heading change in due time to make a smooth turn onto the next leg.

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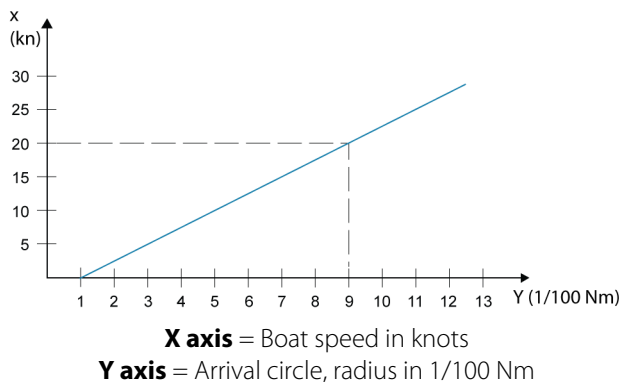
Example: With the speed of 20 knots you should use a waypoint circle with radius 0.09 Nm.

→ **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.

Autopilot

? Engage Autopilot in Nav. mode?

| Yes | No |
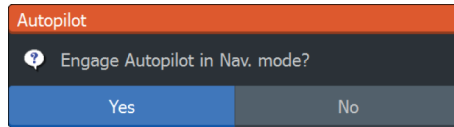
- If you reject this request, you can later start NAV mode from the **Autopilot Controller**.

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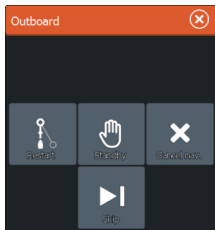
After the autopilot is engaged in NAV mode, the **Autopilot Controller** shows NAV steering options.

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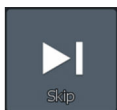
Skips the active waypoint and steers towards the next waypoint when you are navigating a route.

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

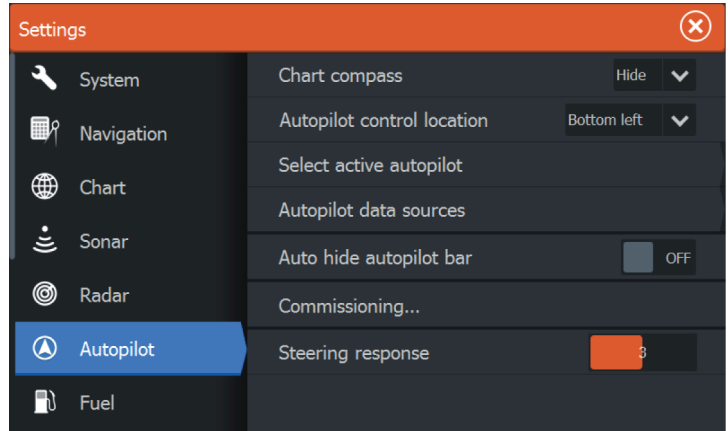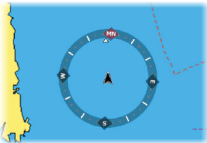You can select to show a compass symbol around your boat on the chart panel. The compass symbol is off when the cursor is active on the panel.

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.

Autopilot setup

Autopilot

Autopilot features will be enabled when a pilot computer is connected.

For the trolling motor autopilot, no special setup is required. See the operator manual for further details.

After installation is completed, the NAC-1 autopilot computer (outboard motor autopilot) requires setup as described in the following sections.

➔ **Note:** The word rudder is sometimes used in menus and dialogs. In this context, the outboard motor acts as a rudder.

Selecting data sources for the outboard motor autopilot

Data sources for the outboard motor autopilot must be selected before commissioning the autopilot to ensure best performance. You can let the system automatically select data sources and later manually make changes if needed.
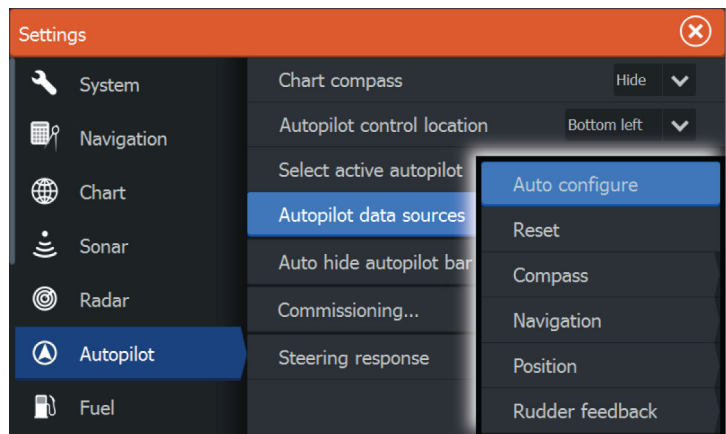
Auto configure
Automatically selects data sources for the autopilot.

Manually select data sources

You can manually select the preferred source. This is useful if you have more than one of the same type of data sources.

For example, if you have 2 compasses on your network you want to ensure that the same compass is selected for the MFD and the autopilot.

→ **Note:** You change the MDF data sources from the Network settings dialog.

Autopilot commissioning

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

→ **Note:** The autopilot must be commissioned prior to first use and any time after autopilot default settings have been restored.

Cablesteer rudder calibration

1. Select **Commissioning**.
2. Select **Rudder feedback calibration**.
3. Follow the onscreen instructions.

→ **Note:** When centering the motor during the calibration process, ensure that the motor is centered visually. The rudder feedback calibration dialog may show the motor is centered (00 value) when the motor is not centered. After centering the motor visually, press **OK** and the rudder center calibration setting is set to centered (00 value).

4. Select **Rudder test**.
5. If the calibration does not pass the rudder test:
   - Confirm motor is moving.
   - Confirm rudder feedback reading moves accordingly.
   - Check NAC-1 drive cable.
   - Confirm motor can be manually moved smoothly in each direction.
   - Check for other mechanical issues.
   - Check wiring connections.
   - Repeat rudder calibration steps.

Hydraulic system calibration

Virtual rudder feedback (VRF) calibration is used for vessels with hydraulic steering.

1. Select **Commissioning**.
2. Select **VRF calibration**.
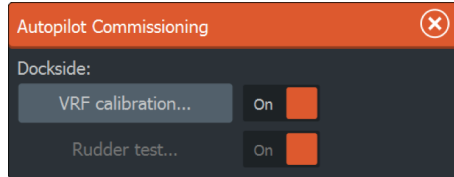
3. Follow the onscreen instructions.

➜ *Note:* When the autopilot attempts to turn the motor during the calibration process, ensure motor movement is noticeable and that it is turning in the correct direction before selecting **Yes** on the Virtual Rudder Feedback Calibration dialog. When **No** is selected in the dialog, the NAC-1 reverses direction and increases power the next time it turns the motor during the calibration process.

➜ *Note:* You may have to select **No** a few times to ensure the pump provides enough power to turn the motor at high boat speeds.

Troubleshooting

The following are possible symptoms or * messages displayed by the MFD. If the problem persists after trying the recommended action, contact support.

No active autopilot control unit

Probable cause: The NAC-1 computer has lost contact with the active control unit.

Recommended action: Check the cable connections from the NAC-1 and MFD to the CAN bus network.

No autopilot computer

Probable cause: The MFD has lost contact with the NAC-1 Computer.

Recommended action:
- Make sure the NAC-1 computer is powered.
- Check connections from the NAC-1 to the CAN bus network.

AP Position data missing*

Probable cause: Missing or invalid position data.

Recommended action:
- Check the GPS cable connections to CAN network.
- Check the GPS antenna location.
- Check that the correct position source is selected. (Run a new source selection.)

AP Speed data missing (SOG)*

Probable cause: Missing or invalid speed data.

Recommended action:
- Check the GPS cable connections to the CAN network.
- Check the GPS antenna location.
- Check that the correct position source is selected. (Run a new source selection.)

AP Depth data missing*

Probable cause: Missing or invalid depth data.

Recommended action:
- Check the depth transducer.
- Check transducer cable connections to the MFD or to the CAN network.
- Check that the correct depth source is selected. (Run a new source selection.)

AP Heading data missing*

Probable cause: Missing or invalid heading data.

Recommended action:
- Check the compass cable connections to the CAN network.
- Check that the correct heading source is selected. (Run a new source selection.)

AP Nav data missing*

Probable cause: Missing or invalid NAV data.

Recommended action:
- Check for valid data on the MFD screen.
- Check the source selection setting.

AP Rudder data missing (For Helm-1/ cable steer only)*

Probable cause:
- Rudder feedback signal missing due to a broken wire or connection.
- Misaligned potentiometer in the Helm-1.

Recommended action:

- Check cable and connector.
- Check the alignment as per the installation instructions.

AP Off course*

Probable cause:

- The boat's heading is outside the fixed off course limit of 20 deg. (Automatic reset when inside limit).
- The boat speed is too low.
- The response setting is too low.

Recommended action:

- Check the steering response setting and increase the steering response setting.
- Increase the boat speed if possible, or steer by hand.

AP clutch overload (For Helm-1/ cable steer only)*

Probable cause: The clutch in Helm-1 is drawing too much current.

Recommended action:

- Disconnect the Helm-1 and verify that the alarm disappears.
- Check resistance of the clutch coil equals 16 ohms (pin 1 and 2 in connector).

No rudder response (For Helm-1/cable steer only)*

Probable cause: No response to rudder commands.

Recommended action:

- Check the cable connections between NAC-1 and Helm-1.
- Check the Rudder FB potentiometer in Helm-1.
- Check the Helm-1 drive motor.

Rudder drive overload*

Probable cause: The drive unit shuts down due to an excessive load or a short circuit.

Recommended action:

- Check the drive unit and drive unit installation.
- Look for mechanical obstructions.
- Check the manual steering.

High drive temp*

Probable cause: The NAC-1 drive output circuit is overheated due to excessive load.

Recommended action:

- Switch the Autopilot to Standby.
- Check the drive unit (see "Rudder drive overload").

Drive inhibit*

Probable cause: There is an internal NAC-1 failure causing the drive output circuit to shut down.

Recommended action: Contact support.

Low CAN bus voltage

Probable cause: The CAN bus voltage is less than 9V.

Recommended action:

• Check cabling.
• Check battery condition.
• Check charging voltage.

Changes to existing manual sections

Recording log data

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

The **Log sonar** dialog is activated from the **Advanced** menu option, or the from the **Sonar Settings** dialog.

When the Sonar image is being recorded, there is a flashing red symbol in the top left corner and a message appears periodically at the bottom of the screen.
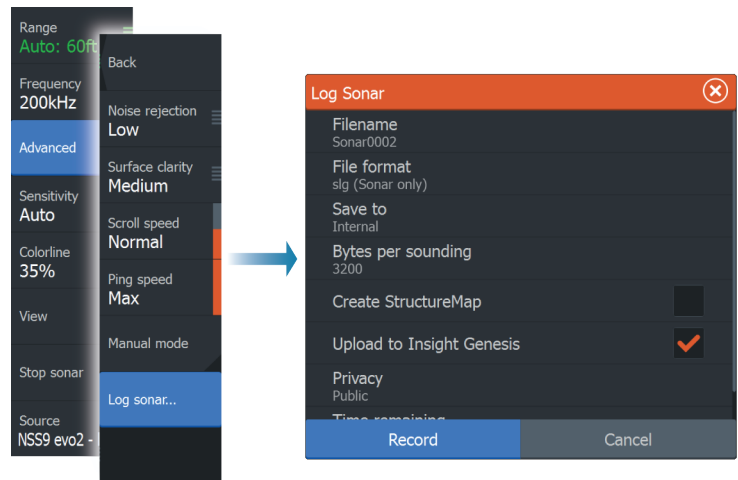
The following new options are available in the **Log Sonar** dialog:

Upload to Insight Genesis
Files are transmitted to Insight Genesis when recording completes, if you are connected to a wireless hotspot. For information about wireless hotspots, refer to *"Wireless connection"* on page 2.
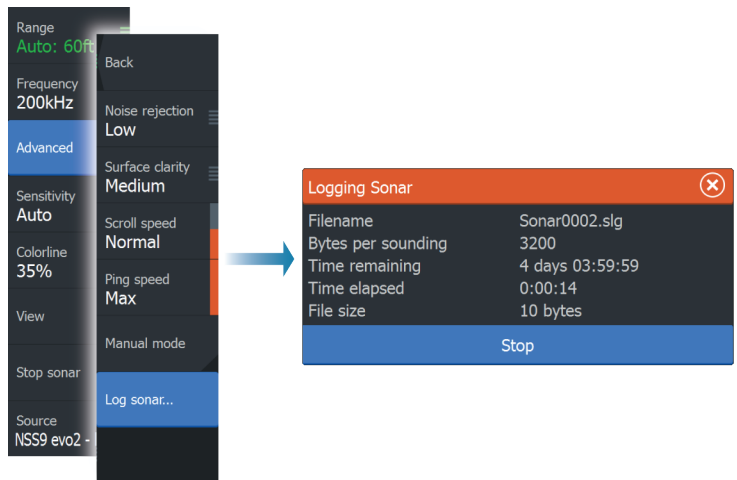
Privacy
If you have a Premium Insight Genesis account, you can set the recorded log files as **Private** at Insight Genesis. Otherwise, all log files uploaded are **Public**.

Stop recording log data

Select **Stop** in the Logging Sonar dialog to fully stop the recording of all sonar log data.

➔   *Note:* If you have selected the **Upload to Insight Genesis** option and are connected to a wireless hotspot, your recorded files are transmitted to Insight Genesis when you select **Stop**.

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