# Table of Contents

- **Introduction** ............................................................. 1
- Device Overview .......................................................... 1
- Using the Touchscreen .................................................... 1
- On-Screen Buttons ......................................................... 1
- Locking and Unlocking the Touchscreen ......................... 1
- Tips and Shortcuts .......................................................... 1
- Accessing Owner’s Manuals on the Chartplotter ............... 1
- Downloading the Manuals ............................................ 1
- Garmin Support Center .................................................. 2
- Inserting Memory Cards ............................................... 2
- Acquiring GPS Satellite Signals ..................................... 2
- Selecting the GPS Source .............................................. 2

- **Customizing the Chartplotter** ................................... 2
- Home Screen ............................................................... 2
- Adding an Item to Favorites ........................................... 2
- Customizing Pages ........................................................ 2
  - Customizing the Layout of a SmartMode or Combination Page .............................................. 2
  - Adding a SmartMode Layout ....................................... 2
  - Creating a New Combination Page ......................... 3
  - Deleting a Combination Page .................................... 3
  - Customizing the Data Overlays ................................. 3
  - Resetting the Station Layouts ................................. 3
- Presets ........................................................................... 3
  - Saving a New Preset .................................................... 3
  - Managing Presets ........................................................ 3
- Setting the Vessel Type .................................................. 3
- Adjusting the Backlight ................................................ 3
- Adjusting the Color Mode ............................................. 3
- Customizing the Startup Screen .................................... 4
- Turning On the Chartplotter Automatically ..................... 4
- Automatically Turning Off the System ......................... 4
- **ActiveCaptain App** .................................................. 4
- ActiveCaptain Roles ...................................................... 4
- Getting Started with the ActiveCaptain App .................. 4
- Updating Software with the ActiveCaptain App .............. 4
- Updating Charts with ActiveCaptain ............................. 4
- **Communication with Wireless Devices** ..................... 5
- Wi-Fi Network ............................................................. 5
  - Setting Up the Wi-Fi Wireless Network .......................... 5
  - Connecting a Wireless Device to the Chartplotter ........ 5
  - Changing the Wireless Channel ............................... 5
  - Changing the Wi-Fi Host ............................................ 5
- Wireless Remote Control .............................................. 5
  - Pairing the Wireless Remote Control With the Chartplotter .............................................. 5
  - Turning On and Off the Remote Backlight .................. 5
  - Disconnecting the Remote from All Chartplotters ........ 5
- Wireless Wind Sensor ................................................. 5
  - Connecting a Wireless Sensor to the Chartplotter ........ 5
  - Adjusting the Wind Sensor Orientation ..................... 5
  - Connecting a quatix® Watch to the Chartplotter .......... 6
  - Connecting a Garmin Nautix™ Device to the Chartplotter .................................................. 6
- **Charts and 3D Chart Views** ...................................... 6
- Navigation Chart and Fishing Chart .............................. 6
  - Zooming In and Out Using the Touchscreen ............... 6
  - Chart Symbols .......................................................... 6
  - Measuring a Distance on the Chart ............................ 7
  - Creating a Waypoint on the Chart ............................. 7
  - Viewing Location and Object Information on a Chart .... 7
  - Viewing Details about Navalogs ............................... 7
  - Navigating to a Point on the Chart ........................... 7
  - Premium Charts .......................................................... 7
- Viewing Tide Station Information .................................... 7
- Animated Tide and Current Indicators ......................... 7
- Showing Tides and Current Indicators ........................... 8
- Showing Satellite Imagery on the Navigation Chart .......... 8
- Viewing Aerial Photos of Landmarks ............................ 8
- **Automatic Identification System** ............................... 8
- AIS Targeting Symbols ................................................ 8
- Heading and Projected Course of Activated AIS Targets ...... 8
- Activating a Target for an AIS Vessel ............................ 8
- Viewing Information about a Targeted AIS Vessel ............ 9
- Deactivating a Target for an AIS Vessel ....................... 9
- Viewing a List of AIS and MARPA Threats ..................... 9
- Setting the Safe-Zone Collision Alarm ........................... 9
- AIS Distress Signals ..................................................... 9
- Navigating to a Distress Collision Alarm ....................... 9
- AIS Distress Signal Device Targeting Symbols ............... 9
- Enabling AIS Transmission Test Alerts ......................... 9
- Turning Off AIS Reception ........................................... 9
- **Chart Menu** ............................................................ 9
- Chart Layers ............................................................... 9
  - Chart Layer Settings ................................................ 10
  - Depth Layer Settings .............................................. 10
  - My Vessel Layer Settings ........................................ 10
  - Laylines Settings .................................................... 10
  - User Data Layer Settings ......................................... 10
  - Other Vessels Layer Settings .................................... 10
  - Water Layer Settings .............................................. 10
  - Weather Layer Settings ........................................... 10
  - Radar Overlay Settings .......................................... 11
- Chart Settings ............................................................. 11
- Fish Eye 3D Settings ................................................... 11
- Supported Maps .......................................................... 11
- **Garmin Quickdraw Contours Mapping** ....................... 11
- Mapping a Body of Water Using the Garmin Quickdraw Contours Feature ........................................... 11
- Adding a Label to a Garmin Quickdraw Contours Map ....... 11
- Garmin Quickdraw Community ..................................... 11
  - Connecting to the Garmin Quickdraw Community with ActiveCaptain .................................. 12
  - Downloading Garmin Quickdraw Community Maps Using ActiveCaptain .......................... 12
  - Sharing Your Garmin Quickdraw Contours Maps with the Garmin Quickdraw Community Using ActiveCaptain .................................................. 12
  - Connecting to the Garmin Quickdraw Community with Garmin Connect™ .......................... 12
  - Sharing Your Garmin Quickdraw Contours Maps with the Garmin Quickdraw Community Using Garmin Connect .................................................. 12
  - Downloading Garmin Quickdraw Community Maps Using Garmin Connect ........................... 12
  - Garmin Quickdraw Contours Settings ........................ 12
  - Depth Range Shading ............................................... 13
- **Navigation with a Chartplotter** ................................. 13
- Basic Navigation Questions ......................................... 13
- Destinations ............................................................... 13
  - Searching for a Destination by Name ............................ 13
  - Selecting a Destination Using the Navigation Chart ........ 13
  - Searching for a Marine Services Destination ............... 13
  - Stopping Navigation ................................................... 14
- Waypoints ...................................................................... 14
  - Marking Your Present Location as a Waypoint ................ 14
  - Creating a Waypoint at a Different Location ............... 14
  - Marking an SOS Location ........................................... 14
  - Viewing a List of all Waypoints ................................. 14
  - Editing a Saved Waypoint ......................................... 14
  - Moving a Saved Waypoint ......................................... 14
  - Browsing for and Navigating to a Saved Waypoint ........ 14
## Table of Contents

1. **Weather Information**
   - Visibility Information
   - Surface Winds
   - Surface Pressure and Water Temperature Data
   - Forecasting Fish Locations
   - Changing the Sea Surface Temperature Color Range
   - Browsing for Music
   - Enabling Alphabetical Search
   - Setting a Song to Repeat
   - Setting All Songs to Repeat
   - Setting Songs to Shuffle

2. **DAB Playback**
   - Adjusting the VHF Squelch
   - Changing the Tuner Region
   - Changing the Radio Station
   - Changing the Tuning Mode
   - Presets
   - Saving a Station as a Preset
   - Selecting a Preset
   - Removing a Preset

3. **SiriusXM Satellite Radio**
   - Locating a SiriusXM Radio ID
   - Activating a SiriusXM Subscription
   - Customizing the Channel Guide
   - Saving a SiriusXM Channel to the Presets List
   - Unlocking SiriusXM Parental Controls
   - Setting Parental Controls on SiriusXM Radio Channels
   - Changing a Parental Passcode on a SiriusXM Radio
   - Restoring Default Parental Control Settings Values
   - Clearing All Locked Channels on a SiriusXM Radio
   - Setting the Device Name
   - Updating the Media Player Software

4. **SiriusXM Weather**
   - SiriusXM Equipment and Subscription Requirements
   - Weather Data Broadcasts
   - Changing the Weather Chart
   - Viewing Precipitation Information
   - Precipitation Views
   - Storm Cell and Lightning Information
   - Hurricane Information
   - Weather Warnings and Weather Bulletins
   - Forecast Information
   - Viewing Forecast Information for Another Time Period
   - Weather Fronts and Pressure Centers
   - Viewing a Marine Forecast or an Offshore Forecast
   - City Forecasts
   - Viewing Sea Conditions
   - Wave Height, Wave Period, and Wave Direction
   - Viewing Forecast Sea Conditions Information for Another Time Period
   - Viewing Fishing Information
   - Surface Pressure and Water Temperature Data
   - Forecasting Fish Locations
   - Changing the Sea Surface Temperature Color Range
   - Visibility Information
   - Viewing Forecast Visibility Information for Another Time Period
   - Viewing Buoy Reports
   - Viewing Local Weather Information near a Buoy
   - Weather Overlay
   - Turning On the Weather Overlay on a Chart
   - Weather Overlay Settings on the Navigation Chart
   - Weather Overlay Settings on the Fishing Chart
   - Viewing Weather Subscription Information

5. **Viewing Video**
   - Selecting a Video Source
   - Alternating Among Multiple Video Sources
   - Networked Video Devices
   - Using Video Presets on Networked Video Cameras
   - Saving Video Presets on a Networked Video Camera
   - Naming Video Presets on a Networked Video Camera
   - Activating Video Presets on a Networked Video Camera
   - Camera Settings
   - Video Settings
   - Associated the Camera to a Video Source
   - Video Camera Movement Control
   - Controlling Video Cameras Using On-Screen Controls
   - Controlling a Video Camera Using Gestures
   - Configuring the Video Appearance
   - Configuring the PC Display
   - Exiting PC Display Mode
   - Garmin VIRB® Action Cameras
   - Connecting a VIRB 360 Action Camera
   - Connecting a VIRB Action Camera
   - Controlling the VIRB Action Camera with the Chartplotter
   - VIRB Action Camera Settings
   - VIRB Action Camera Video Setup Settings
   - Adding the VIRB Action Camera Controls to Other Screens
   - Controlling the VIRB Action Camera Video Playback
   - Starting a VIRB Video Slideshow

6. **Device Configuration**
   - System Settings
   - Sounds and Display Settings
   - GPS Settings
   - Station Settings
   - Viewing System Software Information
   - Viewing the Event Log
   - Preferences Settings
   - Units Settings
   - Navigation Settings
   - Auto Guidance Path Configurations
   - Adjusting the Distance from Shore
   - Communications Settings
   - NMEA 2000 Settings
   - Configuring NMEA 0183 Output Sentences
   - Setting the Communication Format for Each NMEA 0183 Port
   - NMEA 2000 Settings
   - Naming Devices and Sensors on the Network
   - Marine Network
   - Setting Alarms
   - Navigation Alarms
   - Setting the Anchor Drag Alarm
   - System Alarms
   - Sonar Alarms
   - Setting Weather Alarms
   - Setting the Fuel Alarm
   - My Vessel Settings
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting the Keel Offset</td>
<td>49</td>
</tr>
<tr>
<td>Setting the Water Temperature Offset</td>
<td>49</td>
</tr>
<tr>
<td>Calibrating a Water Speed Device</td>
<td>50</td>
</tr>
<tr>
<td>Other Vessels Settings</td>
<td>50</td>
</tr>
<tr>
<td>Settings that are Synced on the Garmin Marine Network</td>
<td>50</td>
</tr>
<tr>
<td>Restoring the Original Chartplotter Factory Settings</td>
<td>50</td>
</tr>
<tr>
<td>Sharing and Managing User Data</td>
<td>50</td>
</tr>
<tr>
<td>Copying Waypoints, Routes, and Tracks from HomePort to a Chartplotter</td>
<td>50</td>
</tr>
<tr>
<td>Selecting a File Type for Third-Party Waypoints and Routes</td>
<td>50</td>
</tr>
<tr>
<td>Copying User Data from a Memory Card</td>
<td>51</td>
</tr>
<tr>
<td>Copying User Data to a Memory Card</td>
<td>51</td>
</tr>
<tr>
<td>Copying Built-In Maps to a Memory Card</td>
<td>51</td>
</tr>
<tr>
<td>Backing Up Data to a Computer</td>
<td>51</td>
</tr>
<tr>
<td>Restoring Backup Data to a Chartplotter</td>
<td>51</td>
</tr>
<tr>
<td>Saving System Information to a Memory Card</td>
<td>51</td>
</tr>
<tr>
<td>Appendix</td>
<td>51</td>
</tr>
<tr>
<td>Registering Your Device</td>
<td>51</td>
</tr>
<tr>
<td>Software Update</td>
<td>51</td>
</tr>
<tr>
<td>Loading the New Software on a Memory Card</td>
<td>52</td>
</tr>
<tr>
<td>Updating the Device Software</td>
<td>52</td>
</tr>
<tr>
<td>Digital Switching</td>
<td>52</td>
</tr>
<tr>
<td>Pairing the GRID Remote Input Device with the Chartplotter</td>
<td>52</td>
</tr>
<tr>
<td>Pairing the GRID Device with the Chartplotter from the Chartplotter</td>
<td>52</td>
</tr>
<tr>
<td>Pairing the GRID Device with the Chartplotter from the GRID Device</td>
<td>52</td>
</tr>
<tr>
<td>Rotating the GRID Joystick</td>
<td>52</td>
</tr>
<tr>
<td>Cleaning the Screen</td>
<td>52</td>
</tr>
<tr>
<td>Viewing Images on a Memory card</td>
<td>52</td>
</tr>
<tr>
<td>Screenshots</td>
<td>52</td>
</tr>
<tr>
<td>Capturing Screenshots</td>
<td>52</td>
</tr>
<tr>
<td>Copying Screenshots to a Computer</td>
<td>53</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>53</td>
</tr>
<tr>
<td>My device will not acquire GPS signals</td>
<td>53</td>
</tr>
<tr>
<td>My device will not turn on or keeps turning off</td>
<td>53</td>
</tr>
<tr>
<td>My device is not creating waypoints in the correct location</td>
<td>53</td>
</tr>
<tr>
<td>Contacting Garmin Support</td>
<td>53</td>
</tr>
<tr>
<td>Specifications</td>
<td>53</td>
</tr>
<tr>
<td>Specifications</td>
<td>53</td>
</tr>
<tr>
<td>NMEA 2000 PGN Information</td>
<td>54</td>
</tr>
<tr>
<td>NMEA 0183 Information</td>
<td>54</td>
</tr>
<tr>
<td>Index</td>
<td>56</td>
</tr>
</tbody>
</table>
Introduction

WARNING

See the Important Safety and Product Information guide in the product box for product warnings and other important information.

NOTE: Not all features are available on all models.

The Garmin website at www.garmin.com presents up-to-date information about your product. The support pages will provide answers to frequently asked support questions, and you can download software and chart updates. There is also contact information to Garmin support should you have any questions.

Device Overview

The location of items may vary based upon the model.

Using the Touchscreen

• Tap the screen to select an item.
• Drag or swipe your finger across the screen to pan or scroll.
• Pinch two fingers together to zoom out.
• Spread two fingers apart to zoom in.

On-Screen Buttons

These on-screen buttons may be displayed on some screens and functions. Some buttons are accessible only in a combination page or SmartMode™ layout or when accessories, such as a radar, are connected.

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔒</td>
<td>Opens the radar rain clutter adjustment menu</td>
</tr>
<tr>
<td>🔒</td>
<td>Turns on and off the radar echo trails</td>
</tr>
<tr>
<td>🔒</td>
<td>Acquires a radar target and begins tracking it</td>
</tr>
<tr>
<td>🔒</td>
<td>Shows and sets the VRM/EBL line</td>
</tr>
<tr>
<td>🔒</td>
<td>Opens the menu for the page or function</td>
</tr>
<tr>
<td>🔒</td>
<td>Opens the Weather menu for the page or function</td>
</tr>
<tr>
<td>🔒</td>
<td>Opens the Radar menu for the page or function</td>
</tr>
<tr>
<td>🔒</td>
<td>Opens the Presets menu for the page or function</td>
</tr>
</tbody>
</table>

Locking and Unlocking the Touchscreen

You can lock the touchscreen to prevent inadvertent screen touches.

1. Select > Lock Touchscreen to lock the screen.
2. Select to unlock the screen.

Tips and Shortcuts

• Press to turn on the chartplotter.
• Select Home from any screen to return to the Home screen.
• Select Menu to open additional settings about that screen.
• Select Menu to close the menu when finished.
• Press to open additional options, such as adjusting the backlight and locking the touchscreen.
• Press, and select Power Off > Turn Off System, or hold until the Turn Off System bar fills to turn off the chartplotter.
• Press, and select Power Off > Sleep Station to set the chartplotter to standby mode.
• On the home screen of some models, swipe up or down on the category buttons along the right to view the additional buttons.
• On some models, not all category buttons on the right side of the screen are visible. The arrows at the top or bottom of the buttons indicate not all buttons are visible.
• On some menu buttons, press the button to enable the option.

Accessing Owner's Manuals on the Chartplotter

2. Select a manual.
3. Select Open.

Downloading the Manuals

You can get the latest owner's manual and translations of manuals from the Garmin website.
Customizing the Chartplotter

Home Screen
The chartplotter home screen provides access to all of the features in the chartplotter. The features are dependent on the accessories you have connected to the chartplotter. You may not have all of the options and features discussed in this manual.

Inserting Memory Cards
You can use optional memory cards with the chartplotter. Map cards allow you to view high-resolution satellite imagery and aerial reference photos of ports, harbors, marinas, and other points of interest. You can use blank memory cards to record Garmin Quickdraw™ Contours mapping, record sonar (with a compatible transducer), transfer data such as waypoints and routes to another compatible chartplotter or a computer, and use the ActiveCaptain™ app.

This device supports up to a 32 GB memory card, formatted to FAT32.
1. Open the access flap or door ① on the front of the chartplotter.

2. Insert the memory card ②.
3. Press the card in until it clicks.
4. Close the door.

Acquiring GPS Satellite Signals
The device may need a clear view of the sky to acquire satellite signals. The time and date are set automatically based on the GPS position.
1. Turn on the device.
2. Wait while the device locates satellites.

It may take 30 to 60 seconds to acquire satellite signals.

When the device acquires satellite signals, .navigator appears at the top of the Home screen.

If the device loses satellite signals, .navigator disappears and a flashing question mark appears over  on the chart.

Selecting the GPS Source
You can select your preferred source for GPS data, if you have more than one GPS source.
1. Select Settings > System > GPS > Source.
2. Select the source for GPS data.

The categories along the right of the screen provide quick access to the main features of your chartplotter. For example, the Sonar category displays the views and pages related to the sonar feature. You can save items you commonly access to the Favorites category.

All of the options along the bottom of the home screen are visible on all other screens, except for the Settings button. The Settings button is accessible only from the home screen.

When viewing another screen, you can return to the home screen by selecting Home.

When multiple displays are installed on the Garmin Marine Network, you can group them together into a station. A station enables the displays to work together, instead of as several separate displays. You can customize the layout of the pages on each display, making each page different on each display. When you change the layout of a page in one display, the changes appear on only that display. When you change the name and symbol of the layout, those changes appear on all displays in the station, to maintain a consistent appearance.

The SmartMode items are geared toward an activity, such as cruising or docking. When a SmartMode button is selected from the home screen, each display in the station can show unique information. For example, when Cruising is selected from the home screen, one display can show the navigation chart and another display can show the radar screen.

Adding an Item to Favorites
1. From the home screen, select a category from the right.
2. Hold a button on the left.

The item is added to the Favorites home screen category.

Customizing Pages

Customizing the Layout of a SmartMode or Combination Page
You can customize the layout and data shown in the combination pages and SmartMode layouts. When you change the layout of a page in a display you are interacting with, the change appears only on that display, except for the SmartMode name and symbol. When you change the SmartMode name or symbol for the layout, the new name or symbol appears on all displays in the station.
1. Open a page to customize.
2. Select Menu.
3. Select Edit Layout or Edit Combo.
4. Select an option:
   - To change the name, select Name or Name & Symbol > Name, enter a new name, and select Done.
   - To change the SmartMode symbol, select Name & Symbol > Symbol, and select a new symbol.
   - To change the number of functions shown and the layout of the screen, select Layout, and select an option.
   - To change the function of a portion of the screen, select the window to change, and select a function from the list on the right.
   - To change how the screens are split, drag the arrows to a new location.
   - To change the data shown on the page and additional data bars, select Overlays, and select an option.
   - To assign a preset to a portion of the SmartMode screen, select Presets > Include, and select a preset from the list on the right.

Adding a SmartMode Layout
You can add SmartMode layouts to suit your needs. Each customization made to one SmartMode layout for the home screen in a station appears on all displays in the station.
1 From the home screen, select SmartMode™ > Menu > Add Layout.
2 Select an option:
   • To change the name, select Name & Symbol > Name, enter a new name, and select Done.
   • To change the SmartMode symbol, select Name & Symbol > Symbol, and select a new symbol.
   • To change the number of functions shown and the layout of the screen, select Layout, and select an option.
   • To change the function of a portion of the screen, select the window to change, and select a function from the list on the right.
   • To change how the screens are split, drag the arrows to a new location.
   • To change the data shown on the page and additional data bars, select Overlays, and select an option.
   • To assign a preset to a portion of the SmartMode screen, select Presets > Include, and select a preset from the list on the right.
   • To customize the information shown when navigating, select Navigation, and select an option.
   • To turn on other data bars, like the media controls, select Top Bar or Bottom Bar, and select the necessary options.
3 Select Done.

Deleting a Combination Page
1 Select Combos > Menu > Add Combo.
2 Select a window.
3 Select a function for the window.
4 Repeat these steps for each window of the page.
5 Drag the arrows to resize the windows.
6 Hold a window to rearrange it.
7 Hold a data field to select new data.
8 Select Layout, and select a layout.

9 Select Name, enter a name for the page, and select Done.
10 Select Overlays, and select which data to show.
11 Select Done when you have finished customizing the page.

Creating a New Combination Page
You can create a custom combination page to suit your needs.
1 Select Combos > Menu > Add Combo.
2 Select a window.
3 Select a function for the window.
4 To change the data shown in an overlay box, select the new data to show, and select Back.
5 To select the location and layout of the data overlay bar, select Data, and select an option.
6 To change the function of a portion of the screen, select the window to change, and select a function from the list on the right.
7 To change how the screens are split, drag the arrows to a new location.
8 To change the data shown on the page and additional data bars, select Overlays, and select an option.
9 To assign a preset to a portion of the SmartMode screen, select Presets > Include, and select a preset from the list on the right.

Resetting the Station Layouts
You can restore the factory default layouts for all stations.
1 From a compatible screen, select Settings > System > Station Information > Reset Stations.

Saving a New Preset
After you have customized the settings and view of a screen, you can save the customization as a new preset.
1 From a compatible screen, change the settings and view.
2 Select Menu > ★ > Save > New.
3 Enter a name, and select Done.

Managing Presets
You can customize the pre-loaded presets and edit presets you created.
1 From a compatible screen, select Menu > ★ > Manage.
2 Select a preset.
3 Select an option:
   • To rename the preset, select Rename, enter a name, and select Done.
   • To edit the preset, select Edit, and update the preset.
   • To delete the preset, select Delete.
   • To reset all presets to factory settings, select Reset All.

Adjusting the Backlight
1 Select Settings > System > Display > Backlight.
2 Adjust the backlight.
   TIP: From any screen, press ◁ repeatedly to scroll through the brightness levels. This can be helpful when the brightness is so low you cannot see the screen.

Adjusting the Color Mode
1 Select Settings > System > Sounds and Display > Color Mode.
   TIP: Select ◁ > Color Mode from any screen to access the color settings.
2 Select an option.
Customizing the Startup Screen
You can personalize the startup, splash screen on your chartplotter.

1. Insert a memory card that contains the image you want to use.
2. Select Settings > System > Sounds and Display > Startup Image > Select Image.
3. Select the memory card slot.
4. Select the image.

For the best results, use an image that is 50 MB or less.

5. Select Set as Startup Image.
To view the splash screen with the new image, turn the chartplotter off and on.

Turning On the Chartplotter Automatically
You can set the chartplotter to turn on automatically when the power is applied. Otherwise, you must turn on the chartplotter by pressing \( \mathcal{O} \).

Select Settings > System > Auto Power Up.

NOTE: When Auto Power Up is On, and the chartplotter is turned off using \( \mathcal{O} \), and power is removed and reapplied within less than two minutes, you may need to press \( \mathcal{O} \) to restart the chartplotter.

Automatically Turning Off the System
You can set the chartplotter and the whole system to turn off automatically after it has been asleep for the selected length of time. Otherwise, you must press and hold \( \mathcal{O} \) to turn off the system manually.

2. Select an option.

ActiveCaptain App

⚠️ CAUTION
This feature allows users to submit information. Garmin makes no representations about the accuracy, completeness, or timeliness of information submitted by users. Any use or reliance on the information submitted by users is at your own risk.

The ActiveCaptain app provides a connection to your GPSMAP device, charts, maps, and the community for a connected boating experience.

On your mobile device with the ActiveCaptain app, you can download, purchase, and update maps and charts. You can use the app to easily and quickly transfer user data, such as waypoints and routes, connect to the Garmin Quickdraw Contours Community, and update device software. You can also plan your trip, and view and control the GPSMAP device from the app.

You can connect to the ActiveCaptain community for up-to-date feedback on marinas and other points of interest. The app can push smart notifications, such as calls and texts, to your chartplotter display when paired.

ActiveCaptain Roles
Your level of interaction with the GPSMAP device using the ActiveCaptain app depends on your role.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Owner</th>
<th>Guest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Register device, built-in maps, and supplemental map cards to account</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Update software</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Getting Started with the ActiveCaptain App
NOTE: The ActiveCaptain feature is only available on models that have Wi-Fi technology.

You can connect a mobile device to the GPSMAP device using the ActiveCaptain app. The app provides a quick and easy way for you to interact with your chartplotter and complete such tasks as sharing data, registering, updating the device software, and receiving mobile device notifications.

1. From the GPSMAP device, select ActiveCaptain.
2. From the ActiveCaptain page, select Wi-Fi Network > Wi-Fi > On.
3. Enter a name and password for this network.
4. From the application store on your mobile device, install and open the ActiveCaptain app.
5. Bring the mobile device within 32 m (105 ft.) of the GPSMAP device.
6. From your mobile device settings, open the Wi-Fi connections page and connect to the Garmin device, using the name and password you entered in the Garmin device.

Updating Software with the ActiveCaptain App
If your device has Wi-Fi technology, you can use the ActiveCaptain app to download and install the latest software updates for your device.

**NOTICE**
Software updates may require the app to download large files. Regular data limits or charges from your Internet service provider apply. Contact your Internet service provider for more information about data limits or charges.

The installation process can take several minutes.

1. Connect the mobile device to the GPSMAP device.
2. When a software update is available and you have internet access on your mobile device, select Software Updates > Download.
   - The ActiveCaptain app downloads the update to the mobile device. When you reconnect the app to the GPSMAP device, the update is transferred to the device. After the transfer is complete, you are prompted to install the update.
3. When you are prompted by the GPSMAP device, select an option to install the update.
   - To update the software immediately, select OK.
   - To delay the update, select Cancel. When you are ready to install the update, select ActiveCaptain > Software Updates > Install Now.

Updating Charts with ActiveCaptain
You can use the ActiveCaptain app to download and transfer the latest chart updates for your device. To save space on your mobile device, space on the ActiveCaptain card, and download time, consider using the ActiveCaptain app to download only the areas of the chart you need.
If you are downloading an entire chart, you can use the Garmin Express™ app to download the map onto a memory card. The Garmin Express app downloads large charts more quickly than the ActiveCaptain app.

**NOTICE**
Chart updates may require the app to download large files. Regular data limits or charges from your internet service provider apply. Contact your internet service provider for more information about data limits or charges.

1. Connect the mobile device to the GPSMAP device.
2. When a chart update is available, and you have internet access on your mobile device, select OneChart > My Charts.
3. Select the map to update.
4. Select the area to download.
5. Select Download
   The ActiveCaptain app downloads the update to the mobile device. When you reconnect the app to the GPSMAP device, the update is transferred to the device. After the transfer is complete, the updated charts are available for use.

**Communication with Wireless Devices**
The chartplotters can create a wireless network to which you can connect wireless devices.
Connecting wireless devices allows you to use Garmin apps, such as ActiveCaptain.

**Wi-Fi Network**

**Setting Up the Wi-Fi Wireless Network**
The chartplotters can create a Wi-Fi network to which you can connect wireless devices. The first time you access the wireless network settings, you are prompted to set up the network.

1. Select Settings > Communications > Wi-Fi Network > Wi-Fi > On > OK.
2. If necessary, enter a name for this wireless network.
3. Enter a password.
   You will need this password to access the wireless network from a wireless device. The password is case-sensitive.

**Connecting a Wireless Device to the Chartplotter**
Before you can connect a wireless device to the chartplotter, you must configure the chartplotter wireless network
You can connect multiple wireless devices to the chartplotter to share data.
1. From the wireless device, turn on the Wi-Fi technology and search for wireless networks.
2. Select the name of your chartplotter wireless network.
3. Enter the network password.

**Changing the Wireless Channel**
You can change the wireless channel if you have trouble finding or connecting to a device, or if you experience interference.
1. Select Settings > Communications > Wi-Fi Network > Advanced > Channel.
2. Enter a new channel.
You do not need to change the wireless channel of devices connected to this network.

**Changing the Wi-Fi Host**
You can change which chartplotter is serving as the Wi-Fi host. This can be helpful if you are having trouble with Wi-Fi communications. Changing the Wi-Fi host allows you to select a chartplotter that is physically closer to your mobile device.
1. Select Settings > Communications > Wi-Fi Network > Advanced > Wi-Fi Host.
2. Follow the on-screen instructions.

**Wireless Remote Control**

**Pairing the Wireless Remote Control With the Chartplotter**
Before you can use the wireless remote control with a chartplotter, you must pair the remote with the chartplotter.
You can connect a single remote to multiple plotters, and then press the pairing key to switch between the chartplotters.
2. Select New Connection.
3. Follow the on-screen instructions.

**Turning On and Off the Remote Backlight**
Turning off the remote backlight can significantly increase the battery life.
2. Follow the on-screen instructions.

**Disconnecting the Remote from All Chartplotters**
1. On the chartplotter, select Settings > Communications > Wireless Devices > Wireless Remote > Disconnect All.
2. Follow the on-screen instructions.

**Wireless Wind Sensor**

**Connecting a Wireless Sensor to the Chartplotter**
You can view data from a compatible wireless sensor on the chartplotter.
1. Select Settings > Communications > Wireless Devices.
2. Select the wind sensor.
3. Select Enable.
   The chartplotter begins searching for and connecting to the wireless sensor.
To view data from the sensor, add the data to a data field or gauge.

**Adjusting the Wind Sensor Orientation**
You should adjust this setting if the sensor does not face the front of the boat, exactly parallel to the center line.

**NOTE:** The opening where the cable connects to the pole indicates the front of the sensor.
1. Estimate the angle, in degrees clockwise around the mast, by which the sensor points away from the center of the front of the boat:
   - If the sensor is facing starboard, the angle should be between 1 and 180 degrees.
   - If the sensor is facing port, the angle should be between -1 and -180 degrees.
2. Select Settings > Communications > Wireless Devices.
3. Select the wind sensor.
4. Select Wind Angle Offset.
5. Enter the angle observed in step 1.
6. Select Done.
Connecting a quatix® Watch to the Chartplotter

You can connect a compatible quatix watch, such as the quatix 3 watch, to a compatible chartplotter to view data from the chartplotter on your quatix watch.

1. Bring the quatix watch within range (3 m) of the chartplotter.
2. From the quatix watch clock screen, select START > Boat Data > START.
   
   **NOTE:** If you have already connected to a chartplotter, and would like to connect to a different chartplotter, open the Boat Data screen, hold UP, and select Pair new.

3. On the chartplotter, select Settings > Communications > Wireless Devices > Garmin Wearable > Enable Connections > New Connection.
   
   The chartplotter begins searching for and connecting to the wearable device.

After the devices are paired, they connect automatically when they are turned on and within range.

Connecting a Garmin Nautix™ Device to the Chartplotter

Pairing is the initial connection of two compatible wireless devices. For example, the first time you connect a Garmin Nautix device to a compatible chartplotter you are pairing the devices.

**NOTE:** You can pair a Garmin Nautix device to multiple compatible devices for better coverage on larger vessels.

1. Bring the a Garmin Nautix device within range (3 m) of the chartplotter.
   
   The device automatically looks for all compatible devices within range.

2. If necessary, from the wearable device menu, select Device Connections > Pair New Device.

3. On the chartplotter, select Settings > Communications > Wireless Devices > Garmin Wearable > Enable Connections > New Connection.
   
   The chartplotter begins searching for and connecting to the wearable device.

After the devices are paired, they connect automatically when they are turned on and within range.

Charts and 3D Chart Views

The charts and 3D chart views that are available depend on the map data and accessories used.

You can access the charts and 3D chart views by selecting Charts.

**Navigation Chart:** Shows navigation data available on your pre-loaded maps and from supplemental maps, if available. The data includes buoys, lights, cables, depth soundings, marinas, and tide stations in an overhead view.

**Perspective 3D:** Provides a view from above and behind the boat (according to your course) and provides a visual navigation aid. This view is useful when navigating tricky shoals, reefs, bridges, or channels, and is beneficial when trying to identify entry and exit routes in unfamiliar harbors or anchorages.

**Mariner’s Eye 3D:** Shows a detailed, three-dimensional view from above and behind the boat (according to your course) and provides a visual navigation aid. This view is helpful when navigating tricky shoals, reefs, bridges, or channels, and when trying to identify entry and exit routes in unfamiliar harbors or anchorages.

**Fish Eye 3D:** Provides an underwater view that visually represents the sea floor according to the chart information. When a sonar transducer is connected, suspended targets (such as fish) are indicated by red, green, and yellow spheres. Red indicates the largest targets and green indicates the smallest.

**Fishing Chart:** Provides a detailed view of the bottom contours and depth soundings on the chart. This chart removes navigational data from the chart, provides detailed bathymetric data, and enhances bottom contours for depth recognition. This chart is best for offshore deep-sea fishing.

**NOTE:** The Fishing chart is available with premium charts, in some areas.

**Radar Overlay:** Superimposes radar information on the Navigation chart or the Fishing chart, when the chartplotter is connected to a radar. This feature is not available with all models.

**Navigation Chart and Fishing Chart**

**NOTE:** The Fishing chart is available with premium charts, in some areas.

The Nav. Chart is optimized for navigation. You can plan a course, view map information, and use the chart as a navigational aid. To open the Nav. Chart, select Charts > Nav. Chart.

The Fishing Chart provides a detailed view with more bottom detail and fishing content. This chart is optimized for use when fishing. To open the Fishing Chart, select Charts > Fishing Chart.

**Zooming In and Out Using the Touchscreen**

You can quickly zoom in and out of many screens, such as the charts and sonar views.

- Pinch two fingers together to zoom out.
- Spread two fingers apart to zoom in.

**Chart Symbols**

This table contains some of the common symbols you might see on the detailed charts.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buoy</td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td></td>
</tr>
<tr>
<td>Marine services</td>
<td></td>
</tr>
<tr>
<td>Tide station</td>
<td></td>
</tr>
<tr>
<td>Current station</td>
<td></td>
</tr>
<tr>
<td>Overhead photo</td>
<td></td>
</tr>
<tr>
<td>Perspective photo</td>
<td></td>
</tr>
</tbody>
</table>

Other features common to most charts include depth contour lines, intertidal zones, spot soundings (as depicted on the original paper chart), navigational aids and symbols, obstructions, and cable areas.
Measuring a Distance on the Chart
1. From a chart or the Radar overlay, select a location.
2. Select Measure.
   A push pin appears on the screen at your present location.
   The distance and angle from the pin is listed in the corner.

TIP: To reset the pin and measure from the current location of the cursor, select Select.

Creating a Waypoint on the Chart
1. From a chart, select a location or object.
2. Select ☀.

Viewing Location and Object Information on a Chart
You can view information, such as tide, current, celestial, chart notes, or local services, about a location or an object on the Navigation chart or the Fishing chart.
1. From the Navigation chart or Fishing chart, select a location or object.
   A list of options appears along the top of the chart. The options that appear vary based on the location or object you selected.
2. If necessary, select ▶.
3. Select Information.

Viewing Details about Navaids
From the Navigation chart, Fishing chart, Perspective 3D chart view, or Mariner’s Eye 3D chart view, you can view details about various types of navigation aids, including beacons, lights, and obstructions.

NOTE: The Fishing chart is available with premium charts, in some areas.

NOTE: 3D chart views are available with premium charts, in some areas.
1. From a chart or 3D chart view, select a navaid.
2. Select the name of the navaid.

Navigating to a Point on the Chart

The Auto Guidance feature is based on electronic chart information. That data does not ensure obstacle and bottom clearance. Carefully compare the course to all visual sightings, and avoid any land, shallow water, or other obstacles that may be in your path.

When using Go To, a direct course and a corrected course may pass over land or shallow water. Use visual sightings, and steer to avoid land, shallow water, and other dangerous objects.

NOTE: The Fishing chart is available with premium charts, in some areas.

NOTE: Auto Guidance is available with premium charts, in some areas.
1. From the Navigation chart or Fishing chart, select a location.
2. If necessary, select Navigate To.
3. Select an option:
   - To navigate directly to the location, select Go To or 🅱️.
   - To create a route to the location, including turns, select Route To or 🅱️.
   - To use Auto Guidance, select Auto Guidance or 🅱️.
4. Review the course indicated by the magenta line.

NOTE: When using Auto Guidance, a gray segment within any part of the magenta line indicates that Auto Guidance cannot calculate part of the Auto Guidance line. This is due to the settings for minimum safe water depth and minimum safe obstacle height.

5. Follow the magenta line, steering to avoid land, shallow water, and other obstacles.

Premium Charts

CAUTION
The Auto Guidance feature is based on electronic chart information. That data does not ensure obstacle and bottom clearance. Carefully compare the course to all visual sightings, and avoid any land, shallow water, or other obstacles that may be in your path.

NOTE: Not all models support all charts.
Optional premium charts, such as BlueChart® g2 Vision®, allow you to get the most out of your chartplotter. In addition to detailed marine charting, premium charts may contain these features, which are available in some areas.

Mariner’s Eye 3D: Provides a view from above and behind the boat for a three-dimensional navigation aid.

Fish Eye 3D: Provides an underwater, three-dimensional view that visually represents the sea floor according to the information on the chart.

Fishing Charts: Shows the chart with enhanced bottom contours and without navigational data. This chart works well for offshore deep-sea fishing.

High Resolution Satellite Imagery: Provides high-resolution satellite images for a realistic view of the land and water on the Navigation chart.

Aerial Photos: Shows marinas and other navigationally significant aerial photos to help you visualize your surroundings.

Detailed Roads and POI data: Shows detailed road and point of interest (POI) data, which includes highly detailed coastal roads and POIs such as restaurants, lodging, and local attractions.

Auto Guidance: Uses specified information about your vessel and chart data to determine the best path to your destination.

Viewing Tide Station Information

This feature is available with premium charts, in some areas.
1. From the Navigation chart or Fishing chart, select a tide station.
   Tide direction and tide level information appear near 🌈.
2. Select the station name.

Animated Tide and Current Indicators

NOTE: This feature is available with premium charts, in some areas.
You can view indicators for animated tide station and current direction on the Navigation chart or the Fishing chart. You must also enable animated icons in the chart settings.

An indicator for a tide station appears on the chart as a vertical bar graph with an arrow. A red arrow pointing downward indicates a falling tide, and a blue arrow pointing upward indicates a rising tide. When you move the cursor over the tide station indicator, the height of the tide at the station appears above the station indicator.

Current direction indicators appear as arrows on the chart. The direction of each arrow indicates the direction of the current at a specific location on the chart. The color of the current arrow indicates the range of speed for the current at that location.
When you move the cursor over the current direction indicator, the specific current speed at the location appears above the direction indicator.

<table>
<thead>
<tr>
<th>Color</th>
<th>Current Speed Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow</td>
<td>0 to 1 knot</td>
</tr>
<tr>
<td>Orange</td>
<td>1 to 2 knots</td>
</tr>
<tr>
<td>Red</td>
<td>2 or more knots</td>
</tr>
</tbody>
</table>

### Showing Tides and Current Indicators

**NOTE:** This feature is available with premium charts, in some areas.

You can show static or animated tide and current station indicators on the Navigation chart or Fishing chart.

1. From the Navigation or Fishing chart, select **Menu > Layers > Chart > Tides & Currents**.

2. Select an option:
   - To show animated tide station indicators and animated current direction indicators on the chart, select **Animated**.
   - To enables the tides and current slider, which sets the time for which tides and currents are reported on the map, select **Slider**.

### Showing Satellite Imagery on the Navigation Chart

**NOTE:** This feature is available with premium charts, in some areas.

You can overlay high-resolution satellite images on the land or on both land and sea portions of the Navigation chart.

**NOTE:** When enabled, high-resolution satellite images are present only at lower zoom levels. If you cannot see high-resolution images in your optional chart region, you can select + to zoom in. You also can set the detail level higher by changing the map zoom detail.

1. From the Navigation chart, select **Menu > Layers > Satellite Photos**.

2. Select an option:
   - Select **Land Only** to show standard chart information on the water, with photos overlaying the land.
   - Select **Photo Map** to show photos on both the water and the land at a specified opacity. Use the slider bar to adjust the photo opacity. The higher you set the percentage, the more the satellite photos cover both land and water.

### Viewing Aerial Photos of Landmarks

Before you can view aerial photos on the Navigation chart, you must turn on the Satellite Photos setting in the chart setup.

**NOTE:** This feature is available with premium charts, in some areas.

You can use aerial photographs of landmarks, marinas, and harbors to help orient yourself to your surroundings or to acquaint yourself with a marina or a harbor prior to arrival.

1. From the Navigation chart, select a camera icon:
   - To view an overhead photo, select 📷.
   - To view a perspective photo, select ⏸️. The photo was taken from the location of the camera, pointed in the direction of the cone.

2. Select **Aerial Photo**.

### Automatic Identification System

The Automatic Identification System (AIS) enables you to identify and track other vessels, and alerts you to area traffic. When connected to an external AIS device, the chartplotter can show some AIS information about other vessels that are within range, that are equipped with a transponder, and that are actively transmitting AIS information.

The information reported for each vessel includes the Maritime Mobile Service Identity (MMSI), location, GPS speed, GPS heading, time that has elapsed since the last position of the vessel was reported, nearest approach, and time to the nearest approach.

Some chartplotter models also support Blue Force Tracking. Vessels being tracked with Blue Force Tracking are indicated on the chartplotter with a blue-green color.

### AIS Targeting Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔴</td>
<td>AIS vessel. The vessel is reporting AIS information. The direction in which the triangle is pointing indicates the direction in which the AIS vessel is moving.</td>
</tr>
<tr>
<td>🔴</td>
<td>Target is selected.</td>
</tr>
<tr>
<td>🔴</td>
<td>Target is activated. The target appears larger on the chart. A green line attached to the target indicates the heading of the target. The MMSI, speed, and direction of the vessel appear beneath the target, if the details setting has been set to Show. If the AIS transmission from the vessel is lost, a message banner appears.</td>
</tr>
<tr>
<td>🔴</td>
<td>Target is lost. A green X indicates that the AIS transmission from the vessel is lost, and the chartplotter displays a message banner asking whether the vessel should continue to be tracked. If you discontinue vessel tracking, the lost target symbol disappears from the chart or the 3D chart view.</td>
</tr>
<tr>
<td>🔴</td>
<td>Dangerous target in range. The target flashes while an alarm sounds and a message banner appears. After the alarm has been acknowledged, a solid red triangle with a red line attached to it indicates the location and the heading of the target. If the safe-zone collision alarm has been set to Off, the target flashes, but the audible alarm does not sound and the alarm banner does not appear. If the AIS transmission from the vessel is lost, a message banner appears.</td>
</tr>
<tr>
<td>🔴</td>
<td>Dangerous target is lost. A red X indicates that the AIS transmission from the vessel is lost, and the chartplotter displays a message banner asking whether the vessel should continue to be tracked. If you discontinue vessel tracking, the lost dangerous target symbol disappears from the chart or the 3D chart view.</td>
</tr>
<tr>
<td>🔴</td>
<td>The location of this symbol indicates the closest point of approach to a dangerous target, and the numbers near the symbol indicate the time to the closest point of approach to that target.</td>
</tr>
</tbody>
</table>

**NOTE:** Vessels being tracked with the Blue Force Tracking feature are indicated with a blue-green color regardless of their status.

### Heading and Projected Course of Activated AIS Targets

When heading and course over ground information are provided by an activated AIS target, the heading of the target appears on a chart as a solid line attached to the AIS target symbol. A heading line does not appear on a 3D chart view.

The projected course of an activated AIS target appears as a dashed line on a chart or a 3D chart view. The length of the projected course line is based on the value of the projected heading setting. If an activated AIS target is not transmitting speed information, or if the vessel is not moving, a projected course line does not appear. Changes in the speed, course over ground, or rate of turn information transmitted by the vessel can impact the calculation of the projected course line.

When course over ground, heading, and rate of turn information are provided by an activated AIS target, the projected course of the target is calculated based on the course over ground and the rate of turn information. The direction in which the target is turning, which is also based on the rate of turn information, is indicated by the direction of the barb at the end of the heading line. The length of the barb does not change.
**Activating a Target for an AIS Vessel**

1. From a chart or a 3D chart view, select an AIS vessel.
2. Select **AIS Vessel > Activate Target**.

**Viewing Information about a Targeted AIS Vessel**

You can view the AIS signal status, MMSI, GPS speed, GPS heading, and other information that is reported about a targeted AIS vessel.

1. From a chart or a 3D chart view, select an AIS vessel.
2. Select **AIS Vessel**.

**Deactivating a Target for an AIS Vessel**

1. From a chart or a 3D chart view, select an AIS vessel.
2. Select **AIS Vessel > Deactivate**.

**Viewing a List of AIS and MARPA Threats**

1. From a chart, select **Menu > Layers > Other Vessels > List > Show**.
2. Select the type of threats to include in the list.

**Setting the Safe-Zone Collision Alarm**

Before you can set a collision alarm, you must have a compatible chartplotter connected to an AIS device or radar.

The safe-zone collision alarm is used only with AIS and MARPA. MARPA functionality works with radar. The safe zone is used for collision avoidance and can be customized.

1. Select **Settings > Alarms > Collision Alarm > On**.
   - A message banner appears and an alarm sounds when a MARPA-tagged object or an AIS-activated vessel enters the safe-zone area around your boat. The object is also labeled as dangerous on the screen. When the alarm is off, the message banner and audible alarm are disabled, but the object is still labeled as dangerous on the screen.
2. Select **Range**.
3. Select a distance for the safe-zone radius around your vessel.
4. Select **Time To**.
5. Select a time at which the alarm will sound if a target is determined to intersect the safe zone.
   - For example, to be notified of a pending intersection 10 minutes before it will likely occur, set Time To to 10, and the alarm will sound 10 minutes before the vessel intersects the safe zone.

**AIS Distress Signals**

Self-contained AIS distress signal devices transmit emergency position reports when activated. The chartplotter can receive signals from Search and Rescue Transmitters (SART), Emergency Position Indicating Radio Beacons (EPIRB), and other man overboard signals. Distress signal transmissions are different than standard AIS transmissions, so they appear differently on the chartplotter. Instead of tracking a distress signal transmission for collision avoidance, you track a distress signal transmission to locate and assist a vessel or person.

**Navigating to a Distress Signal Transmission**

When you receive a distress signal transmission, a distress signal alarm appears.

- Select **Review > Go To** to begin navigation to the transmission.

### AIS Distress Signal Device Targeting Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🚭</td>
<td>AIS distress signal device transmission. Select to see more information about the transmission and begin navigation.</td>
</tr>
<tr>
<td>⚠️</td>
<td>Transmission lost.</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>Transmission test. Appears when a vessel initiates a test of their distress signal device, and does not represent a true emergency.</td>
</tr>
<tr>
<td>⚠️</td>
<td>Transmission test lost.</td>
</tr>
</tbody>
</table>

**Enabling AIS Transmission Test Alerts**

To avoid a large number of test alerts and symbols in crowded areas such as marinas, you can select to receive or ignore AIS test messages. To test an AIS emergency device, you must enable the chartplotter to receive test alerts.

1. Select **Settings > Alarms > AIS**.
2. Select an option:
   - To receive or ignore Emergency Position Indicating Radio Beacon (EPIRB) test signals, select **AIS-EPIRB Test**.
   - To receive or ignore Man Overboard (MOB) test signals, select **AIS-MOB Test**.
   - To receive or ignore Search and Rescue Transponder (SART) test signals, select **AIS-SART Test**.

**Turning Off AIS Reception**

AIS signal reception is turned on by default.

1. Select **Settings > Other Vessels > AIS > Off**.

All AIS functionality on all charts and 3D chart views is disabled. This includes AIS vessel targeting and tracking, collision alarms that result from AIS vessel targeting and tracking, and the display of information about AIS vessels.

**Chart Menu**

**NOTE:** Not all settings apply to all charts. Some options require premium maps or connected accessories, such as radar.

- From a chart, select **Menu**.
- **Layers**: Adjusts the appearance of the different items on the charts.
- **Quickdraw Contours**: Turns on bottom contour drawing, and allows you to create fishing map labels.
- **Settings**: Adjusts the chart settings.
- **Edit Overlays**: Adjusts the data shown on the screen.

**Chart Layers**

The layers in the charts allow you to turn on and off and customize features of the charts. Each setting is specific to the chart or chart view being used.

**NOTE:** Not all settings apply to all charts and chartplotter models. Some options require premium maps or connected accessories.

- From a chart, select **Menu > Layers**.
- **Chart**: Shows and hides chart related items.
- **My Vessel**: Shows and hides items relating to the boat.
- **User Data**: Shows and hides user data, such as waypoints, boundaries, and tracks, and opens user data lists.
- **Other Vessels**: Adjusts how other vessels are shown.
- **Water**: Shows and hides depth items.
Quickdraw Contours: Shows and hides Garmin Quickdraw data.

Tracks: Shows and hides tracks on the 3D chart view.

Range Rings: Shows and configures the appearance of range rings on the 3D chart view. Range Rings help you to visualize distances in some chart views.

Chart Layer Settings
From a chart, select Menu > Layers > Chart.

Satellite Photos: Shows high-resolution satellite images on the land or on both land and sea portions of the Navigation chart, when certain premium maps are used.

Tides & Currents: Shows current station indicators and tide station indicators on the chart and enables the tides and current slider, which sets the time for which tides and currents are reported on the map.

Nav aids: Shows navigational aids on the chart.

Land POIs: Shows points of interest on land.

Photo Points: Shows camera icons for aerial photos.

Service Points: Shows locations for marine services.

Depth: Adjusts the items on the depth layer

Depth Layer Settings
From a chart, select Menu > Layers > Chart > Depth.

Depth Shading: Specifies an upper and lower depth to shade between.

Shallow Shading: Sets the shades from the shoreline to the specified depth.

Spot Depths: Turns on spot soundings and sets a dangerous depth. Spot depths that are equal to or more shallow than the dangerous depth are indicated by red text.

Fishing Contours: Sets the zoom level for a detailed view of bottom contours and depth soundings and simplifies map presentation for optimal use while fishing.

My Vessel Layer Settings
From a chart, select Menu > Layers > My Vessel.

Heading Line: Shows and adjusts the heading line, which is a line drawn on the map from the bow of the boat in the direction of travel

Active Tracks: Shows the active track on the chart and opens the Active Track Options menu.

Wind Rose: Shows a visual representation of the wind angle or direction provided by the connected wind sensor and sets the wind source.

Compass Rose: Shows a compass rose around your boat, indicating compass direction oriented to the heading of the boat. Enabling this option disables the Wind Rose option.

Vessel Icon: Sets the icon that represents your present location on the chart.

Laylines Settings
To use the laylines features, you must connect a wind sensor to the chartplotter.

When in sailing mode you can display laylines on the navigation chart. Laylines can be very helpful when racing.

From the navigation chart, select Menu > Layers > My Vessel > Laylines > Setup.

Display: Shows how the laylines and vessel appear on the chart, and sets the length of the laylines.

Sailing Ang.: Allows you to select how the device calculates laylines. The Actual option calculates the laylines using the measured wind angle from the wind sensor. The Manual option calculates the laylines using manually entered windward and leeward angles.

Windward Ang.: Allows you to set a layline based on the windward sailing angle.

Leeward Ang.: Allows you to set a layline based on the leeward sailing angle.

Tide Correction: Corrects the laylines based on the tide.

Layline Filter: Filters the layline data based on the time interval entered. For a smoother layline that filters out some of the changes in the boat's heading or true wind angle, enter a higher number. For laylines that display a higher sensitivity to changes in the boat's heading or true wind angle, enter a lower number.

User Data Layer Settings
You can show user data, such as waypoints, boundaries, and tracks, on the charts.

From a chart, select Menu > Layers > User Data.

Waypoints: Shows waypoints on the chart and opens the list of waypoints.

Boundaries: Shows boundaries on the chart and opens the list of boundaries.

Tracks: Shows tracks on the chart.

Other Vessels Layer Settings
NOTE: These options require connected accessories, such as an AIS receiver, radar, or VHF radio.

From a chart, select Menu > Layers > Other Vessels.

DSC: Sets how DSC vessels and trails appear on the chart, and shows the DSC list.

AIS: Sets how AIS vessels and trails appear on the chart, and shows the AIS list.

MARPA: Sets how MARPA vessels and trails appear on the chart, and shows the MARPA list.

Details: Shows other vessel details on the chart.

Proj. Heading: Sets the projected heading time for AIS-activated and MARPA-tagged vessels.

Collision Alarm: Sets the safe-zone collision alarm.

Water Layer Settings
From a chart, select Menu > Layers > Water.

Depth Shading: Specifies an upper and lower depth to shade between.

Shallow Shading: Sets the shades from the shoreline to the specified depth.

Spot Depths: Turns on spot soundings and sets a dangerous depth. Spot depths that are equal to or more shallow than the dangerous depth are indicated by red text.

Fishing Contours: Sets the zoom level for a detailed view of bottom contours and depth soundings and simplifies map presentation for optimal use while fishing.

Relief Shading: Shows the gradient of the bottom with shading. This feature is available only with some premium maps.

Sonar Imagery: Shows sonar imagery to help show the density of the bottom. This feature is available only with some premium maps.

Lake Level: Sets the present water level of the lake. This feature is available only with some premium maps.

Weather Layer Settings
From the Navigation or Fishing chart, select Menu > Layers > Chart > Weather > Weather > 🌠.
From a weather chart, select Menu > Layers > Chart > Weather.

**Observed Layers:** Sets which observed weather items are shown. Observed weather is the present weather condition that are visible now.

**Forecast Layers:** Sets which forecasted weather items are shown.

**Layer Mode:** Shows forecasted or observed weather information.

**Loop:** Shows a loop of forecasted or observed weather information.

**Legend:** Shows the weather legend, with the severity of the conditions increasing from left to right.

**Weather Subscription:** Shows weather subscription information.

**Restore Defaults:** Resets the weather settings to factory default values.

**Edit Overlays:** Adjusts the data shown on the screen

### Radar Overlay Settings
From the Navigation or Fishing chart, select Menu > Layers > Radar >

From a radar screen, select Menu.

**Radar To Standby:** Stops radar transmission.

**Gain:** Adjusts the gain ([Adjusting Gain on the Radar Screen Automatically, page 31]).

**Sea Clutter:** Adjusts the sea clutter ([Adjusting Gain on the Radar Screen Automatically, page 31]).

**Radar Options:** Opens the radar options menu ([Radar Options Menu, page 32]).

**Other Vessels:** Sets how other vessels are displayed on the radar view ([Other Vessels Layer Settings, page 10]).

**Radar Setup:** Opens the radar display settings ([Radar Setup Menu, page 32]).

**Edit Overlays:** Adjusts the data shown on the screen ([Customizing the Data Overlays, page 3]).

### Chart Settings
**NOTE:** Not all settings apply to all charts and 3D chart views. Some settings require external accessories or applicable premium charts.

From a chart, select Menu > Settings.

**Orientation:** Sets the perspective of the map.

**Detail:** Adjusts the amount of detail shown on the map, at different zoom levels.

**World Map:** Uses either a basic world map or a shaded relief map on the chart. These differences are visible only when zoomed out too far to see the detailed charts.

**Start Line:** Sets the starting line for the sailing race.

**Inset Map:** Shows a small map centered on your present location.

### Fish Eye 3D Settings
**NOTE:** This feature is available with premium charts, in some areas.

From the Fish Eye 3D chart view, select Menu.

**View:** Sets the perspective of the 3D chart view.

**Tracks:** Shows tracks.

**Sonar Cone:** Shows a cone that indicates the area covered by the transducer.

**Fish Symbols:** Shows suspended targets.

---

**Supported Maps**
To help you have a safe and enjoyable time on the water, Garmin devices only support official maps produced by Garmin or an approved third party producer.

You can purchase maps from Garmin. If you purchase maps from a seller other than Garmin, investigate the seller before purchasing. Be extra cautious with online sellers. If you have purchased an unsupported map, return it to the seller.

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**Garmin Quickdraw Contours Mapping**

**WARNING**
The Garmin Quickdraw Contours mapping feature allows users to generate maps. Garmin makes no representations about the accuracy, reliability, completeness or timeliness of the maps generated by third parties. Any use or reliance on the maps generated by third parties is at your own risk.

The Garmin Quickdraw Contours mapping feature allows you to instantly create maps with contours and depth labels for any body of water.

When Garmin Quickdraw Contours records data, a colored circle surrounds the vessel icon. This circle represents the approximate area of the map that is scanned by each pass.

A green circle indicates good depth and GPS position, and a speed under 16 km/h (10 mph). A yellow circle indicates good depth and GPS position, and a speed between 16 and 32 km/h (10 and 20 mph). A red circle indicates poor depth or GPS position, and a speed above 32 km/h (20 mph).

You can view Garmin Quickdraw Contours in a combination screen or as a single view on the map.

**Mapping a Body of Water Using the Garmin Quickdraw Contours Feature**
Before you can use the Garmin Quickdraw Contours feature, you must have sonar depth, your GPS position, and a memory card with free space.

1. From a chart view, select Menu > Quickdraw Contours > Start Recording.
2. When recording is complete, select Menu > Quickdraw Contours > Stop Recording.
3. Select Manage > Name, and enter a name for the map.

**Adding a Label to a Garmin Quickdraw Contours Map**
You can add labels to a Garmin Quickdraw Contours map to mark hazards or points of interest.

1. From the Navigation chart, select a location.
2. Select Add Quickdraw Label.
3. Enter text for the label, and select Done.

**Garmin Quickdraw Community**
The Garmin Quickdraw Community is a free, public, online community that enables you to share your Garmin Quickdraw Contours maps with others. You can also download maps other users have created.
If your device has Wi-Fi technology, you can use the ActiveCaptain app to access the Garmin Quickdraw Community (Connecting to the Garmin Quickdraw Community with ActiveCaptain, page 12).

**Connecting to the Garmin Quickdraw Community with ActiveCaptain**
1. From your mobile device, open the ActiveCaptain app and connect to the GPSMAP device (Getting Started with the ActiveCaptain App, page 4).
2. From the app, select **Quickdraw Community**. You can download contours from others in the community and share the contours you have created.

**Downloading Garmin Quickdraw Community Maps Using ActiveCaptain**
You can download Garmin Quickdraw Contours maps that other users have created and shared with the Garmin Quickdraw Community.
1. From the ActiveCaptain app on your mobile device, select **Quickdraw Community > Search for Contours**.
2. Use the map and search features to locate an area to download.
   The red dots represent Garmin Quickdraw Contours maps that have been shared for that area.
3. Select **Select Download Region**.
4. Drag the box to select the area to download.
5. Drag the corners to change the download area.
6. Select **Download Area**.
The next time you connect the ActiveCaptain app to the GPSMAP device, the downloaded contours are transferred to the device automatically.

**Sharing Your Garmin Quickdraw Contours Maps with the Garmin Quickdraw Community Using ActiveCaptain**
You can share Garmin Quickdraw Contours maps that you have created with others in the Garmin Quickdraw Community.
1. From the ActiveCaptain app on your mobile device, select **Quickdraw Community**.
The next time you connect the ActiveCaptain app to the GPSMAP device, your contour maps are transferred to the community automatically.

**Connecting to the Garmin Quickdraw Community with Garmin Connect™**
1. Select **Get Started > Quickdraw Community > Get Started**.
2. If you do not have a Garmin Connect account, create one.
3. Sign in to your Garmin Connect account.
4. Select **Marine** in the upper-right to open the Garmin Quickdraw widget.

**TIP:** Make sure you have a memory card in your computer to download your contours maps.

**Sharing Your Garmin Quickdraw Contours Maps with the Garmin Quickdraw Community Using Garmin Connect**
You can share Garmin Quickdraw Contours maps that you have created with others in the Garmin Quickdraw Community.
When you share a contour map, only the contour map is shared. Your waypoints are not shared.
1. Remove the memory card from the chartplotter.
2. Insert the memory card into your computer.
3. Access the Garmin Quickdraw Community (Connecting to the Garmin Quickdraw Community with Garmin Connect™, page 12).
4. Select **Share Your Contours**.
5. Browse to your memory card, and select the Garmin folder.
6. Open the Quickdraw folder, and select the file named ContoursLog.svy.
   After the file is uploaded, delete the ContoursLog.svy file from your memory card to avoid issues with future uploads. Your data will not be lost.

**Downloading Garmin Quickdraw Community Maps Using Garmin Connect**
You can download Garmin Quickdraw Contours maps that other users have created and shared with the Garmin Quickdraw Community.
If your device does not have Wi-Fi technology, you can access the Garmin Quickdraw Community using the Garmin Connect website.
If your device has Wi-Fi technology, you should access the Garmin Quickdraw Community using the ActiveCaptain app (Connecting to the Garmin Quickdraw Community with ActiveCaptain, page 12).
1. Insert the memory card into your computer.
2. Access the Garmin Quickdraw Community (Connecting to the Garmin Quickdraw Community with Garmin Connect™, page 12).
3. Select **Search for Contours**.
4. Use the map and search features to locate an area to download.
   The red dots represent Garmin Quickdraw Contours maps that have been shared for that region.
5. Select **Select an Area to Download**.
6. Drag the edges of the box to select the area to download.
7. Select **Start Download**.
8. Save the file to your memory card.
   **TIP:** If you cannot find the file, look in the "Downloads" folder. The browser may have saved the file there.
9. Remove the memory card from your computer.
10. Insert the memory card into the chartplotter.
    The chartplotter automatically recognizes the contours maps. The chartplotter may take a few minutes to load the maps.

**Garmin Quickdraw Contours Settings**
From a chart, select **Menu > Quickdraw Contours > Settings**.
**Display:** Displays Garmin Quickdraw Contours. The User Contours option shows your own Garmin Quickdraw Contours maps. The Community Contours option shows the maps you have downloaded from the Garmin Quickdraw Community.

**Recording Offset:** Sets the distance between the sonar depth and the contour recording depth. If the water level has changed since your last recording, adjust this setting so the recording depth is the same for both recordings.
For example, if the last time you recorded had a sonar depth of 3.1 m (10.5 ft.), and today's sonar depth is 3.6 m (12 ft.), enter -0.5 m (-1.5 ft.) for the a Recording Offset value.

**User Display Offset:** Sets differences in contour depths and depth labels on your own contours maps to compensate for...
changes in the water level of a body of water, or for depth errors in recorded maps.

**Comm. Display Offset**: Sets differences in contour depths and depth labels on the community contours maps to compensate for changes in the water level of a body of water, or for depth errors in recorded maps.

**Survey Coloring**: Sets the color of the Garmin Quickdraw Contours display. When this setting is turned on, the colors indicate the quality of the recording. When this setting is turned off, the contour areas use standard map colors. Green indicates good depth and GPS position, and a speed under 16 km/h (10 mph). Yellow indicates good depth and GPS position, and a speed between 16 and 32 km/h (10 and 20 mph). Red indicates poor depth or GPS position, and a speed above 32 km/h (20 mph).

**Depth Shading**: Specifies the minimum and maximum depths of a depth range and a color for that depth range.

**Depth Range Shading**

You can set color ranges on your map to show the water depths where your target fish are currently biting. You can set deeper ranges to monitor how quickly the bottom depth changes within a specific depth range. You can create up to ten depth ranges. For inland fishing, a maximum of five depth ranges can help reduce map clutter.

<table>
<thead>
<tr>
<th>Color</th>
<th>Depth Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>From 0 to 1.5 m (from 0 to 5 ft.)</td>
</tr>
<tr>
<td>Orange</td>
<td>From 1.5 to 3 m (from 5 to 10 ft.)</td>
</tr>
<tr>
<td>Yellow</td>
<td>From 3 to 4.5 m (from 10 to 15 ft.)</td>
</tr>
<tr>
<td>Green</td>
<td>From 4.5 to 7.6 m (from 15 to 25 ft.)</td>
</tr>
</tbody>
</table>

**Navigation with a Chartplotter**

**CAUTION**

If your vessel has an autopilot system, a dedicated autopilot control display must be installed at each steering helm in order to disable the autopilot system.

The Auto Guidance feature is based on electronic chart information. That data does not ensure obstacle and bottom clearance. Carefully compare the course to all visual sightings, and avoid any land, shallow water, or other obstacles that may be in your path.

When using Go To, a direct course and a corrected course may pass over land or shallow water. Use visual sightings, and steer to avoid land, shallow water, and other dangerous objects.

**NOTE**: Some chart views are available with premium charts, in some areas.

To navigate, you must choose a destination, set a course or create a route, and follow the course or route. You can follow the course or the route on the Navigation chart, Fishing chart, Perspective 3D chart view, or Mariner’s Eye 3D chart view.

You can set and follow a course to a destination using one of three methods: Go To, Route To, or Auto Guidance.

**Go To**: Takes you directly to the destination. This is the standard option for navigating to a destination. The chartplotter creates a straight-line course or navigation line to the destination. The path may run over land and other obstacles.

**Route To**: Creates a route from your location to a destination, allowing you to add turns along the way. This option provides a straight-line course to the destination, but allows you to add turns into the route to avoid land and other obstacles.

**Auto Guidance**: Uses the specified information about your vessel and chart data to determine the best path to your destination. This option is available only when using a compatible premium chart in a compatible chartplotter. It provides a turn-by-turn navigation path to the destination, avoiding land and other obstacles (*Auto Guidance, page 15*).

When you are using a compatible Garmin autopilot connected to the chartplotter using NMEA 2000®, the autopilot follows the Auto Guidance route.

**NOTE**: Auto Guidance is available with premium charts, in some areas.

### Basic Navigation Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do I make the chartplotter point me in the direction in which I want to go (bearing)?</td>
<td>Navigate using Go To (Setting and Following a Direct Course Using Go To, page 14).</td>
</tr>
<tr>
<td>How do I make the device guide me along a straight line (minimizing cross track) to a location using the shortest distance from the present location?</td>
<td>Build a single-leg route and navigate it using Route To (Creating and Navigating a Route From Your Present Location, page 15).</td>
</tr>
<tr>
<td>How do I make the device guide me to a location while avoiding charted obstacles?</td>
<td>Build a multi-leg route and navigate it using Route To (Creating and Navigating a Route From Your Present Location, page 15).</td>
</tr>
<tr>
<td>How do I make the device steer my automatic pilot?</td>
<td>Navigate using Route To (Creating and Navigating a Route From Your Present Location, page 15).</td>
</tr>
<tr>
<td>Can the device create a path for me?</td>
<td>If you have premium maps that support Auto Guidance and are in an area covered by Auto Guidance, navigate using Auto Guidance (Setting and Following an Auto Guidance Path, page 16).</td>
</tr>
</tbody>
</table>

### Destinations

You can select destinations using various charts and 3D chart views or using the lists.

#### Searching for a Destination by Name

You can search for saved waypoints, saved routes, saved tracks, and marine services destinations by name.

1. Select **Info > Services > Search by Name**.
2. Enter at least a portion of the name of your destination.
3. If necessary, select **Done**.
   The 50 nearest destinations that contain your search criteria appear.
4. Select the destination.

#### Selecting a Destination Using the Navigation Chart

From the Navigation chart, select a destination.

#### Searching for a Marine Services Destination

**NOTE**: This feature is available with premium charts, in some areas.
The chartplotter contains information for thousands of destinations offering marine services.

1. Select Info > Services.
2. Select Offshore Services or Inland Services.
3. If necessary, select the marine service category.
   The chartplotter shows a list of the nearest locations and the distance and bearing to each.
4. Select a destination.
   You can select Next Page or Previous Page to view additional information or to show the location on a chart.

**Stopping Navigation**
While navigating, from the Navigation or Fishing chart, select an option:
- Select Menu > Stop Navigation.
- When navigating with Auto Guidance, select Menu > Navigation Options > Stop Navigation.

**Waypoints**
Waypoints are locations you record and store in the device.
Waypoints can mark where you are, where you are going, or where you have been. You can add details about the location, such as name, elevation, and depth.

**Marking Your Present Location as a Waypoint**
From any screen, select Mark.

**Creating a Waypoint at a Different Location**
1. Select Info > User Data > Waypoints > New Waypoint.
2. Select an option:
   - To create the waypoint by entering position coordinates, select Enter Coordinates, and enter the coordinates.
   - To create the waypoint using a chart, select Use Chart, select the location, and select Select.

**Marking an SOS Location**
You can mark an SOS or MOB (man overboard) location.
1. Hold SOS for one second.
2. Select the SOS type.
3. If necessary, select OK to navigate to the man overboard location.
If you selected OK, the chartplotter sets a direct course back to the location. If you selected another type of SOS, the call details are sent to the VHF radio. You must send the call using the radio.

**Viewing a List of all Waypoints**
Select Info > User Data > Waypoints.

**Editing a Saved Waypoint**
1. Select Info > User Data > Waypoints.
2. Select a waypoint.
4. Select an option:
   - To add a name, select Name, and enter a name.
   - To change the symbol, select Symbol.
   - To change the depth, select Depth.
   - To change the water temperature, select Water Temp.
   - To change the comment, select Comment.

**Moving a Saved Waypoint**
1. Select Info > User Data > Waypoints.
2. Select a waypoint.
4. Indicate a new location for the waypoint:
   - To move the waypoint while using the chart, select Use Chart, select a new location on the chart, and select Move Waypoint.
   - To move the waypoint using coordinates, select Enter Coordinates, and enter the new coordinates.

**Browsing for and Navigating to a Saved Waypoint**

**When using Go To, a direct course and a corrected course may pass over land or shallow water. Use visual sightings, and steer to avoid land, shallow water, and other dangerous objects.**

**NOTE:** Auto Guidance is available with premium charts, in some areas.
Before you can navigate to a waypoint, you must create a waypoint.
1. Select Info > User Data > Waypoints.
2. Select a waypoint.
3. Select Navigate To.
4. Select an option:
   - To navigate directly to the location, select Go To.
   - To create a route to the location, including turns, select Route To.
   - To use Auto Guidance, select Auto Guidance.
5. Review the course indicated by the magenta line.
   **NOTE:** When using Auto Guidance, a gray segment within any part of the magenta line indicates that Auto Guidance cannot calculate part of the Auto Guidance line. This is due to the settings for minimum safe water depth and minimum safe obstacle height.
6. Follow the magenta line, steering to avoid land, shallow water, and other obstacles.

**Deleting a Waypoint or an MOB**
1. Select Info > User Data > Waypoints.
2. Select a waypoint or an MOB.

**Deleting All Waypoints**
Select Info > User Data > Clear User Data > Waypoints > All.

**Setting and Following a Direct Course Using Go To**

**When using Go To, a direct course and a corrected course may pass over land or shallow water. Use visual sightings, and steer to avoid land, shallow water, and other dangerous objects.**

You can set and follow a direct course from your current location to a selected destination.
1. Select a destination (Destinations, page 13).
2. Select Navigate To > Go To.
   A magenta line appears. In the center of the magenta line is a thinner purple line that represents the corrected course from your current location to the destination. The corrected course is dynamic, and it moves with your boat when you are off course.
3. Follow the magenta line, steering to avoid land, shallow water, and other obstacles.
4. If you are off course, follow the purple line (corrected course) to go to your destination, or steer back to the magenta line (direct course).
Routes

Creating and Navigating a Route From Your Present Location
You can create and immediately navigate a route on the Navigation chart or the Fishing chart. This method does not save the route or the waypoint data.
1. From the Navigation chart or Fishing chart, select a destination.
2. Select Route To.
3. Select the location of the last turn before the destination.
4. Select Add Turn.
5. If necessary, repeat to add turns, working backward from the destination to the present location of your vessel.
   The last turn you add should be the first turn you make, starting from your present location. It should be the turn closest to your vessel.
6. If necessary, select Menu.
7. Select Done.
8. Review the course indicated by the magenta line.
9. Follow the magenta line, steering to avoid land, shallow water, and other obstacles.

Creating and Saving a Route
This procedure saves the route and all the waypoints in it. The starting point can be your present location or another location. You can add up to 250 waypoints, or turns, to one route.
2. Select the starting location of the route.
3. Select Add Turn.
4. Select the location of the next turn on the chart.
5. Select Add Turn.
   The chartplotter marks the location of the turn with a waypoint.
6. If necessary, repeat steps 4 and 5 to add more turns.
7. Select the final destination.

Viewing a List of Routes and Auto Guidance Paths
2. If necessary, select Filter to see routes only or Auto Guidance paths only.

Editing a Saved Route
You can change the name of a route or change the turns the route contains.
2. Select a route.
4. Select an option:
   • To change the name, select Name, and enter the name.
   • To select a waypoint from the turn list, select Edit Turns > Use Turn List, and select a waypoint from the list.
   • To select a turn using the chart, select Edit Turns > Use Chart, and select a location on the chart.

Browsing for and Navigating a Saved Route
Before you can browse a list of routes and navigate to one of them, you must create and save at least one route.
2. Select a route.
3. Select Navigate To.
4. Select an option:
   • To navigate the route from the starting point used when the route was created, select Forward.
   • To navigate the route from the destination point used when the route was created, select Backward.
   A magenta line appears. In the center of the magenta line is a thinner purple line that represents the corrected course from your present location to the destination. The corrected course is dynamic, and it moves with your boat when you are off course.
5. Review the course indicated by the magenta line.
6. Follow the magenta line along each leg in the route, steering to avoid land, shallow water, and other obstacles.
7. If you are off course, follow the purple line (corrected course) to go to your destination, or steer back to the magenta line (direct course).

Browsing for and Navigating Parallel to a Saved Route
Before you can browse a list of routes and navigate to one of them, you must create and save at least one route.
2. Select a route.
3. Select Navigate To.
4. Select Offset to navigate parallel to the route, offset from it by a specific distance.
5. Indicate how to navigate the route:
   • To navigate the route from the starting point used when the route was created, to the left of the original route, select Forward - Port.
   • To navigate the route from the starting point used when the route was created, to the right of the original route, select Forward - Starboard.
   • To navigate the route from the destination point used when the route was created, to the left of the original route, select Backward - Port.
   • To navigate the route from the destination point used when the route was created, to the right of the original route, select Backward - Starboard.
6. If necessary, select Done.
   A magenta line appears. In the center of the magenta line is a thinner purple line that represents the corrected course from your present location to the destination. The corrected course is dynamic, and it moves with your boat when you are off course.
7. Review the course indicated by the magenta line.
8. Follow the magenta line along each leg in the route, steering to avoid land, shallow water, and other obstacles.
9. If you are off course, follow the purple line (corrected course) to go to your destination, or steer back to the magenta line (direct course).

Deleting a Saved Route
2. Select a route.

Deleting All Saved Routes
Select Info > User Data > Clear User Data > Routes & Auto Guidance Paths.

Auto Guidance

CAUTION
The Auto Guidance feature is based on electronic chart information. That data does not ensure obstacle and bottom
clearance. Carefully compare the course to all visual sightings, and avoid any land, shallow water, or other obstacles that may be in your path.

**NOTE:** Auto Guidance is available with premium charts, in some areas.

You can use Auto Guidance to plot the best path to your destination. Auto Guidance uses your chartplotter to scan chart data, such as water depth and known obstacles, to calculate a suggested path. You can adjust the path during navigation.

**Setting and Following an Auto Guidance Path**

1. Select a destination *(Destinations, page 13).*
2. Select **Navigate To > Auto Guidance.**
3. Review the path, indicated by the magenta line.
4. Select **Start Navigation.**
5. Follow the magenta line, steering to avoid land, shallow water, and other obstacles.

**NOTE:** When using Auto Guidance, a gray segment within any part of the magenta line indicates that Auto Guidance cannot calculate part of the Auto Guidance line. This is due to the settings for minimum safe water depth and minimum safe obstacle height.

**Creating and Saving an Auto Guidance Path**

1. Select **Info > User Data > Routes & Auto Guidance Paths > New > Auto Guidance.**
2. Select a starting point, and select **Next.**
3. Select a destination, and select **Next.**
4. Select an option:
   - To view a hazard and adjust the path near a hazard, select **Hazard Review.**
   - To adjust the path, select **Adjust Path,** and follow the on-screen instructions.
   - To delete the path, select **Cancel Auto Guidance.**
   - To save the path, select **Done.**

**Adjusting a Saved Auto Guidance Path**

1. Select **Info > User Data > Routes & Auto Guidance Paths.**
2. Select a path, and select **Review > Edit > Adjust Path.**
   - **TIP:** When navigating an Auto Guidance path, select the path on the navigation chart, and select **Adjust Path.**
3. Select a location on the path.
4. Drag the point to a new location.
5. If necessary, select a point, and select **Remove.**
6. Select **Done.**

**Canceling an Auto Guidance Calculation in Progress**

From the Navigation chart, select **Menu > Cancel.**

**TIP:** You can select **Back** to quickly cancel the calculation.

**Setting a Timed Arrival**

You can use this feature on a route or an Auto Guidance path to get feedback about when you should arrive at a selected point. This allows you to time your arrival at a location, such as a bridge opening or a race starting line.

1. From the Navigation chart, select **Menu.**
2. If necessary, select **Navigation Options.**
3. Select **Timed Arrival.**
   - **TIP:** You can quickly open the Timed Arrival menu by selecting a point on the path or route.

**Auto Guidance Path Configurations**

**CAUTION**

The Preferred Depth and Vertical Clearance settings influence how the chartplotter calculates an Auto Guidance path. If an area has an unknown water depth or an unknown obstacle height, the Auto Guidance path is not calculated in that area. If an area at the beginning or the end of an Auto Guidance path is shallower than the Preferred Depth or lower than the Vertical Clearance settings, the Auto Guidance path may not be calculated in that area, depending on the map data. On the chart, the course through those areas appears as a gray line or a magenta and gray striped line. When your boat enters one of those areas, a warning message appears.

**NOTE:** Auto Guidance is available with premium charts, in some areas.

**NOTE:** Not all settings apply to all maps.

You can set the parameters the chartplotter uses when calculating an Auto Guidance path.

**Preferred Depth:** Sets the minimum water depth, based on chart depth data, that your boat can safely travel over.

**NOTE:** The minimum water depth for the premium charts (made before 2016) is 3 feet. If you enter a value of less than 3 feet, the charts only use depths of 3 feet for Auto Guidance path calculations.

**Vertical Clearance:** Sets the minimum height of a bridge or obstacle, based on chart data, that your boat can safely travel under.

**Shoreline Distance:** Sets how close to the shore you want the Auto Guidance path to be placed. The Auto Guidance path may move if you change this setting while navigating. The available values for this setting are relative, not absolute. To ensure that the Auto Guidance line is placed the appropriate distance from shore, you can assess the placement of the Auto Guidance path using one or more familiar destinations that require navigation through a narrow waterway *(Adjusting the Distance from Shore, page 16).*

**Adjusting the Distance from Shore**

The Shoreline Distance setting indicates how close to the shore you want the Auto Guidance line to be placed. The Auto Guidance line may move if you change this setting while navigating. The available values for the Shoreline Distance setting are relative, not absolute. To ensure the Auto Guidance line is placed the appropriate distance from shore, you can assess the placement of the Auto Guidance line using one or more familiar destinations that require navigation through a narrow waterway.

1. Dock your vessel or drop the anchor.
2. Select **Settings > Preferences > Navigation > Auto Guidance > Shoreline Distance > Normal.**
3. Select a destination that you have navigated to previously.
4. Select **Navigate To > Auto Guidance.**
5. Review the placement of the Auto Guidance line, and determine whether the line safely avoids known obstacles and the turns enable efficient travel.
6. Select an option:
   - If the placement of the Auto Guidance line is satisfactory, select **Menu > Navigation Options > Stop Navigation,** and proceed to step 10.
   - If the Auto Guidance line is too close to known obstacles, select **Settings > Preferences > Navigation > Auto Guidance > Shoreline Distance > Far.**
   - If the turns in the Auto Guidance line are too wide, select **Settings > Preferences > Navigation > Auto Guidance > Shoreline Distance > Near.**
7. If you selected **Near** or **Far** in step 6, review the placement of the Auto Guidance line, and determine whether the line safely avoids known obstacles and the turns enable efficient travel.

Auto Guidance maintains a wide clearance from obstacles in open water, even if you set the Shoreline Distance setting to...
Tracks
A track is a recording of the path of your boat. The track currently being recorded is called the active track, and it can be saved. You can show tracks in each chart or 3D chart view.

Showing Tracks
From any chart or a 3D chart view, select Menu > Waypoints and Tracks > Tracks > On.
A trailing line on the chart indicates your track.

Setting the Color of the Active Track
1 Select Info > User Data > Tracks > Active Track Options > Track Color.
2 Select a track color.

Saving the Active Track
The track currently being recorded is called the active track.
1 Select Info > User Data > Tracks > Save Active Track.
2 Select an option:
   • Select the time the active track began.
   • Select Entire Log.
3 Select Save.

Viewing a List of Saved Tracks
Select Info > User Data > Tracks > Saved Tracks.

Editing a Saved Track
1 Select Info > User Data > Tracks > Saved Tracks.
2 Select a track.
3 Select Edit Track.
4 Select an option:
   • Select Name, and enter the new name.
   • Select Track Color, and select a color.

Saving a Track as a Route
1 Select Info > User Data > Tracks > Saved Tracks.
2 Select a track.
3 Select Select > Edit Track > Save Route.

Browsing for and Navigating a Recorded Track
Before you can browse a list of tracks and navigate to them, you must record and save at least one track (Tracks, page 17).
1 Select Info > User Data > Tracks > Saved Tracks.
2 Select a track.
3 Select Follow Track.
4 Select an option:
   • To navigate the track from the starting point used when the track was created, select Forward.
   • To navigate the track from the destination point used when the track was created, select Backward.
5 Review the course indicated by the colored line.
6 Follow the line along each leg in the route, steering to avoid land, shallow water, and other obstacles.

Deleting a Saved Track
1 Select Info > User Data > Tracks > Saved Tracks.
2 Select a track.
3 Select Select > Delete.

Deleting All Saved Tracks
Select Info > User Data > Clear User Data > Saved Tracks.

Retracing the Active Track
The track currently being recorded is called the active track.
1 Select Info > User Data > Tracks > Follow Active Track.
2 Select an option:
   • Select the time the active track began.
   • Select Entire Log.
3 Review the course indicated by the colored line.
4 Follow the colored line, steering to avoid land, shallow water, and other obstacles.

Clearing the Active Track
Select Info > User Data > Tracks > Clear Active Track.
The track memory is cleared, and the active track continues to be recorded.

Managing the Track Log Memory During Recording
1 Select Info > User Data > Tracks > Active Track Options.
2 Select Record Mode.
3 Select an option:
   • To record a track log until the track memory is full, select Fill.
   • To continuously record a track log, replacing the oldest track data with new data, select Wrap.

Configuring the Recording Interval of the Track Log
You can indicate the frequency at which the track plot is recorded. Recording more frequent plots is more accurate but fills the track log faster. The resolution interval is recommended for the most efficient use of memory.
1 Select Info > User Data > Tracks > Active Track Options > Interval > Interval.
2 Select an option:
   • To record the track based on a distance between points, select Distance > Change, and enter the distance.
   • To record the track based on a time interval, select Time > Change, and enter the time interval.
   • To record the track plot based on a variance from your course, select Resolution > Change, and enter the maximum error allowed from the true course before recording a track point. This is the recommended recording option.

Navigation with a Chartplotter
Boundaries
Boundaries allow you to avoid or remain in designated areas in a body of water. You can set an alarm to alert you when you enter or exit a boundary. You can create boundary areas, lines, and circles using the map. You can also convert saved tracks and routes into boundary lines. You can create a boundary area using waypoints by creating a route from the waypoints, and converting the route into a boundary line.
You can select a boundary to act as the active boundary. You can add the active boundary data to the data fields on the chart. You can use the device to increase the likelihood that your boat will cross the start line of a race exactly when the race begins. When you synchronize the race timer with the official race countdown timer, you are alerted at one-minute intervals as the race start approaches. When you combine the race timer with the virtual start line, the device measures your speed, bearing, and remaining time on the countdown timer. The device uses this data to indicate whether your boat will cross the start line before, after, or at the correct time to start the race.
Boundaries

Creating a Boundary
2. Select a boundary shape.
3. Follow the on-screen instructions.

Converting a Route to a Boundary
Before you can convert a route to a boundary, you must create and save at least one route (Creating and Saving a Route, page 15).
2. Select a route.
3. Select Review > Edit Route > Save as Boundary.

Converting a Track to a Boundary
Before you can convert a track to a boundary, you must record and save at least one track (Saving the Active Track, page 17).
1. Select Info > User Data > Tracks > Saved Tracks.
2. Select a track.
3. Select Review > Edit Track > Save as Boundary.

Editing a Boundary
1. Select Info > User Data > Boundaries.
2. Select a boundary.
4. Select an option:
   • To edit the appearance of the boundary on the chart, select Display Options.
   • To change the boundary lines or name, select Edit Boundary.
   • To edit the boundary alarm, select Alarm.

Linking a Boundary to a SmartMode Layout
You can link a boundary to a SmartMode layout to automatically open the layout when entering or exiting the boundary. For example, you can set a boundary around your marina, and automatically open the Docking layout when you approach the marina.
1. Select Info > User Data > Boundaries.
2. Select a boundary.
3. Select Review > Link SmartMode™ > SmartMode™.
4. Select Entering, and select a layout.
5. Select Exiting, and select a layout.

Setting a Boundary Alarm
Boundary alarms alert you when you are within a specified distance of a set boundary.
1. Select Info > User Data > Boundaries.
2. Select a boundary.
4. Enter a distance.

Deleting a Boundary
1. Select Info > User Data > Boundaries.
2. Select a boundary.

Synchronizing User Data Across the Garmin Marine Network

Sailing Features

Setting the Vessel Type
You can select your boat type to configure the chartplotter settings and to use features customized for your boat type.
1. Select Settings > My Vessel > Vessel Type.
2. Select an option.

Sail Racing
You can use the device to increase the likelihood that your boat will cross the start line of a race exactly when the race begins. When you synchronize the race timer with the official race countdown timer, you are alerted at one-minute intervals as the race start approaches. When you combine the race timer with the virtual start line, the device measures your speed, bearing, and remaining time on the countdown timer. The device uses this data to indicate whether your boat will cross the start line before, after, or at the correct time to start the race.

Starting Line Guidance
Sailing start line guidance is a visual representation of the information you need to cross the start line at the optimal time and speed.
After you set the starboard and port start line pins, and the target speed and time, and after you start the race timer, a predictor line appears. The predictor line extends from your current location toward the start line and the laylines that extend from each pin.
The end point and color of the predictor line indicate where the boat will be when the timer expires, based on your current boat speed.
When the end point is before the start line, the line is white. This indicates the boat must increase speed to reach the start line on time.
When the end point is past the start line, the line is red. This indicates the boat must reduce speed to avoid a penalty for reaching the start line before the timer expires.
When the end point is on the start line, the line is white. This indicates the boat is moving at an optimal speed to reach the start line when the timer expires.
By default, the start line guidance window and the race timer window appear in the Sail Racing combination screen.
Setting the Starting Line
The start line guidance window is added to the Sail Racing combination screen by default.
1 From the Sail Racing combination screen, select Menu > Start Line Guidance > Start Line.
2 Select an option:
   • To mark the port and starboard starting line marks as you sail past them, select Ping Marks.
   • To mark the port and starboard starting line marks by entering their coordinates, select Enter Coordinates.
   • To switch the position of the port and starboard marks after you have set them, select Swap Port & Starbd. Marks.

Using the Starting Line Guidance
You can use the starting line guidance feature to help get you cross the start line, at the optimal speed during a sailing race.
1 Mark the starting line (Setting the Starting Line, page 19).
2 From the Sail Racing combination screen, select Menu > Start Line Guidance > Target Speed, and select your target speed when crossing the starting line.
3 Select Target Time, and select the target time to cross the starting line.
4 Select Back.
5 Start the racing timer (Starting the Race Timer, page 19).

Starting the Race Timer
The race timer is added to the Sail Racing combination screen by default.
1 From the Sail Racing combination screen, select Start.
   NOTE: You can also access this from the Sailing SmartMode screen and the navigation chart.
2 When necessary, select Sync to synchronize with the official race timer.

Stopping the Race Timer
From the Sail Racing combination screen, select Stop.

Setting the Distance between the Bow and the GPS Antenna
You can enter the distance between the bow of your boat and the location of your GPS antenna. This helps ensure the bow of your boat crosses the starting line at the precise start time.
1 From a navigation chart, select Menu > Sailing > Start Line > GPS Bow Offset.
2 Enter the distance.
3 Select Done.

Laylines Settings
To use the laylines features, you must connect a wind sensor to the chartplotter.

When in sailing mode Setting the Vessel Type, page 3, you can display laylines on the navigation chart. Laylines can be very helpful when racing.
From the navigation chart, select Menu > Layers > My Vessel > Laylines > Setup.

Display: Sets how the laylines and vessel appear on the chart, and sets the length of the laylines.
Sailing Ang.: Allows you to select how the device calculates laylines. The Actual option calculates the laylines using the measured wind angle from the wind sensor. The Manual option calculates the laylines using manually entered windward and leeward angles.

Windward Ang.: Allows you to set a layline based on the windward sailing angle.

Leeward Ang.: Allows you to set a layline based on the leeward sailing angle.

Tide Correction: Corrects the laylines based on the tide.

Layline Filter: Filters the layline data based on the time interval entered. For a smoother layline that filters out some of the changes in the boat's heading or true wind angle, enter a higher number. For laylines that display a higher sensitivity to changes in the boat's heading or true wind angle, enter a lower number.

Setting the Keel Offset
You can enter a keel offset to compensate the water depth reading for the transducer installation location. This allows you to view the depth of the water below the keel or the true depth of the water, depending on your needs.
If you want to know the water depth below the keel or the lowest point of your boat and the transducer is installed at the water line or anywhere above the end of the keel, measure the distance from the transducer location to the keel of the boat.
If you want to know the true water depth and the transducer is installed below the water line, measure the distance from the bottom of the transducer up to the water line.

NOTE: This option is only available when you have valid depth data.
1 Measure the distance:
   • If the transducer is installed at the water line ① or anywhere above the end of the keel, measure the distance from the transducer location to the keel of the boat. Enter this value as a positive number.
   • If the transducer is installed at the bottom of the keel ② and you want to know the true depth of the water, measure the distance from the transducer to the water line. Enter this value in as a negative number.

Sailboat Autopilot Operation

CAUTION
When engaged, the autopilot controls only the rudder. You and your crew remain responsible for the sails while the autopilot is engaged.
In addition to heading hold, you can use the autopilot to maintain a wind hold. You can also use the autopilot to control the rudder while tacking and gybing.

**Wind Hold**
You can set the autopilot to maintain a specific bearing relative to the current wind angle. Your device must be connected to a NMEA 2000 or NMEA® 0183 compatible wind sensor to perform a wind hold or a wind-based tack or gybe.

**Setting the Wind Hold Type**
Before you can enable the wind hold type, you must connect a NMEA 2000 or NMEA 0183 wind sensor to the autopilot. For advanced autopilot configuration, see the installation instructions included with your autopilot.

1. From the autopilot screen, select **Menu > Autopilot Setup > Wind Hold Type**.
2. Select **Apparent** or **True**.

**Engaging Wind Hold**
Before you can enable the wind hold type, you must connect a NMEA 2000 or NMEA 0183 wind sensor to the autopilot.

When the autopilot is in standby mode, select **Wind Hold**.

**Engaging Wind Hold from Heading Hold**
Before you can enable the wind hold type, you must connect a NMEA 2000 or NMEA 0183 wind sensor to the autopilot.

With heading hold engaged, select **Menu > Wind Hold**.

**Adjusting the Wind Hold Angle with the Autopilot**
You can adjust the wind hold angle on the autopilot when wind hold is engaged.

- To adjust the wind hold angle in increments of 1°, select left or right.
- To adjust the wind hold angle in increments of 10°, hold left or right.

**Tack and Gybe**
You can set the autopilot to perform a tack or gybe while heading hold or wind hold is engaged.

**Tacking and Gybing from Heading Hold**
1. Select **Menu > Tack/Gybe**.
2. Select a direction.

The autopilot steers your boat through a tack or gybe.

**Tacking and Gybing from Wind Hold**
Before you can engage wind hold, you must have a wind sensor installed.

1. Engage wind hold (**Engaging Wind Hold, page 20**).
2. Select **Menu**.
3. Select an option.

The autopilot steers your boat through a tack or gybe, and information about the progress of the tack or gybe appears on the screen.

**Setting a Tack and Gybe Delay**
The tack and gybe delay allows you to delay steering a tack and gybe after you initiate the maneuver.

1. From the autopilot screen, select **Menu > Autopilot Setup > Sailing Setup > Tack Delay**.
2. Select the length of the delay.
3. If necessary, select **Done**.

**Enabling the Gybe Inhibitor**

**NOTE:** The gybe inhibitor does not prevent you from manually performing a gybe using the helm or step steering. The gybe inhibitor prevents the autopilot from performing a gybe.

1. From the autopilot screen, select **Menu > Autopilot Setup > Sailing Setup > Gybe Inhibitor**.
2. Select **Enabled**.

**Heading Line and Angle Markers**
The heading line is an extension drawn on the map from the bow of the boat in the direction of travel. Angle markers indicate relative position from the heading or course over ground, which are helpful for casting or finding reference points.

**Setting the Heading Line and Angle Markers**
The heading line is an extension drawn on the map from the bow of the boat in the direction of travel. Angle markers indicate relative position from the heading or course over ground, which are helpful for casting or finding reference points.

You can show the heading line and the course over ground (COG) line on the chart.

COG is your direction of movement. Heading is the direction the bow of the boat is pointed, when a heading sensor is connected.

1. From a chart, select **Menu > Layers > My Vessel > Heading Line**.
2. Angle Markers
3. If necessary, select **Source**, and select an option:
   - To automatically use the available source, select **Auto**.
   - To use the GPS antenna heading for COG, select **GPS Heading (COG)**.
   - To use data from a connected heading sensor, select **North Reference**.
   - To use data from both a connected heading sensor and the GPS antenna, select **COG and Heading**.

This displays both the heading line and the COG line on the chart.

4. Select **Display**, and select an option:
   - Select **Distance > Distance**, and enter the length of the line shown on the chart.
   - Select **Time > Time**, and enter the time used to calculate the distance your boat will travel in the specified time at your present speed.

**Sonar Fishfinder**
When properly connected to a compatible transducer, your chartplotter can be used as a fishfinder.

Different sonar views can help you view the fish in the area. The sonar views available vary depending on the type of transducer and sounder module connected to the chartplotter. For example, you can view certain Panoptix™ sonar screens only if you have a compatible Panoptix transducer connected.

There are four basic styles of sonar views available: a full-screen view, a split-screen view that combines two or more views, a split-zoom view, and a split-frequency view that displays two different frequencies. You can customize the settings for each view in the screen. For example, if you are viewing the split-frequency view, you can separately adjust the gain for each frequency.

If you do not see an arrangement of sonar views to suit your needs, you can create a custom combination screen (**Creating a New Combination Page, page 3**) or a SmartMode layout (**Adding a SmartMode Layout, page 2**).

**Stopping the Transmission of Sonar Signals**
From a sonar screen, select **Menu > Transmit**.
Changing the Sonar View

1. From a combination screen or SmartMode layout with sonar, select the window to change.
2. Select Menu > Change Sonar.
3. Select a sonar view.

Traditional Sonar View
There are several full-screen views available, depending on the equipment connected.

The full-screen Traditional sonar view shows a large image of the sonar readings from a transducer. The range scale along the right side of the screen shows the depth of detected objects as the screen scrolls from the right to the left.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth information</td>
<td>Suspended targets or fish</td>
<td>Bottom of the body of water</td>
</tr>
</tbody>
</table>

Split-Frequency Sonar View
In the split-frequency sonar view, one side of the screen shows a full-view graph of high frequency sonar data, and the other side of the screen shows a full-view graph of lower frequency sonar data.

NOTE: The split-frequency sonar view requires the use of a dual-frequency transducer.

Split-Zoom Sonar View
The split-zoom sonar view shows a full-view graph of sonar readings, and a magnified portion of that graph, on the same screen.

Garmin ClearVü Sonar View

NOTE: To receive Garmin ClearVü scanning sonar, you need a compatible chartplotter or fishfinder and a compatible transducer.

Garmin ClearVü high-frequency sonar provides a detailed picture of the fishing environment around the boat in a detailed representation of structures the boat is passing over.

Traditional transducers emit a conical beam. The Garmin ClearVü scanning sonar technology emits two narrow beams, similar to the shape of the beam in a copying machine. These beams provide a clearer, picture-like image of what is beneath the boat.

SideVü Sonar View
NOTE: Not all models provide built-in SideVü sonar support. If your model does not provide built-in SideVü sonar, you need a compatible sounder module and compatible SideVü transducer.

If your model does provide built-in SideVü sonar, you need a compatible SideVü transducer.

SideVü scanning sonar technology shows you a picture of what lies to the sides of the boat. You can use this as a search tool to find structures and fish.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left side of the boat</td>
<td>Right side of the boat</td>
<td>The transducer on your vessel</td>
<td>Trees</td>
<td>Old tires</td>
<td>Logs</td>
<td>Distance from the side of the boat</td>
<td>Water between the vessel and the bottom</td>
</tr>
</tbody>
</table>

SideVü Scanning Technology
Instead of a more common conical beam, the SideVü transducer uses a flat beam to scan the water and bottom to the sides of your boat.

Measuring Distance on the Sonar Screen
You can measure the distance between two points on the SideVü sonar view.

1. From the SideVü sonar view, select a location on the screen.
2. Select Measure.
   A push pin appears on the screen at the selected location.
3. Select another location.
   The distance and angle from the pin is listed in the upper-left corner.

TIP: To reset the pin and measure from the current location of the pin, select Measure.

Panoptix Sonar Views

NOTE: Not all models support Panoptix transducers.
To receive Panoptix sonar, you need a compatible chartplotter and a compatible transducer.
The Panoptix sonar views allow you to see all around the boat in real time. You can also watch your bait underwater and bait schools in front of or below your boat.

The LiveVü sonar views provide you a view of the live movement either in front of or below your boat. The screen updates very quickly, producing sonar views that look more like live video.

The RealVü 3D sonar views provide three-dimensional views of either what is in front of or below your boat. The screen updates with each sweep of the transducer.

To see all five Panoptix sonar views, you need one transducer to show the down views and a second transducer to show the forward views.

To access the Panoptix sonar views, select Sonar, and select a view.

**LiveVü Down Sonar View**
This sonar view shows a two-dimensional view of what is below the boat and can be used to see a bait ball and fish.

**RealVü 3D Down Sonar View**
This sonar view shows a three-dimensional view of what is below the transducer and can be used when you are stationary and want to see what is around your boat.

**RealVü 3D Historical Sonar View**
This sonar view provides a three-dimensional view of what is behind your boat as you are moving and shows the entire water column in 3D, from the bottom to the top of the water. This view is used for finding fish.

**LiveVü Forward Sonar View**
This sonar view shows a two-dimensional view of what is in front of the boat and can be used to see a bait ball and fish.

**RealVü 3D Forward Sonar View**
This sonar view shows a three-dimensional view of what is in front of the transducer. This view can be used when you are stationary and you need to see the bottom and the fish approaching the boat.

**FrontVü Sonar View**
The Panoptix FrontVü sonar view increases your situational awareness by showing obstructions under the water, up to 91 meters (300 feet) in front of the boat.

The ability to effectively avoid forward collisions with FrontVü sonar decreases as your speed rises above 8 knots.

To see the FrontVü sonar view, you must install and connect a compatible transducer, such as a PS21 transducer. You may need to update the transducer software.
Selecting the Transducer Type
Before you can select the transducer type, you must know what kind of transducer you have.
This chartplotter is compatible with a range of accessory transducers, including the Garmin ClearVu™ transducers, which are available.
If you are connecting a transducer that was not included with the chartplotter, you may need to set the transducer type to make the sonar function properly. If the device automatically detects your transducer, this option does not appear.
1. From a sonar view, select Menu > Sonar Setup > Installation > Transducer Type.
2. Select an option:
   • If you have a 200/77 kHz, dual-beam transducer, select Dual Beam (200/77 kHz).
   • If you have a 200/50 kHz, dual-frequency transducer, select Dual Frequency (200/50 kHz).
   • If you have another type of transducer, select it from the list.

Calibrating the Compass
Before you can calibrate the compass, the transducer must be installed on the shaft far enough away from the trolling motor to avoid magnetic interference, and deployed in the water. Calibration must be of sufficient quality to enable the internal compass.
NOTE: To use the compass, you must mount the transducer on the shaft. The compass does not work when you mount the transducer on the motor.
NOTE: Compass calibration is available only for transducers with an internal compass, such as the PS21-TR transducer. You can begin turning your boat before calibrating, but you must fully rotate your boat 1.5 times during calibration.
1. From an applicable sonar view, select Menu > Sonar Setup > Installation.
2. If necessary, select Use AHRS to turn on the AHRS sensor.
3. Select Calibrate Compass.
4. Follow the on-screen instructions.

Creating a Waypoint on the Sonar Screen
1. From a sonar view, drag the screen or select .
2. Select a location.
3. Select New Wpt or .
4. If necessary, edit the waypoint information.

Pausing the Sonar Display
From a sonar view, select .

Viewing Sonar History
You can scroll the sonar display to view historical sonar data.
NOTE: Not all transducers save historical sonar data.
1. From a sonar view, drag the screen to the right.
2. Select Back to exit history.

Sonar Sharing
This feature may not be available on all chartplotter models.
You can view the sonar data from all compatible sources on the Garmin Marine Network. You can view sonar data from a compatible external sonar module, such as a GCV™ sonar module. In addition, you can view the sonar data from other chartplotters that have a built-in sonar module.
Each chartplotter on the network can display sonar data from every compatible sonar module and transducer on the network, no matter where the chartplotters and transducers are mounted on your boat. For example, from a transducer with Garmin ClearVu mounted at the back of the boat, you can view the sonar data using the GPSMAP 922 mounted at the front of your boat.
When sharing sonar data, the values of some sonar settings, such as Range and Gain, are synchronized across the devices on the network. The values of other sonar settings, such as the Appearance settings, are not synchronized and should be configured on each individual device. In addition, the scroll rates of the various traditional and Garmin ClearVu sonar views are synchronized to make the split views more cohesive.
NOTE: Using multiple transducers simultaneously can create cross talk, which can be removed by adjusting the Interference sonar setting.

Selecting a Sonar Source
This feature may not be available with all models.
When you are using more than one sonar data source for a particular sonar view, you can select the source to use for that sonar view. For example, if you have two sources for Garmin ClearVu, you can select the source to use from the Garmin ClearVu sonar view.
1. Open the sonar view for which you will change the source.
2. Select Menu > Sonar Setup > Source.
3. Select the source for this sonar view.

Renaming a Sonar Source
You can rename a sonar source to easily identify that source. For example, you use "Bow" as the name of the transducer on the bow of your boat.
The source is renamed for the present view only. For example, to rename the Garmin ClearVu sonar source, you must open the Garmin ClearVu sonar view.
1. From the sonar view, select Menu > Sonar Setup > Source > Rename Sources.
2. Enter the name.

Adjusting the Level of Detail
You can control the level of detail and noise shown on the sonar screen either by adjusting the gain for traditional transducers or by adjusting the brightness for Garmin ClearVu transducers.
If you want to see the highest intensity signal returns on the screen, you can lower the gain or brightness to remove lower intensity returns and noise. If you want to see all return information, you can increase the gain or brightness to see more information on the screen. This also increases noise, and can make it more difficult to recognize actual returns.
1. From a sonar view, select Menu.
2. Select Gain or Brightness.
3. Select an option:
   • To increase or decrease the gain or brightness manually, select Up or Down.
   • To allow the chartplotter to adjust the gain or brightness automatically, select an automatic option.

Adjusting the Color Intensity
You can adjust the intensity of colors and highlight areas of interest on the sonar screen by adjusting the color gain for traditional transducers or the contrast for Garmin ClearVu and SideVu/ClearVu transducers. This setting works best after you have adjusted the level of detail shown on the screen using the gain or brightness settings.
If you want to highlight smaller fish targets or create a higher intensity display of a target, you can increase the color gain or contrast setting. This causes a loss in the differentiation of the...
high intensity returns at the bottom. If you want to reduce the intensity of the return, you can reduce the color gain or contrast.

1 From a sonar view, select **Menu**.
2 Select an option:
   - While in the Garmin ClearVü or SideVü sonar view, select **Contrast**.
   - While in a Panoptix LiveVü sonar view, select **Color Gain**.
   - While in another sonar view, select **Sonar Setup > Advanced > Color Gain**.
3 Select an option:
   - To increase or decrease the color intensity manually, select **Up or Down**.
   - To use the default setting, select **Default**.

**Sonar Recordings**

**Recording the Sonar Display**

NOTE: Not all models support sonar recording.

1 Insert a memory card into the card slot.
2 From a sonar view, select **Menu > Sonar Setup > Sonar Recording > Record Sonar**.
   15 minutes of sonar recording uses approximately 200 MB of space of the inserted memory card. You can record sonar until the card reaches capacity.

**Stopping the Sonar Recording**

Before you can stop recording sonar, you must begin recording it (**Recording the Sonar Display, page 24**).

From a sonar view, select **Menu > Sonar Setup > Sonar Recording > Stop Recording**.

**Deleting a Sonar Recording**

1 Insert a memory card into the card slot.
2 From a sonar view, select **Menu > Sonar Setup > Sonar Recordings > View Recordings**.
3 Select a recording.
4 Select **Delete**.

**Playing Sonar Recordings**

Before you can play back the sonar recordings, you must download and install the HomePort™ application and record sonar data onto a memory card.

1 Remove the memory card from the device.
2 Insert the memory card into a card reader attached to a computer.
3 Open the HomePort application.
4 Select a sonar recording from your device list.
5 Right-click the sonar recording in the lower pane.
6 Select **Playback**.

**Traditional, Garmin ClearVü, and SideVü Sonar Setup**

NOTE: Not all options and settings apply to all models and transducers.

NOTE: These settings do not apply to Panoptix transducers.

From a sonar view, select **Menu > Sonar Setup**.

**Scroll Speed**: Sets the rate at which the sonar scrolls from right to left (**Setting the Scroll Speed, page 24**).

In shallow water, you can select a slower scroll speed to extend the length of time the information is displayed on screen. In deeper water, you can select a faster scroll speed. Automatic scroll speed adjusts the scrolling speed to the speed the boat is traveling.

Noise Reject: Reduces the interference and the amount of clutter shown on the sonar screen (**Sonar Noise Rejection Settings, page 25**).

Appearance: Configures the appearance of the sonar screen (**Sonar Appearance Settings, page 25**).

Alarms: Sets sonar alarms (**Sonar Alarms, page 25**).

Advanced: Configures various sonar display and data source settings (**Advanced Sonar Settings, page 25**). Not applicable to Garmin ClearVü or SideVü sonar views.

Installation: Configures the transducer (**Traditional, Garmin ClearVü, and SideVü Transducer Installation Settings, page 26**).

**Setting the Zoom Level on the Sonar Screen**

1 From a sonar view, select **Menu > Zoom**.
2 Select an option:
   - To zoom in on the sonar data from the bottom depth, select **Bottom Lock**.
   - To set the depth range of the magnified area manually, select **Set Zoom**, select **View Up** or **View Down** to set the depth range of the magnified area, and select **Zoom In** or **Zoom Out** to increase or decrease the magnification of the magnified area.
   - To set the depth and zoom automatically, select **Set Zoom > Auto**.
   - To cancel the zoom, select **No Zoom**.

**Setting the Scroll Speed**

You can set the rate at which the sonar image moves across the screen. A higher scroll speed shows more detail, especially while moving or trolling. A lower scroll speed displays sonar information on the screen longer. Setting the scroll speed on one sonar view applies to all the sonar views.

1 From a sonar view, select **Menu > Sonar Setup > Scroll Speed**.
2 Select an option:
   - To adjust the scroll speed automatically using speed-over-ground or water speed data, select **Auto**.
     - The Auto setting selects a scroll rate to match the boat speed, so targets in the water are drawn with the correct aspect ratio and appear less distorted. When viewing Garmin ClearVü or SideVü sonar views, it is recommended to use the Auto setting.
     - To use a very fast scroll speed, select **Ultrascroll®**. The Ultrascroll option quickly scrolls new sonar data, but with a reduced image quality. For most situations, the Fast option provides a good balance between a quickly scrolling image and targets that are less distorted.

**Adjusting the Range of the Depth or Width Scale**

You can adjust the range of the depth scale traditional and Garmin ClearVü sonar views and the range of the width scale for the SideVü sonar view.

Allowing the device to adjust the range automatically keeps the bottom within the lower or outer third of the sonar screen, and can be useful for tracking a bottom that has minimal or moderate terrain changes.

Manually adjusting the range enables you to view a specified range, which can be useful for tracking a bottom that has large terrain changes, such as a drop-offs or cliffs. The bottom can appear on the screen as long as it appears within the range you have set.

1 From a sonar view, select **Menu > Range**.
2 Select an option:
   - To allow the chartplotter to adjust the range automatically, select **Auto**.
Sonar Noise Rejection Settings
From a sonar view, select **Menu > Sonar Setup > Noise Reject.**

- **Interference**: Adjusts the sensitivity to reduce the effects of interference from nearby sources of noise. The lowest interference setting that achieves the desired improvement should be used to remove interference from the screen. Correcting installation issues that cause noise is the best way to eliminate interference.
- **Color Limit**: Hides part of the color palette to help eliminate fields of weak clutter. By setting the color limit to the color of the undesired returns, you can eliminate the display of undesired returns on the screen.
- **Smoothing**: Removes noise that is not part of a normal sonar return, and adjusts the appearance of returns, such as the bottom. When smoothing is set to high, more of the low-level noise remains than when using the interference control, but the noise is more subdued because of averaging. Smoothing can remove speckle from the bottom. Smoothing and interference work well together to eliminate low-level noise. You can adjust the interference and smoothing settings incrementally to remove undesirable noise from the display.
- **Surface Noise**: Hides surface noise to help reduce clutter. Wider beam widths (lower frequencies) can show more targets, but can generate more surface noise.
- **TVG**: Adjusts the time varying gain, which can reduce noise. This control is best used for situations when you want to control and suppress clutter or noise near the water surface. It also allows for the display of targets near the surface that are otherwise hidden or masked by surface noise.

Sonar Appearance Settings
From a sonar view, select **Menu > Sonar Setup > Appearance.**

- **Color**: Sets the color scheme and color gain.
- **Overlay Data**: Sets the data shown on the sonar screen.
- **A-Scope**: Displays a vertical flasher along the right side of the screen that shows instantaneously the range to targets along a scale.
- **Depth Line**: Shows a quick-reference depth line.
- **Edge**: Highlights the strongest signal from the bottom to help define the hardness or softness of the signal.
- **Pic. Advance**: Allows the sonar picture to advance faster by drawing more than one column of data on the screen for each column of sounder data received. This is especially helpful when you are using the sounder in deep water, because the sonar signal takes longer to travel to the water bottom and back to the transducer. The 1/1 setting draws one column of information on the screen per sounder return. The 2/1 setting draws two columns of information on the screen per sounder return, and so on for the 4/1 and 8/1 settings.

Sonar Alarms
NOTE: Not all options are available on all transducers.

From an applicable sonar view, select **Menu > Sonar Setup > Alarms.**

You can also open the sonar alarms by selecting **Settings > Alarms > Sonar.**

- **Shallow Water**: Sets an alarm to sound when the depth is less than the specified value.
- **Deep Water**: Sets an alarm to sound when the depth is greater than the specified value.
- **FrontVü Alarm**: Sets an alarm to sound when the depth in front of the vessel is less than the specified value, which can help you avoid running aground (**Setting the FrontVü Depth Alarm**, page 27). This alarm is available only with Panoptix FrontVü transducers.

- **Water Temp.**: Sets an alarm to sound when the transducer reports a temperature that is 2°F (1.1°C) above or below the specified temperature.
- **Contour**: Sets an alarm to sound when the transducer detects a suspended target within the specified depth from the surface of the water and from the bottom.
- **Fish**: Sets an alarm to sound when the device detects a suspended target.
  - sets the alarm to sound when fish of all sizes are detected.
  - sets the alarm to sound only when medium or large fish are detected.
  - sets the alarm to sound only when large fish are detected.

Advanced Sonar Settings
From a Traditional sonar view, select **Menu > Sonar Setup > Advanced.**

- **Shift**: Allows you to set the depth range on which the sonar is focused. This allows you to zoom in a higher resolution in the focused depth.
  - When using shift, bottom tracking may not work effectively, because the sonar looks for data within the depth range of the focused area, which may not include the bottom. Using shift also can impact the scroll speed, because data outside the depth range of the focused area is not processed, which reduces the time required to receive and display the data. You can zoom in to the focused area, which enables you to evaluate target returns more closely at a higher resolution than just zooming alone.

- **Echo Stretch**: Adjusts the size of the echoes on the screen to make it easier to see separate returns on the screen.
  - When targets are difficult to see, echo stretch makes the target returns more pronounced and easier to see on the screen. If the echo stretch value is too high, the targets blend together. If the value is too low, the targets are small and more difficult to see.

You can use echo stretch and filter width together to obtain the preferable resolution and noise reduction. With echo stretch and filter width set to low, the display has the highest resolution, but is the most susceptible to noise. With echo stretch set to high and filter width set to low, the display has a lower resolution, but has wider targets. With echo stretch and filter width set to high, the display has the lowest resolution,
but is the least susceptible to noise. It is not recommended to set echo stretch to low and filter width to high.

### Traditional, Garmin ClearVü, and SideVü Transducer Installation Settings

From a sonar view, select **Menu > Sonar Setup > Installation**.

**Transmit Rate**: Sets the length of time between sonar pings.
- Increasing the transmit rate increases the scroll speed, but it may also increase self-interference.
- Reducing the transmit rate increases the spacing between transmit pulses and can resolve self-interference. This option is available on the Traditional sonar view only.

**Transmit Power**: Reduces transducer ringing near the surface.
- A lower transmit power value reduces transducer ringing, but can also reduce the strength of the returns. This option is available on the Traditional sonar view only.

**Filter Width**: Defines the edges of the target. A shorter filter more clearly defines the edges of the targets but may allow more noise. A longer filter creates softer target edges and may also reduce noise. This option is available on the Traditional sonar view only.

**Flip Left/Right**: Switches the SideVü view orientation from left to right. This option is available on the SideVü sonar view only.

**Restore Sonar Defaults**: Restores the sonar settings to the factory default values.

**Transducer Diagnostics**: Shows details about the transducer.

### Sonar Frequencies

**NOTE**: The frequencies available depend on the chartplotter, sounder modules, and transducer being used.

Adjusting the frequency helps adapt the sonar for your particular goals and the present depth of the water.

Higher frequencies use narrow beam widths, and are better for high-speed operation and rough sea conditions. Bottom definition and thermocline definition can be better when using a higher frequency.

Lower frequencies use wider beam widths, which can let the fisherman see more targets, but could also generate more surface noise and reduce bottom signal continuity during rough sea conditions. Wider beam widths generate larger arches for fish target returns, making them ideal for locating fish. Wider beam widths also perform better in deep water, because the lower frequency has better deep water penetration.

CHIRP frequencies allow you to sweep each pulse through a range of frequencies, resulting in better target separation in deep water. CHIRP can be used to distinctly identify targets, like individual fish in a school, and for deep water applications. CHIRP generally performs better than single frequency applications. Because some fish targets may show up better using a fixed frequency, you should consider your goals and water conditions when using CHIRP frequencies.

Some sonar black boxes and transducers also provide the ability to customize preset frequencies for each transducer element, which enables you to change the frequency quickly using the presets as the water and your goals change.

Viewing two frequencies concurrently using the split-frequency view allows you to see deeper with the lower frequency return and, at the same time, see more detail from the higher frequency return.

### Selecting Frequencies

**NOTE**: You cannot adjust the frequency for all sonar views and transducers.

You can indicate which frequencies appear on the sonar screen.

1. From a sonar view, select **Menu > Frequency**.

2. Select a frequency suited to your needs and water depth.
   - For more information on frequencies, see *(Sonar Frequencies, page 26)*.

### Creating a Frequency Preset

**NOTE**: Not available with all transducers.

You can create a preset to save a specific sonar frequency, which allows you to change frequencies quickly.

1. From a sonar view, select **Menu > Frequency**.
2. Select **Manage Frequencies > New Preset**.
3. Enter a frequency.

### Turning On the A-Scope

**NOTE**: This feature is available in the Traditional sonar views.

The a-scope is a vertical flasher along the right side of the view, showing you what is underneath the transducer right now. You can use the a-scope to identify target returns that may be missed when the sonar data is quickly scrolling across the screen, such as when your boat is moving at high speeds. It can also be helpful for detecting fish that are close to the bottom.

The a-scope above shows fish returns ① and a soft bottom return ②.

1. From a sonar view, select **Menu > Sonar Setup > Appearance > A-Scope > On**.
2. Select a hold time.
   - You can increase the hold time to increase the length of time the sonar returns are displayed.

### Panoptix Sonar Setup

#### Adjusting the RealVü Viewing Angle and Zoom Level

You can change the viewing angle of the RealVü sonar views. You can also zoom in and out of the view.

From a RealVü sonar view, select an option:
- To adjust the viewing angle diagonally, select 🎥.
- To adjust the viewing angle horizontally, select 🎯.
- To adjust the viewing angle vertically, select 🎯.
- To adjust the viewing angle, swipe the screen in any direction.
- To zoom in, spread two fingers apart.
- To zoom out, pinch two fingers together.

#### Adjusting the RealVü Sweep Speed

You can update how quickly the transducer sweeps back and forth. A faster sweep rate creates a less detailed image, but the screen refreshes faster. A slower sweep rate creates a more detailed image, but the screen refreshes more slowly.

**NOTE**: This feature is not available for the RealVü 3D Historical sonar view.

1. From a RealVü sonar view, select **Menu > Sweep Speed**.
2. Select an option.

#### LiveVü Forward and FrontVü Sonar Menu

From the LiveVü Forward or FrontVü sonar view, select Menu.

**Gain**: Controls the level of detail and noise shown on the sonar screen.
If you want to see the highest intensity signal returns on the screen, you can lower the gain to remove lower intensity returns and noise. If you want to see all return information, you can increase the gain to see more information on the screen. This also increases noise, and can make it more difficult to recognize actual returns.

**Depth Range:** Adjusts the range of the depth scale.
Allowing the device to adjust the range automatically keeps the bottom within the lower portion of the sonar screen, and can be useful for tracking a bottom that has minimal or moderate terrain changes.
Manually adjusting the range enables you to view a specified range, which can be useful for tracking a bottom that has large terrain changes, such as a drop-offs or cliffs. The bottom can appear on the screen as long as it appears within the range you have set.

**Forward Range:** Adjusts the range of the forward scale.
Allowing the device to adjust the range automatically adjusts the forward scale in relation to the depth. Manually adjusting the range enables you to view a specified range. The bottom can appear on the screen as long as it appears within the range you have set. Manually reducing this option can reduce the effectiveness of the FrontVü Alarm, reducing your reaction time to low depth readings.

**Transmit Angle:** Adjusts the focus of the transducer to the port or starboard side. This is available only with RealVü capable Panoptix FrontVü transducers, such as the PS30, PS31, and PS60.

**Transmit:** Stops the transducer from transmitting.

**FrontVü Alarm:** Sets an alarm to sound when the depth in front of the vessel is less than the specified value (Setting the FrontVü Depth Alarm, page 27). This is available only with Panoptix FrontVü transducers.

**Sonar Setup:** Adjusts the setup of the transducer and the appearance of the sonar returns.

**Edit Overlays:** Adjusts the data shown on the screen (Customizing the Data Overlays, page 3).

**Setting the LiveVü and FrontVü Transducer Transmit Angle**
This feature is available only with Panoptix LiveVü and FrontVü transducers.
You can change the transducer transmit angle to aim the transducer at a particular area of interest. For example, you might aim the transducer to follow a bait ball or focus on a tree as you pass it.

1. From a LiveVü or FrontVü sonar view, select Menu > Transmit Angle.
2. Select an option.

**Setting the FrontVü Depth Alarm**

**WARNING**
The FrontVü depth alarm is a tool for situational awareness only, and may not prevent groundings in all circumstances. It is the obligation of the vessel operator to ensure safe operation of the vessel.
This alarm is available only with Panoptix FrontVü transducers.
You can set an alarm to sound when the depth is below a specified level. For best results, you should set the bow offset when using the front collision alarm (Setting the Bow Offset, page 28).
1. From the FrontVü sonar view, select Menu > FrontVü Alarm.
2. Select On.
3. Enter the depth at which the alarm is triggered, and select Done.

On the FrontVü screen, a depth line shows the depth at which the alarm is set. The line is green when you are in a safe depth. The line turns yellow when you are going faster than the forward range gives you time to react (10 seconds). It turns red and sounds an alarm when the system detects an obstruction or the depth is less than the entered value.

**CAUTION**
The ability to effectively avoid running aground with FrontVü sonar decreases as your speed rises above 8 knots.

**LiveVü and FrontVü Appearance Settings**
From a LiveVü or FrontVü Panoptix sonar view, select Menu > Sonar Setup > Appearance.

**Color Scheme:** Sets the color palette.

**Color Gain:** Adjusts the intensity of colors shown on the screen.
You can select a higher color gain value to see targets higher in the water column. A higher color gain value also allows you to differentiate low intensity returns higher in the water column, but this causes a loss in the differentiation of the returns at the bottom. You can select a lower color gain value when targets are near the bottom, to help you distinguish between targets and high intensity returns such as sand, rock, and mud.

**Trails:** Sets how long the trails appear on the screen. The trails show the movement of the target.

**Bottom Fill:** Colors the bottom brown to distinguish it from the water returns.

**Grid Overlay:** Shows a grid of range lines.

**Scroll History:** Shows the sonar history in a traditional sonar view.

**RealVü Appearance Settings**
From a RealVü sonar view, select Menu > Sonar Setup > Appearance.

**Point Colors:** Sets a different color palette for the sonar return points.

**Bottom Colors:** Sets the color scheme for the bottom.

**Bottom Style:** Sets the style for the bottom. When you are in deep water, you can select the Points option and manually set the range to a shallower value.

**Color Key:** Shows a legend of the depths the colors represent.

**Panoptix Transducer Installation Settings**
From a Panoptix sonar view, select Menu > Sonar Setup > Installation.

**Install Depth:** Sets the depth below the water line where the Panoptix transducer is mounted. Entering the actual depth at which the transducer is mounted results in a more accurate visual presentation of what is in the water.

**Bow Offset:** Sets the distance between the bow and the forward view Panoptix transducer installation location. This allows you to view the forward distance from the bow instead of the transducer location.
This applies to Panoptix transducers in the FrontVü, LiveVü Forward, and RealVü 3D Forward sonar views.

**Beam Width:** Sets the width of the down view Panoptix transducer beam. Narrow beam widths allow you to see deeper and farther. Wider beam widths allow you to see more coverage area.
This applies to Panoptix transducers in the FrontVü, LiveVü Down, and LiveVü Forward sonar views.

**Use AHRS:** Enables the internal attitude heading and reference system (AHRS) sensors to detect the installation angle of the Panoptix transducer automatically. When this setting is turned off, you can enter the specific installation angle for the transducer using the Pitch Angle setting. Many forward view
transducers are installed at a 45-degree angle and down view transducers are installed at a zero-degree angle.

**Flipped:** Sets the orientation of the Panoptix sonar view when the down view transducer is installed with the cables pointing toward the port side of the boat.

This applies to Panoptix transducers in the LiveVü Down, RealVü 3D Down, and RealVü 3D Historical sonar views.

**Calibrate Compass:** Calibrates the internal compass in the Panoptix transducer (*Calibrating the Compass, page 23*). This applies to Panoptix transducers with an internal compass, such as the PS21-TR transducer.

**Restore Sonar Defaults:** Restores the sonar settings to the factory default values.

**Setting the Bow Offset**

For forward view Panoptix transducers, you can enter a bow offset to compensate the forward distance readings for the transducer installation location. This allows you to view the forward distance from the bow instead of the transducer installation location.

This feature applies to Panoptix transducers in the FrontVü, LiveVü Forward, and RealVü 3D Forward sonar views.

1. Measure the horizontal distance ① from the transducer to the bow.

2. From an applicable sonar view, select **Menu > Sonar Setup > Installation > Bow Offset**.

3. Enter the distance measured, and select **Done**.

On the applicable sonar view, the forward range shifts by the distance you entered.

**Radar**

**WARNING**

The marine radar transmits microwave energy that has the potential to be harmful to humans and animals. Before beginning radar transmission, verify that the area around the radar is clear. The radar transmits a beam approximately 12° above and below a line extending horizontally from the center of the radar.

When the radar is transmitting, do not look directly at the antenna at close range; eyes are the most sensitive part of the body to electromagnetic energy.

When you connect your compatible chartplotter to an optional Garmin marine radar, such as a GMR™ Fantom™ 6 radar or a GMR 24 xHDI, you can view more information about your surroundings.

The radar transmits a narrow beam of microwave energy as it rotates to a 360° pattern. When the transmitted energy contacts a target, some of that energy is reflected back to the radar.

**Radar Interpretation**

Reading and interpreting the radar display takes practice. The more you use the radar, the better you will become at relying on the radar display when you really need it.

Radar can be useful in many situations, such as avoiding collisions when you have limited visibility, for example when it is dark or foggy, tracking weather, seeing what is ahead of you, and locating birds and fish.

The radar overlay feature can help you interpret the radar display more easily, because it overlays the radar returns on top of the chart. This can help you identify the difference between a radar return of a land mass, bridge, or rain cloud. Showing the AIS vessels on the radar overlay can also help you identify features on the radar display.

In the screenshot below, the radar overlay is turned on. This screen also shows a video feed. We can easily identify a few items on the radar screen.

**Radar Overlay**

When you connect your chartplotter to an optional Garmin marine radar, you can use overlay radar information on the Navigation chart or on the Fishing chart.

Data appears on the radar overlay based on the most recently used radar mode and all settings configurations applied to the radar overlay are also applied to the last-used radar mode.

**Radar Overlay and Chart Data Alignment**

When using the Radar overlay, the chartplotter aligns radar data with chart data based on the boat heading, which is based by default on data from a magnetic heading sensor connected using a NMEA 0183 or NMEA 2000 network. If a heading sensor is not available, the boat heading is based on GPS tracking data.

GPS tracking data indicates the direction in which the boat is moving, not the direction in which the boat is pointing. If the boat is drifting backward or sideways due to a current or wind, the Radar overlay may not perfectly align with the chart data. This situation should be avoided by using boat-heading data from an electronic compass.

If the boat heading is based on data from a magnetic heading sensor or an automatic pilot, the heading data could be compromised due to incorrect setup, mechanical malfunction, magnetic interference, or other factors. If the heading data is compromised, the Radar overlay may not align perfectly with the chart data.

**Transmitting Radar Signals**

**NOTE:** As a safety feature, the radar enters standby mode after it warms up. This gives you an opportunity to verify the area around the radar is clear before beginning radar transmission.

1. With the chartplotter off, connect your radar as described in the radar installation instructions.
2 Turn on the chartplotter.
   If necessary, the radar warms up and a countdown alerts you when the radar is ready.
3 Select Radar.
4 Select a radar mode.
   A countdown message appears while the radar is starting up.
5 Select Menu > Transmit Radar.

**NOTE:** To help conserve power, you can set up time intervals in which the radar will transmit and not transmit (standby) signal transmissions.

3 The range of the radar signal indicates the length of the pulsed signal transmitted and received by the radar. As the range increases, the radar transmits longer pulses in order to reach distant targets. Closer targets, especially rain and waves, also reflect the longer pulses, which can add noise to the Radar screen. Viewing information about longer-range targets can also decrease the amount of space available on the Radar screen for viewing information about shorter-range targets.

- You can indicate areas within which the radar scanner does not transmit signals.
- TIP: Press \( \text{\textbf{Menu}} > \text{Radar To Standby} \) from any screen to quickly stop radar transmission.
- Select \( \text{\textbf{Menu}} > \text{Radar Options} > \text{Timed Transmit} \).
- Select \( \text{\textbf{Stdby Time}} \), enter the time interval between radar signal transmissions, and select Done.

**Setting Up the Timed Transmit Mode**
To help conserve power, you can set up time intervals in which the radar will transmit and not transmit (standby) signal transmissions.

**NOTE:** This feature is not available in dual radar modes.

1 From a radar screen, select \( \text{\textbf{Menu}} > \text{Radar Options} > \text{Timed Transmit} \).
2 Select \( \text{\textbf{Stdby Time}} \) to enable the option.
3 Select \( \text{\textbf{Transmit Time}} \), enter the duration of each radar signal transmission, and select Done.

**Enabling and Adjusting a Radar No Transmit Zone**
You can indicate areas within which the radar scanner does not transmit signals.

**NOTE:** GMR Fantom and xHD2 radar models support two no-transmit zones. Other GMR radar models support one no-transmit zone.

1 From a radar screen, select \( \text{\textbf{Menu}} > \text{Radar Setup} > \text{Installation} > \text{Enable No Transmit Zone} \).
   The no-transmit zone is indicated by a shaded area on the radar screen.
2 Select .
3 Select \( \text{\textbf{Adjust No Transmit Zone}} > \text{Move No Transmit Zone} \).
4 Select \( \text{\textbf{Angle 1}} \), and select the new location for the first angle.
5 Select \( \text{\textbf{Angle 2}} \), and select the new location for the second angle.
6 Select Done.

**Adjusting the Radar Range**
The range of the radar signal indicates the length of the pulsed signal transmitted and received by the radar. As the range increases, the radar transmits longer pulses in order to reach distant targets. Closer targets, especially rain and waves, also reflect the longer pulses, which can add noise to the Radar screen. Viewing information about longer-range targets can also decrease the amount of space available on the Radar screen for viewing information about shorter-range targets.

- Select \( \text{\textbf{+}} \) to decrease the range.
- Select \( \text{\textbf{–}} \) to increase the range.

**Tips for Selecting a Radar Range**
- Determine what information you need to see on the Radar screen.
  For example, do you need information about nearby weather conditions or targets and traffic, or are you more concerned about distant weather conditions?
- Assess the environmental conditions where the radar is being used.

 Especially in inclement weather, longer-range radar signals can increase the clutter on the Radar screen and make it more difficult to view information about shorter-range targets. In rain, shorter-range radar signals can enable you to view information about nearby objects more effectively, if the rain clutter setting is configured optimally.

- Select the shortest effective range, given your reason for using radar and the present environmental conditions.

**MotionScope™ Doppler Radar Technology**
The GMR Fantom radar uses the Doppler effect to detect and highlight moving targets to help you avoid potential collisions, find flocks of birds, and track weather formations. The Doppler effect is the frequency shift in the radar echo due to the relative motion of the target. This allows for instant detection of any targets moving toward or away from the radar.

The MotionScope feature highlights the moving targets on the radar display so you can navigate around other boats or severe weather, or toward fishing spots where birds are feeding at the surface.

The moving targets are color-coded so you can tell at a glance which targets are heading your way and which are heading away from you. On most color schemes, green indicates the target is moving away from you and red indicates the target is moving toward you.

**Enabling a Guard Zone**
You can enable a guard zone to alert you when anything comes within a specified area around your boat.

**NOTE:** This feature is not available in dual radar modes.

1 From a radar screen, select \( \text{\textbf{Menu}} > \text{Radar Options} > \text{Enable Guard Zone} \).

**Defining a Circular Guard Zone**
Before you can define the boundaries of the guard zone, you must enable a guard zone (Enabling a Guard Zone, page 29). You can define a circular guard zone that completely surrounds your boat.

1 From a radar screen, select \( \text{\textbf{Menu}} > \text{Radar Options} > \text{Adjust Guard Zone} > \text{Adjust Guard Zone} > \text{Circle} \).
2 Select the location of the outer guard zone circle.
3 Select the location of the inner guard zone circle to define the width of the guard zone.

**Defining a Partial Guard Zone**
Before you can define the boundaries of the guard zone, you must enable a guard zone (Enabling a Guard Zone, page 29). You can define the boundaries of a guard zone that does not completely surround your boat.

1 From a radar screen, select \( \text{\textbf{Menu}} > \text{Radar Options} > \text{Adjust Guard Zone} > \text{Adjust Guard Zone} > \text{Corner 1} \).
2 Touch and drag the location of the outer guard-zone corner \( \text{\textbf{1}} \).
Removing a MARPA Tag from a Targeted Object

1. From a radar screen, select a targeted object.
2. Select MARPA Target.

Viewing a List of AIS and MARPA Threats

From any Radar screen or the Radar overlay, you can view and customize the appearance of a list of AIS and MARPA threats.

1. From a radar screen, select Menu > Layers > Other Vessels > List > Show.
2. Select the type of threats to include in the list.

Showing AIS Vessels on the Radar Screen

AIS requires the use of an external AIS device and active transponder signals from other vessels.

You can configure how other vessels appear on the Radar screen. If any setting (except the AIS display range) is configured for one radar mode, the setting is applied to every other radar mode. The details and projected heading settings configured for one radar mode are applied to every other radar mode and to the Radar overlay.

1. From a Radar screen or the Radar overlay, select Menu > Other Vessels > Display Setup.
2. Select an option:
   - To indicate the distance from your location within which AIS vessels appear, select Display Range, and select a distance.
   - To show details about AIS-activated vessels, select Details > Show.
   - To set the projected heading time for AIS-activated vessels, select Proj. Heading, and enter the time.
   - To show the tracks of AIS vessels, select Trails, and select the length of the track that appears.

VRM and EBL

The variable range marker (VRM) and the electronic bearing line (EBL) measure the distance and bearing from your boat to a target object. On the Radar screen, the VRM appears as a circle that is centered on the present location of your boat, and the EBL appears as a line that begins at the present location of your boat and intersects the VRM. The point of intersection is the target of the VRM and the EBL.

Showing the VRM and the EBL

From a radar screen, select Menu > Radar Options > Show VRM/EBL.

Adjusting the VRM and the EBL

Before you can adjust the VRM and the EBL, you must show them on the Radar screen (Showing the VRM and the EBL, page 30).

You can adjust the diameter of the VRM and the angle of the EBL, which moves the intersection point of the VRM and the EBL. The VRM and the EBL configured for one mode are applied to all other radar modes.

1. From a Radar screen, select a new location for the intersection point of the VRM and the EBL.
2. Select Drop VRM/EBL.
3. Select Stop Pointing.

Measuring the Range and Bearing to a Target Object

Before you can adjust the VRM and the EBL, you must show them on the Radar screen (Showing the VRM and the EBL, page 30).

1. From a Radar screen, select the target location.
2. Select Measure.

The range and the bearing to the target location appear in the upper-left corner of the screen.

Assigning a MARPA Tag to an Object

Before you can use MARPA, you must have a heading sensor connected and an active GPS signal. The heading sensor must provide the NMEA 2000 parameter group number (PGN) 127250 or the NMEA 0183 HDM or HDG output sentence.

1. From a radar screen, select an object or location.
2. Select Acquire Target > MARPA Target.

Removing a MARPA Tag from a Targeted Object

1. From the Radar screen, select a MARPA target.
2. Select MARPA Target > Remove.

Viewing Information about a MARPA-tagged Object

You can view the range, bearing, speed, and other information about a MARPA-tagged object.

1. Touch the location of the inner guard-zone corner to define the width of the guard zone.
2. Select Done.

Disabling a Guard Zone

You can disable a guard zone.

From a radar screen, select Menu > Radar Options > Adjust Guard Zone > Disable Guard Zone.

The guard zone configuration is saved, so you can enable it again when needed.

MARPA

Mini-automatic radar plotting aid (MARPA) enables you to identify and track targets and is primarily used for collision avoidance. To use MARPA, you assign a MARPA tag to a target. The radar system automatically tracks the tagged object and provides you with information about the object, including the range, bearing, speed, GPS heading, nearest approach, and time to nearest approach. MARPA indicates the status of each tagged object (acquiring, lost, tracking, or dangerous), and the chartplotter can sound a collision alarm if the object enters your safe zone.

MARPA Targeting Symbols

- Acquiring a target. Concentric, dashed green rings radiate from the target while the radar is locking onto it.
- Target has been acquired. A solid green ring indicates the location of a target that the radar has locked onto. A dashed green line attached to the circle indicates the projected course over ground or the GPS heading of the target.
- Dangerous target is in range. A red ring flashes from the target while an alarm sounds and a message banner appears. After the alarm has been acknowledged, a solid red dot with a dashed red line attached to it indicates the location and the projected course over ground or the GPS heading of the target. If the safe-zone collision alarm has been set to Off, the target flashes, but does not appear.
- Target has been lost. A solid green ring with an X through it indicates that the radar could not lock onto the target.
- Closest point of approach and time to closest point of approach to a dangerous target.

Showing AIS Vessels on the Radar Screen

AIS requires the use of an external AIS device and active transponder signals from other vessels.

You can configure how other vessels appear on the Radar screen. If any setting (except the AIS display range) is configured for one radar mode, the setting is applied to every other radar mode. The details and projected heading settings configured for one radar mode are applied to every other radar mode and to the Radar overlay.

1. From a Radar screen or the Radar overlay, select Menu > Other Vessels > Display Setup.
2. Select an option:
   - To indicate the distance from your location within which AIS vessels appear, select Display Range, and select a distance.
   - To show details about AIS-activated vessels, select Details > Show.
   - To set the projected heading time for AIS-activated vessels, select Proj. Heading, and enter the time.
   - To show the tracks of AIS vessels, select Trails, and select the length of the track that appears.

VRM and EBL

The variable range marker (VRM) and the electronic bearing line (EBL) measure the distance and bearing from your boat to a target object. On the Radar screen, the VRM appears as a circle that is centered on the present location of your boat, and the EBL appears as a line that begins at the present location of your boat and intersects the VRM. The point of intersection is the target of the VRM and the EBL.

Showing the VRM and the EBL

From a radar screen, select Menu > Radar Options > Show VRM/EBL.

Adjusting the VRM and the EBL

Before you can adjust the VRM and the EBL, you must show them on the Radar screen (Showing the VRM and the EBL, page 30).

You can adjust the diameter of the VRM and the angle of the EBL, which moves the intersection point of the VRM and the EBL. The VRM and the EBL configured for one mode are applied to all other radar modes.

1. From a Radar screen, select a new location for the intersection point of the VRM and the EBL.
2. Select Drop VRM/EBL.
3. Select Stop Pointing.

Measuring the Range and Bearing to a Target Object

Before you can adjust the VRM and the EBL, you must show them on the Radar screen (Showing the VRM and the EBL, page 30).

1. From a Radar screen, select the target location.
2. Select Measure.

The range and the bearing to the target location appear in the upper-left corner of the screen.
Optimizing the Radar Display
You can adjust the radar display settings for reduced clutter and increased accuracy.

NOTE: You can optimize the radar display for each radar mode.
1 Select a radar range (Adjusting the Radar Range, page 29).
2 Restore the default value of the gain setting (Adjusting Gain on the Radar Screen Automatically, page 31).
3 Adjust the gain setting manually (Adjusting Gain on the Radar Screen Manually, page 31).

Radar Gain and Clutter
Adjusting Gain on the Radar Screen Automatically
The automatic gain setting for each radar mode is optimized for that mode, and may differ from the automatic gain setting used for another mode.

NOTE: Depending upon the radar in use, the gain setting configured for use in one radar mode may or may not be applied to other radar modes or to the Radar overlay.
NOTE: Not all options are available on all radar models.
1 From a radar screen or the radar overlay, select Menu > Gain.
2 Select an option:
   • To adjust the gain automatically for changing conditions, select Auto Low or Auto High.
   • To adjust the gain automatically to show birds over the surface of the water, select Auto Bird.
   NOTE: This option is not available on xHD open array or HD/HD+ radome models.

Adjusting Gain on the Radar Screen Manually
For optimal radar performance, you can manually adjust the gain.
NOTE: Depending upon the radar in use, the gain setting configured for use in one radar mode may or may not be applied to other radar modes or to the Radar overlay.
1 From a radar screen or the Radar overlay, select Menu > Gain.
2 Select Up to raise the gain, until light speckles appear across the Radar screen.
   Data on the Radar screen is refreshed every few seconds. As a result, the effects of manually adjusting the gain may not appear instantly. Adjust the gain slowly.
3 Select Down to lower the gain until the speckles disappear.
4 If boats, land, or other targets are within range, select Down to lower the gain until the targets begin to blink.
5 Select Up to raise the gain until the boats, land, or other targets appear steadily lit on the Radar screen.
6 Minimize the appearance of nearby large objects, if necessary.
7 Minimize the appearance of side-lobe echoes, if necessary.

Minimizing Nearby Large-Object Interference
Nearby targets of significant size, such as jetty walls, can cause a very bright image of the target to appear on the Radar screen. This image can obscure smaller targets located near it.
NOTE: Depending upon the radar in use, the gain setting configured for use in one radar mode may or may not be applied to other radar modes or to the Radar overlay.
1 From a Radar screen or the Radar overlay, select Menu > Gain.
2 Select Down to lower the gain until the smaller targets are clearly visible on the Radar screen.
   Reducing the gain to eliminate nearby large-object interference may cause smaller or distant targets to blink or disappear from the Radar screen.

Minimizing Side-Lobe Interference on the Radar Screen
Side-lobe interference may appear to streak outward from a target in a semi-circular pattern. Side-lobe effects can be avoided by reducing the gain or reducing the radar range.
NOTE: Depending upon the radar in use, the gain setting configured for use in one radar mode may or may not be applied to other radar modes or to the Radar overlay.
1 From a Radar screen or the Radar overlay, select Menu > Gain.
2 Select Down to lower the gain until the semi-circular, streaked pattern disappears from the Radar screen.
   Reducing the gain to eliminate side-lobe interference may cause smaller or distant targets to blink or disappear from the Radar screen.

Adjusting Sea Clutter on the Radar Screen Automatically
You can set the chartplotter to automatically adjust the appearance of clutter caused by choppy sea conditions.
NOTE: Depending upon the radar in use, the sea clutter setting configured for use in one radar mode may or may not be applied to other radar modes or to the Radar overlay.
NOTE: Not all options and settings are available on all radar and chartplotter models.
1 From a radar screen or the Radar overlay, select Menu > Sea Clutter.
2 Select Presets or Auto.
3 Select a setting that reflects the present sea conditions.
   When using a compatible radar model, the chartplotter adjusts the sea clutter based on the sea conditions automatically.
**Adjusting Sea Clutter on the Radar Screen Manually**

You can adjust the appearance of clutter caused by choppy sea conditions. The sea clutter setting affects the appearance of nearby clutter and targets more than it affects the appearance of distant clutter and targets. A higher sea clutter setting reduces the appearance of clutter caused by nearby waves, but it can also reduce or eliminate the appearance of nearby targets.

**NOTE:** Depending upon the radar in use, the sea clutter setting configured for use in one radar mode may or may not be applied to other radar modes or to the radar overlay.

1. From a radar screen or the radar overlay, select **Menu > Sea Clutter**.
2. Select **Up** or **Down** to adjust the appearance of sea clutter until other targets are clearly visible on the radar screen.

Clutter caused by sea conditions may still be visible.

**Adjusting Rain Clutter on the Radar Screen**

You can adjust the appearance of clutter caused by rain. Reducing the radar range also can minimize rain clutter (Adjusting the Radar Range, page 29).

The rain clutter setting affects the appearance of nearby rain clutter and targets more than it affects the appearance of distant rain clutter and targets. A higher rain clutter setting reduces the appearance of clutter caused by nearby rain, but it can also reduce or eliminate the appearance of nearby targets.

**NOTE:** Depending upon the radar in use, the rain clutter settings configured for use in one radar mode may or may not be applied to other radar modes or to the radar overlay.

1. From a radar screen, select **Menu > Radar Options > Rain Clutter**.
2. Select **Up** or **Down** to decrease or increase the appearance of nearby rain clutter until other targets are clearly visible on the radar screen.

Clutter caused by rain may still be visible.

**Reducing Cross Talk Clutter on the Radar Screen**

You can reduce the appearance of clutter caused by interference from another nearby radar source, when the cross talk reject setting is on.

**NOTE:** Depending upon the radar in use, the cross talk reject setting configured for use in one radar mode may or may not be applied to other radar modes or to the Radar overlay.

From a radar screen or the Radar overlay, select **Menu > Radar Setup > Crosstalk Rej.**.

**Radar Options Menu**

From a radar screen, select **Menu > Radar Options**.

**MotionScope™:** Uses the Doppler effect to detect and highlight moving targets to help you avoid potential collisions, find flocks of birds, and track weather formations (MotionScope™ Doppler Radar Technology, page 29). This option is only available on Fantom models.

**Pulse Exp.:** Increases the duration of the transmit pulse, which helps maximize the energy directed toward targets. This helps to enhance the detection and identification of targets. This option is not available on xHD open array or HD/HD+ radome models.

**Target Size:** Adjusts the size of targets, by adjusting the pulse compression processing. Select smaller targets for a sharp, high resolution radar image. Select larger targets to display larger echos for point targets, like boats and buoys. This option is only available on Fantom models.

**Echo Trails:** Enables you to track the movement of vessels on the radar screen. This option is not available on xHD open array or HD/HD+ radome models.

**Rain Clutter:** Reduces the clutter caused by rain (Adjusting Rain Clutter on the Radar Screen, page 29).

**Show VRM/EBL:** Shows the variable range marker (VRM) circle and the electronic bearing line (EBL) to allow you to measure the distance and bearing from your boat to a target object (VRM and EBL, page 30).

**Enable Guard Zone:** Sets a safe zone around your boat and sounds an alarm when anything enters the zone (Enabling a Guard Zone, page 29).

**Timed Transmit:** Helps conserve power by transmitting radar signals at set intervals.

**Radar Setup Menu**

From a radar screen, select **Menu > Radar Setup**.

**Source:** Selects the radar source when more than one radar is connected to the network.

**Chart Display:** Shows the chart under the radar image. When enabled, the Layers menu appears.

**Orientation:** Sets the perspective of the radar display.

**Crosstalk Rej.:** Reduces the appearance of clutter caused by interference from another nearby radar source.

**Rotation Spd.:** Sets the preferred speed at which the radar rotates. The High Speed option can be used to increase the refresh rate. In some situations, the radar automatically rotates at the normal speed to improve detection, for example, when a longer range is selected or when MotionScope or Dual range is used.

**Appearance:** Sets the color scheme, look-ahead speed, and navigation appearance.

**Installation:** Allows you to configure the radar for the installation, such as setting the front of the boat and the antenna park position.

**Radar Appearance Settings**

From a radar screen, select **Menu > Radar Setup > Appearance**.

**NOTE:** These settings do not apply to the radar overlay.

**Bkgd. Color:** Sets the color for the background.

**Foreground Clr.:** Sets the color scheme for the radar returns.

**Look-Ahead Speed:** Shifts your present location toward the bottom of the screen automatically as your speed increases. Enter your top speed for the best results.

**Heading Line:** Shows an extension from the bow of the boat in the direction of travel on the radar screen.

**Range Rings:** Shows the range rings that help you to visualize distances on the radar screen.

**Bearing Ring:** Shows a bearing relative to your heading or based on a north reference, to help you determine the bearing to an object shown on the radar screen.

**Nav Lines:** Shows the navigation lines that indicate the course you have set using Route To, Auto Guidance, or Go To.

**Waypoints:** Shows waypoints on the radar screen.

**Radar Installation Settings**

**Front of Boat:** Compensates for the physical location of the radar when it is not on the boat axis (Front-of-Boat Offset, page 32).

**Antenna Configuration:** Sets the radar antenna size and sets the position in which the radar stops (Setting a Custom Park Position, page 33).

**Enable No Transmit Zone:** Sets the area in which the radar does not transmit signals (Enabling and Adjusting a Radar No Transmit Zone, page 29).

**Front-of-Boat Offset**

The front-of-boat offset compensates for the physical location of the radar scanner on a boat, if the radar scanner does not align with the bow-stem axis.
Measuring the Potential Front-of-Boat Offset
The front-of-boat offset compensates for the physical location of the radar scanner on a boat, if the radar scanner does not align with the bow-stern axis.

1. Using a magnetic compass, take an optical bearing of a stationary target located within viewable range.
2. Measure the target bearing on the radar.
3. If the bearing deviation is more than ±1°, set the front-of-boat offset.

Setting the Front-of-Boat Offset
Before you can set the front-of-boat offset, you must measure the potential front-of-boat offset.
The front-of-boat offset setting configured for use in one radar mode is applied to every other radar mode and to the Radar overlay.

1. From a Radar screen or the Radar overlay, select Menu > Radar Setup > Installation > Front of Boat.
2. Select Up or Down to adjust the offset.

Setting a Custom Park Position
If you have more than one radar on your boat, you must be viewing the radar screen for the radar you want to adjust.
By default, the antenna is stopped perpendicular to the pedestal when it is not spinning. You can adjust this position.

1. From the radar screen, select Menu > Radar Setup > Installation > Antenna Configuration > Park Position.
2. Use the slider bar to adjust the position of the antenna when stopped, and select Back.

Selecting a Different Radar Source
1. Select an option:
   - From a radar screen or the radar overlay, select Menu > Radar Setup > Source.
   - Select Settings > Communications > Preferred Sources > Radar.
2. Select the radar source.

Changing the Radar Mode
1. From a combination screen or SmartMode layout with radar, select Menu > Radar Menu > Change Radar.
2. Select a radar mode.

Autopilot

**WARNING**
You can use the autopilot feature only at a station installed next to a helm, throttle, and helm control device.
You are responsible for the safe and prudent operation of your vessel. The autopilot is a tool that enhances your capability to operate your boat. It does not relieve you of the responsibility of safely operating your boat. Avoid navigational hazards and never leave the helm unattended.
Always be prepared to promptly regain manual control of your boat.
Learn to operate the autopilot on calm and hazard-free open water.
Use caution when operating the autopilot near hazards in the water, such as docks, pilings, and other boats.
The autopilot system continuously adjusts the steering of your boat to maintain a constant heading (heading hold). The system also allows manual steering and several modes of automatic-steering functions and patterns.

When the chartplotter is connected to a compatible Garmin autopilot system, you can engage and control the autopilot from the chartplotter.
For information about compatible Garmin autopilot systems, go to www.garmin.com.

Opening the Autopilot Screen
Before you can open the autopilot screen, you must have a compatible Garmin autopilot installed and configured.

Select A/V, Gauges, Controls > Autopilot.

**Autopilot Screen**

| ① | Actual heading |
| ② | Intended heading (heading the autopilot is steering toward) |
| ③ | Actual heading (when in standby mode) |
| ④ | Intended heading (when engaged) |
| ⑤ | Rudder position indicator (This functionality is available only when a rudder sensor is connected.) |

**Adjusting the Step Steering Increment**
1. From the Autopilot screen, select Menu > Autopilot Setup > Step Turn Size.
2. Select an increment.

**Setting the Power Saver**
You can adjust the level of rudder activity.
1. From the autopilot screen, select Menu > Autopilot Setup > Power Mode Setup > Power Saver.
2. Select a percentage.
   Selecting a higher percentage reduces rudder activity and heading performance. The higher the percentage, the more the course deviates before the autopilot corrects it.
   **TIP:** In choppy conditions at low speeds, increasing the Power Saver percentage reduces rudder activity.

**Enabling Shadow Drive™**
**NOTE:** The Shadow Drive feature is available only on hydraulic steering systems.

From the autopilot screen, select Menu > Autopilot Setup > Shadow Drive > Enabled.

**Autopilot Overlay Bar**

| ① | Actual heading |
| ② | Intended heading (heading the autopilot is steering toward) |
| ③ | Actual heading (when in standby mode) |

**Engaging the Autopilot**
When you engage the autopilot, the autopilot takes control of the helm and steers the boat to maintain your heading.
From any screen, select Engage.
Your intended heading shows in the center of the Autopilot screen.

**Adjusting the Heading with the Helm**

**NOTE:** You must enable the Shadow Drive feature before you can adjust the heading using the helm (Enabling Shadow Drive™, page 33).

With the autopilot engaged, manually steer the boat.

The autopilot activates Shadow Drive mode.

When you release the helm and manually maintain a specific heading for a few seconds, the autopilot resumes a heading hold at the new heading.

**Adjusting the Heading with the Chartplotter in Step Steering Mode**

Before you can steer your boat using the keys at the bottom of the autopilot screen, you must engage the autopilot (Engaging the Autopilot, page 33).

- Select <1° or 1°> to initiate a single 1° turn.
- Select <<10° or 10°>> to initiate a single 10° turn.
- Hold <1° or 1°> to initiate a rate-controlled turn.

The boat continues to turn until you let go of the key.

- Hold <<10° or 10°>> to initiate a sequence of 10° turns.

**Steering Patterns**

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You are responsible for the safe operation of your boat. Do not begin a pattern until you are certain that the water is clear of obstacles.

The autopilot can steer the boat in preset patterns for fishing, and it can also perform other specialty maneuvers such as U-turns and Williamson turns.

**Following the U-Turn Pattern**

You can use the u-turn pattern to turn the boat around 180 degrees and maintain the new heading.

1. From the autopilot screen, select Menu > Pattern Steering > U-Turn.
2. Select Engage Port or Engage Starboard.

**Setting Up and Following the Circles Pattern**

You can use the circles pattern to steer the boat in a continuous circle, in a specified direction, and at a specified time interval.

1. From the autopilot screen, select Menu > Pattern Steering > Circles.
2. If necessary, select Time, and select a time for the autopilot to steer one complete circle.
3. Select Engage Port or Engage Starboard.

**Setting Up and Following the Zigzag Pattern**

You can use the zigzag pattern to steer the boat from port to starboard and back, over a specified time and angle, across your present heading.

1. From the autopilot screen, select Menu > Pattern Steering > Zigzag.
2. If necessary, select Amplitude, and select a degree.
3. If necessary, select Period, and select a length of time.

**Following the Williamson Turn Pattern**

You can use the Williamson turn pattern to steer the boat around with the intent of running alongside the location where the Williamson turn pattern was initiated. The Williamson turn pattern can be used in man overboard situations.

1. From the autopilot screen, select Menu > Pattern Steering > Williamson Turn.
2. Select Engage Port or Engage Starboard.

**Following an Orbit Pattern**

You can use the orbit pattern to steer the boat in a continuous circle around the active waypoint. The size of the circle is defined by your distance from the active waypoint when you begin the orbit pattern.

1. From the autopilot screen, select Menu > Pattern Steering > Orbit.
2. Select Engage Port or Engage Starboard.

**Setting Up and Following the Cloverleaf Pattern**

You can use the cloverleaf pattern to steer the boat to repeatedly pass over an active waypoint. When you begin the cloverleaf pattern, the autopilot drives the boat toward the active waypoint and begins the cloverleaf pattern.

You can adjust the distance between the waypoint and the location where the autopilot turns the boat for another pass over the waypoint. The default setting turns the boat at a range of 1000 ft. (300 m) from the active waypoint.

1. From the autopilot screen, select Menu > Pattern Steering > Cloverleaf.
2. If necessary, select Length, and select a distance.
3. Select Engage Port or Engage Starboard.

**Setting Up and Following a Search Pattern**

You can use the search pattern to steer the boat in increasingly larger circles outward from the active waypoint, forming a spiral pattern. When you begin the search pattern, the autopilot drives the boat to the active waypoint and begins the pattern.

You can adjust the distance between each circle in the spiral. The default distance between circles is 50 ft. (20 m).

1. From the autopilot screen, select Menu > Pattern Steering > Search.
2. If necessary, select Search Spacing, and select a distance.
3. Select Engage Port or Engage Starboard.

**Cancelling a Steering Pattern**

- Physically steer the boat.

**NOTE:** Shadow Drive must be enabled to cancel a steering pattern by physically steering the boat.

- Select << or >> to cancel a pattern using step steering mode.
- Select Standby.

**Digital Selective Calling**

**Networked Chartplotter and VHF Radio Functionality**

If you have a NMEA 0183 VHF radio or a NMEA 2000 VHF radio connected to your chartplotter, these features are enabled.

- The chartplotter can transfer your GPS position to your radio.
  - If your radio is capable, GPS position information is transmitted with DSC calls.
  - The chartplotter can receive digital selective calling (DSC) distress and position information from the radio.
  - The chartplotter can track the positions of vessels sending position reports.

If you have a Garmin NMEA 2000 VHF radio connected to your chartplotter, these features are also enabled.

- The chartplotter allows you to quickly set up and send individual routine call details to your Garmin VHF radio.
• When you initiate a man-overboard distress call from your radio, the chartplotter shows the man-overboard screen and prompts you to navigate to the man-overboard point.
• When you initiate a man-overboard distress call from your chartplotter, the radio shows the Distress Call page to initiate a man-overboard distress call.

Turning On DSC
Select Settings > Other Vessels > DSC.

DSC List
The DSC list is a log of the most recent DSC calls and other DSC contacts you have entered. The DSC list can contain up to 100 entries. The DSC list shows the most recent call from a boat. If a second call is received from the same boat, it replaces the first call in the first call list.

Viewing the DSC List
Before you can view the DSC list, the chartplotter must be connected to a VHF radio that supports DSC.

Select Info > DSC List.

Adding a DSC Contact
You can add a vessel to your DSC list. You can make calls to a DSC contact from the chartplotter.

1 Select Info > DSC List > Add Contact.
2 Enter the Maritime Mobile Service Identity (MMSI) of the vessel.
3 Enter the name of the vessel.

Incoming Distress Calls
If your compatible chartplotter and VHF radio are connected using NMEA 0183 or NMEA 2000, your chartplotter alerts you when your VHF radio receives a DSC distress call. If position information was sent with the distress call, that information is also available and recorded with the call.

Designates a distress call in the DSC list and marks the position of the vessel on the Navigation chart at the time of the DSC distress call.

Navigating to a Vessel in Distress
Designates a distress call in the DSC list and marks the position of a vessel on the Navigation chart at the time of the DSC distress call.

1 Select Info > DSC List.
2 Select a position-report call.
3 Select Review > Navigate To.
4 Select Go To or Route To.

Man-Overboard Distress Calls Initiated from a VHF Radio
When the chartplotter is connected to a compatible VHF radio with NMEA 2000, and you initiate a man-overboard DSC distress call from the radio, the chartplotter shows the man-overboard screen and prompts you to navigate to the man-overboard point. If you have a compatible autopilot system connected to the network, the chartplotter prompts you to start a Williamson’s turn to the man-overboard point.

If you cancel the man-overboard distress call on the radio, the chartplotter screen prompting you to activate navigation to the man-overboard location disappears.

Man-Overboard and SOS Distress Calls Initiated from the Chartplotter
When your chartplotter is connected to a Garmin NMEA 2000 compatible radio and you mark an SOS or man-overboard location, the radio shows the Distress Call page so you can quickly initiate a distress call.

For information on placing distress calls from your radio, see the VHF radio owner’s manual. For information about marking an MOB or SOS location, see Marking an SOS Location, page 14.

Position Tracking
When you connect the chartplotter to a VHF radio using NMEA 0183, you can track vessels that send position reports.

This feature is also available with NMEA 2000, when the vessel sends the correct PGN data (PGN 129808; DSC Call Information).

Every position report call received is logged in the DSC list (DSC List, page 35).

Viewing a Position Report
1 Select Info > DSC List.
2 Select a position-report call.
3 Select Review.
4 Select an option:
   • To switch to a Navigation chart marking the location, select Next Page.
   • To view the position report details, select Previous Page.

Navigating to a Tracked Vessel
1 Select Info > DSC List.
2 Select a position-report call.
3 Select Review > Navigate To.
4 Select Go To or Route To.

Creating a Waypoint at the Position of a Tracked Vessel
1 Select Info > DSC List.
2 Select a position-report call.
3 Select Review > Create Waypoint.

Editing Information in a Position Report
1 Select Info > DSC List.
2 Select a position-report call.
3 Select Review > Edit.
   • To enter the name of the vessel, select Name.
   • To select a new symbol, select Symbol, if available.
   • To enter a comment, select Comment.
   • To show a trail line for the vessel if your radio is tracking the position of the vessel, select Trail.
   • To select a color for the trail line, select Trail Line.

Deleting a Position-Report Call
1 Select Info > DSC List.
2 Select a position-report call.
3 Select Review > Clear Report.

Viewing Vessel Trails on the Chart
You can view trails for all tracked vessels on some chart views. By default, a black line indicates the path of the vessel, a black dot indicates each previously reported position of a tracked vessel, and a blue flag indicates the last reported position of the vessel.

1 From a chart or 3D chart view, select Menu > Layers > Other Vessels > DSC > DSC Trails.
2 Select the number of hours to show tracked vessels on the chart.

For example, if you select 4 Hours, all trail points that are less than four hours old appear for all tracked vessels.

Digital Selective Calling 35
Individual Routine Calls
When you connect the chartplotter to a Garmin VHF radio, you can use the chartplotter interface to set up an individual routine call.

When setting up an individual routine call from your chartplotter, you can select the DSC channel on which you want to communicate. The radio transmits this request with your call.

Selecting a DSC Channel
NOTE: The selection of a DSC channel is limited to those channels that are available in all frequency bands. The default channel is 72. If you select a different channel, the chartplotter uses that channel for subsequent calls until you call using another channel.

1 Select Info > DSC List.
2 Select a vessel or a station to call.
3 Select Review > Call with Radio > Channel.
4 Select an available channel.

Making an Individual Routine Call
NOTE: When initiating a call from the chartplotter, if the radio does not have an MMSI number programmed, the radio will not receive call information.

1 Select Info > DSC List.
2 Select a vessel or a station to call.
3 Select Review > Call with Radio.
4 If necessary, select Channel, and select a new channel.
5 Select Send.
   The chartplotter sends information about the call to the radio.
6 On your Garmin VHF radio, select Call.

Making an Individual Routine Call to an AIS Target
1 From a chart or 3D chart view, select an AIS target.
2 Select AIS Vessel > Call with Radio.
3 If necessary, select Channel, and select a new channel.
4 Select Send.
   The chartplotter sends information about the call to the radio.
5 On your Garmin VHF radio, select Call.

Gauges and Graphs
The gauges and graphs provide various information about the engine and environment. To view the information, a compatible transducer or sensor must be connected to the network.

Viewing the Gauges
1 Select A/V, Gauges, Controls.
2 Select a gauge.
3 Select ◄ or ► to view a different gauge page.

Changing the Data Shown in a Gauge
1 From a gauges screen, hold a gauge.
2 Select Replace Data.
3 Select a data type.
4 Select the data to display.

Customizing the Gauges
You can change the layout of the gauge pages, how the gauges pages are displayed, and the data in each gauge.
1 Open a gauge page.
2 Select Menu > Edit Gauge Pages.
3 Select an option:
   • To change the data shown in a gauge, select the gauge.
   • To change the layout of the gauges on the page, select Change Layout.
   • To add a page to this set of gauge pages, select Add Page.
   • To change the order of this page in the set of gauge pages, select Move Page Left or Move Page Right.
   • To restore this page to the original view, select Restore Default View.

Customizing Engine Gauge and Fuel Gauge Limits
You can configure the upper and lower limits and the range of desired standard operation of a gauge.
NOTE: Not all options are available for all gauges.

1 From an applicable gauges screen, select Menu > Installation > Set Gauge Limits.
2 Select a gauge to customize.
3 Select an option:
   • To set the minimum value of the standard operating range, select Rated Min..
   • To set the maximum value of the standard operating range, select Rated Max..
   • To set the lower limit of the gauge lower than the rated minimum, select Scale Min..
   • To set the upper limit of the gauge higher than the rated maximum, select Scale Max..
4 Select the limit value.
5 Repeat steps 4 and 5 to set additional gauge limits.

Viewing Engine and Fuel Gauges
Before you can view engine and fuel gauges, you must be connected to a NMEA 2000 network capable of sensing engine and fuel data. See the installation instructions for details.

Select A/V, Gauges, Controls > Engines.

Selecting the Number of Engines Shown in Gauges
You can show information for up to four engines.

1 From the engine gauges screen, select Menu > Installation > Engine Selection > Number of Engines.
2 Select an option:
   • Select the number of engines.
   • Select Auto Configure to automatically detect the number of engines.

Customizing the Engines Shown in Gauges
Before you can customize how the engines are shown in the gauges, you must manually select the number of engines (Selecting the Number of Engines Shown in Gauges, page 36).

1 From the engine gauges screen, select Menu > Installation > Engine Selection > Edit Engines.
2 Select First Engine.
3 Select the engine to display in the first gauge.
4 Repeat for the remaining engine bars.

Enabling Status Alarms for Engine Gauges
You can enable the chartplotter to display engine status alarms.

From the engine gauges screen, select Menu > Installation > Status Alarms > On.

When an engine alarms is triggered, a gauge status alarm message appears and the gauge may become red depending on the type of alarm.

Enabling Some Engine Gauge Status Alarms
1 From the engine gauges screen, select Menu > Installation > Status Alarms > Custom.
2 Select one or more engine gauge alarms to turn on or off.
Setting the Fuel Alarm
Before you can set a fuel level alarm, a compatible fuel flow sensor must be connected to the chartplotter.

You can set an alarm to sound when the total amount of remaining onboard fuel reaches the level you specify.

2. Enter the remaining amount of fuel that triggers the alarm, and select Done.

Setting the Fuel Capacity of the Vessel
1. Select Settings > My Vessel > Fuel Capacity.
2. Enter the combined total capacity of the fuel tanks.

Synchronizing the Fuel Data with the Actual Vessel Fuel
You can synchronize the fuel levels in the chartplotter with the actual fuel in the vessel when you add fuel to your vessel.

1. Select A/V, Gauges, Controls > Engines > Menu.
2. Select an option:
   - After you have filled up all the fuel tanks on the vessel, select Fill Up All Tanks. The fuel level is reset to maximum capacity.
   - After you have added less than a full tank of fuel, select Add Fuel to Boat, and enter the amount added.
   - To specify the total fuel in the vessel tanks, select Set Total Fuel Onboard, and enter the total amount of fuel in the tanks.

Viewing the Wind Gauges
Before you can view wind information, you must have a wind sensor connected to the chartplotter.

Select A/V, Gauges, Controls > Wind.

Configuring the Sailing Wind Gauge
You can configure the sailing wind gauge to show true or apparent wind speed and angle.

1. From the wind gauge, select Menu > Sailing Wind Gauge.
2. Select an option:
   - To show true or apparent wind angle, select Needle, and select an option.
   - To show true or apparent wind speed, select Wind Speed, and select an option.

Configuring the Speed Source
You can specify whether the vessel speed data displayed on the gauge and used for wind calculations is based on water speed or GPS speed.

1. From the wind gauge, select Menu > Compass Gauge > Speed Display.
2. Select an option:
   - To calculate the vessel speed based on data from the water-speed sensor, select Water Speed.
   - To calculate the vessel speed based on GPS data, select GPS Speed.

Configuring the Heading Source of the Wind Gauge
You can specify the source of the heading displayed on the wind gauge. Magnetic heading is the heading data received from a heading sensor, and GPS heading is calculated by your chartplotter GPS (course over ground).

1. From the wind gauge, select Menu > Compass Gauge > Heading Source.
2. Select GPS Hdg. or Magnetic.

NOTE: When moving at low speeds or when stationary, the magnetic compass source is more accurate than the GPS source.

Customizing the Close-Hauled Wind Gauge
You can specify the range of the close-hauled wind gauge for both the upwind scale and the downwind scale.

1. From the wind gauge, select Menu > Compass Gauge > Gauge Type > Close Hauled Gauge.
2. Select an option:
   - To set the maximum and minimum values that appear when the upwind close-hauled wind gauge appears, select Change Upwind Scale, and set the angles.
   - To set the maximum and minimum values that appear when the downwind close-hauled wind gauge appears, select Change Downwind Scale, and set the angles.
   - To view true or apparent wind, select Wind, and select an option.

Viewing Trip Gauges
Trip gauges show information for odometer, speed, time, and fuel for your present trip.

Select Info > Trip & Graphs > Trip.

Resetting Trip Gauges
1. Select Info > Trip & Graphs > Trip.
2. Select an option:
   - To set all the readings for the present trip to zero, select Reset Trip.
   - To set the maximum speed reading to zero, select Reset Maximum Speed.
   - To set the odometer reading to zero, select Reset Odometer.
   - To set all the readings to zero, select Reset All.

Viewing Graphs
Before you can view graphs of various environmental changes, such as temperature, depth, and wind, you must have an appropriate transducer or sensor connected to the network.

Select Info > Trip & Graphs > Graphs.

Setting the Graph Range and Time Scales
You can indicate the amount of time and the range of depth that appear in the depth and water temperature graphs.

1. From a graph, select Graph Setup.
2. Select an option:
   - To set a time-elapsed scale, select Duration. The default setting is 10 minutes. Increasing the time-elapsed scale allows you to view more detail over a longer period of time.
   - To set the graph scale, select Scale. Increasing the scale allows you to view more variation in readings. Decreasing the scale allows you to view more detail in the variation.

Battery Management
You can view the battery and other power sources, and the devices that use those sources.

Batteries are listed along the top of the screen. Other sources of power, such as solar, alternator, converter, and wind generator, are listed along the left side. The items along the right side of the screen are devices that use the batteries and other power sources.
Setting Up the Battery Management Page
1 Select A/V, Gauges, Controls > Battery Management > Menu > Edit Devices.
2 Select an item.
3 Select Device, and select an item from the list.
4 If necessary, select Name, enter a name for this device, and select Done.
5 If necessary, select Change Icon, select a new symbol, and select Done.
6 Repeat steps 2 through 5 for each device.

Tide, Current, and Celestial Information

Tide Station Information
You can view information about a tide station for a specific date and time, including the tide height, and when the next high and low tides will occur. By default, the chartplotter shows tide information for the most recently viewed tide station, present date, and past hour.
Select Info > Tides & Currents > Tides.

Current Station Information
NOTE: Current station information is available with certain detailed maps.
You can view information about a current station for a specific date and time, including the current speed and level of the current. By default, the chartplotter shows current information for the most recently viewed current station and for the present date and time.
Select Info > Tides & Currents > Currents.

Celestial Information
You can view information about sunrise, sunset, moonrise, moonset, moon phase, and the approximate sky view location of the sun and moon. The center of the screen represents the sky overhead, and the outermost rings represent the horizon. By default, the chartplotter shows celestial information for the present date and time.
Select Info > Tides & Currents > Celestial.

Viewing Tide Station, Current Station, or Celestial Information for a Different Date
1 Select Info > Tides & Currents.
2 Select Tides, Currents, or Celestial.
3 Select an option.
   • To view information for a different date, select Change Date > Manual, and enter a date.
   • To view information for today, select Change Date > Current.
   • If available, to view information for the day after the date shown, select Next Day.
   • If available, to view information for the day before the date shown, select Previous Day.

Viewing Information for a Different Tide or Current Station
1 Select Info > Tides & Currents.
2 Select Tides or Currents.
3 Select Nearby Stations.
4 Select a station.

Viewing Almanac Information from the Navigation Chart
1 From a chart or 3D chart view, select a location.
2 Select Information.
3 Select Tides, Currents, or Celestial.

Warning Manager

Viewing Messages
1 Select Info > Warning Manager.
2 Select a message.
3 Select Review.

Sorting and Filtering Messages
1 Select Info > Warning Manager > Sort/Filter.
2 Select an option to sort or filter the message list.

Saving Messages to a Memory Card
1 Insert a memory card into the card slot.
2 Select Info > Warning Manager > Save to Card.

Clearing all of the Messages
Select Info > Warning Manager > Clear Warning Manager.

Media Player
NOTE: The media player feature is not compatible with all chartplotter models.
NOTE: Not all features are available on all connected media players.
If you have a compatible stereo connected to the NMEA 2000 network, you can control the stereo using the chartplotter. The chartplotter should automatically detect the media player when it is first connected.
You can play media from sources connected to the media player and sources connected to the NMEA 2000 network.

Opening the Media Player
Before you can open the media player, you must connect a compatible device to the chartplotter.
   Select A/V, Gauges, Controls > Media.

Icons
NOTE: Not all devices have these icons.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>★</td>
<td>Saves or deletes a channel as a preset</td>
</tr>
<tr>
<td>☐</td>
<td>Repeats all songs</td>
</tr>
<tr>
<td>☐</td>
<td>Repeats one song</td>
</tr>
<tr>
<td>🔉</td>
<td>Searches for stations or skips songs</td>
</tr>
<tr>
<td>⏯</td>
<td>Shuffles</td>
</tr>
</tbody>
</table>

Selecting the Media Source
When you have multiple media devices connected on a network, such as the NMEA 2000 network, you can select the media source you want to control from your chartplotter.
NOTE: You can play media only from sources that are connected to the device.
NOTE: Not all features are available on all media sources.
1 From the media screen, select Source.
NOTE: The source menu appears only for devices that support multiple media sources.

2. Select a source.

**Playing Music**

**Browsing for Music**
1. From the media screen, select Browse or Menu > Browse.
2. Select Select or select an option.

**Enabling Alphabetical Search**
You can enable the alphabetical search feature to find a song or album in a large list.

1. From the media screen, select Menu > Installation > Alpha Search.

**Setting a Song to Repeat**
1. While playing a song, select Menu > Repeat.
2. If necessary, select Single.

**Setting All Songs to Repeat**
From the media screen, select Menu > Repeat > All.

**Setting Songs to Shuffle**
1. From the media screen, select Menu > Shuffle.
2. If necessary, select an option.

**Adjusting the Volume**

**Muting the Media Volume**
1. From the media screen, select Mute.
2. If necessary, select Select.

**Enabling and Disabling Zones**
If you have wired your vessel's speakers into zones, you can disable unused zones.

1. From the media screen, select Menu > Audio Levels > Enable/Disable Zones.
2. Select a zone.

**VHF Radio**

**Scanning VHF Channels**
Before you can scan VHF channels, you must set the source to VHF.

1. From the media screen, select Scan.

You can monitor VHF channels saved as presets for activity and automatically switch to an active channel.

1. From the VHF media screen, select Scan.

**Setting the DAB Tuner Region**
1. From the media screen, select Menu > Installation > Tuner Region.
2. Select an option.

**Changing the Radio Station**
1. From the media screen, select an applicable source, such as FM.
2. Select or to tune to a station.

**Changing the Tuning Mode**
You can change how you select a station for some media types, such as FM or AM radio.

**Saving a Station as a Preset**
1. From an applicable media screen, tune to the station to save as a preset.
2. Select Presets > Add Current Channel.

**Selecting a Preset**
1. From an applicable media screen, select Presets.
2. Select a preset from the list.
3. Select Tune to Channel.

**Removing a Preset**
1. From an applicable media screen, select Presets.
2. Select a preset from the list.
3. Select Remove Current Channel.

**DAB Playback**
When you connect a compatible Digital Audio Broadcasting (DAB) module and antenna, such as the FUSION® MS-DAB100A to a compatible stereo, you can tune in to and play DAB stations.

To use the DAB source, you must be in a region in which DAB is available, and select the tuner region (Setting the DAB Tuner Region, page 39).

**Setting the DAB Tuner Region**
You must select the region you are in to receive DAB stations properly.

1. From the media screen, select Menu > Installation > Tuner Region.
2. Select the region you are in.

**Scanning for DAB Stations**
Before you can scan for DAB stations, you must connect a compatible DAB module and antenna (not included) to the stereo. Because DAB signals are broadcast in select countries only, you must also set the tuner region to a location where DAB signals are broadcast.

1. Select the DAB source.
2. Select Scan to scan for available DAB stations.

When scanning is complete, the first available station in the first ensemble found begins playing.

**Radio**

To listen to AM or FM radio, you must have a suitable marine AM/FM antenna properly connected to the stereo and be within range of a broadcasting station. For instructions on connecting an AM/FM antenna, see the stereo installation instructions.

To listen to SiriusXM® radio, you must have the appropriate equipment and subscriptions (SiriusXM Satellite Radio, page 40). For instructions on connecting a SiriusXM Connect Vehicle Tuner, see the stereo installation instructions.

To listen to DAB stations, you must have the appropriate equipment (DAB Playback, page 39). For instructions on connecting a DAB adapter and antenna, see the installation instructions provided with your adapter and antenna.
complete, the system starts playing the first station in the
ensemble you were listening to when you started the re-scan.

Changing DAB Stations
1 Select the DAB source.
2 If necessary, select Scan to scan for local DAB stations.
3 Select ← or → to change the station.
   When you reach the end of the current ensemble, the stereo
   automatically changes to the first available station in the next
   ensemble.

Selecting a DAB Station from a List
1 From the DAB media screen, select Browse > Stations.
2 Select a station from the list.

Selecting a DAB Station from a Category
1 From the DAB media screen, select Browse > Categories.
2 Select a category from the list.
3 Select a station from the list.

DAB Presets
You can save your favorite DAB stations as presets for easy
access.
You can save up to 15 DAB-station presets.

Saving a DAB Station as a Preset
1 From the DAB media screen, select the station to save as a
   preset.
2 Select Browse > Presets > Save Current.

Selecting a DAB Preset from a List
1 From the DAB media screen, select Browse > Presets >
   View Presets.
2 Select a preset from the list.

Removing DAB Presets
1 From the DAB media screen, select Browse > Presets.
2 Select an option:
   • To remove one preset, select Remove Preset, and select
     the preset.
   • To remove all presets, select Remove All Presets.

SiriusXM Satellite Radio
When you have a FUSION-Link™ capable stereo and SiriusXM
Connect Tuner installed and connected to the chartplotter, you
may have access to SiriusXM satellite radio, depending on your
subscription.

Locating a SiriusXM Radio ID
Before you can activate your SiriusXM subscription, you must
have the radio ID of your SiriusXM Connect Tuner.
You can locate the SiriusXM Radio ID on the back of the
SiriusXM Connect Tuner, on the back of its packaging, or by
tuning your chartplotter to channel 0.
1 Select Media > Source > SiriusXM.
2 Tune to channel 0.
   The SiriusXM radio ID does not include the letters I, O, S, or
   F.

Activating a SiriusXM Subscription
1 With the SiriusXM source selected, tune to channel 1.
   You should be able to hear the preview channel. If not, check
   the SiriusXM Connect Tuner and antenna installation and
   connections, and try again.
2 Tune to channel 0 to locate the Radio ID.
3 Contact SiriusXM listener care by phone at (866) 635-2349 or
goto www.siriusxm.com/activatenow to subscribe in the
United States. Contact SiriusXM by phone at (877) 438-9677
or go to www.siriusxm.ca/activatexm to subscribe in Canada.

4 Provide the Radio ID.
   The activation process usually takes 10 to 15 minutes, but
can take up to an hour. For the SiriusXM Connect Tuner to
receive the activation message, it must be turned on and
receiving the SiriusXM signal.
5 If the service is not activated within the hour, go to
http://care.siriusxm.com/refresh or contact SiriusXM by phone
at 1-855-MYREFRESH (697-3373).

Customizing the Channel Guide
SiriusXM radio channels are grouped in categories. You can
select the categories of channels that appear in the channel
guide.
Select an option:
• If the media device is a FUSION-Link capable stereo, select
  Media > Browse > Channel.
• If the media device is a GXM™ antenna, select Media >
  Category.

Saving a SiriusXM Channel to the Presets List
You can save your favorite channels to the presets list.
1 Select Media.
2 Select the channel to save as a preset.
3 Select an option:
   • If the media device is a FUSION-Link capable stereo, select
     Browse > Presets.
   • If the media device is a GXM antenna, select Menu >
     Presets > Add Current Channel.

Unlocking SiriusXM Parental Controls
1 From the media screen, select Browse > Parental > Unlock.
2 Enter your passcode.
   The default passcode is 0000.

Setting Parental Controls on SiriusXM Radio Channels
Before you can set parental controls, the parental controls must
be unlocked.
The parental control feature allows you to limit access to any
SiriusXM channels, including those with mature content. When
enabled, the parental control feature requires you to enter a
passcode to tune to the locked channels.
Select Browse > Parental > Lock/Unlock.
A list of channels appears. A checkmark indicates a locked
channel.
NOTE: When you view the channels after setting parental
controls, the display changes:
• ❇ indicates a locked channel.
• 🎶 indicates an unlocked channel.

Changing a Parental Passcode on a SiriusXM Radio
Before you can change the passcode, the parental controls must
be unlocked.
1 From the media screen, select Browse > Parental > Change
   PIN.
2 Enter your passcode and select Done.
3 Enter a new passcode.
4 Confirm the new passcode.

Restoring Default Parental Control Settings Values
This process deletes all the settings information you have
entered. When you restore the parental control settings to their
default values, the passcode value is reset to 0000.
1 From the media menu, select Installation > Factory
   Defaults.
2 Select Yes.

Clearing All Locked Channels on a SiriusXM Radio
Before you can clear all locked channels, the parental controls
must be unlocked.
1 From the media screen, select **Browse > Parental > Clear All Locked**.
2 Enter your passcode.

Setting the Device Name
1 From the media screen, select **Menu > Installation > Set Device Name**.
2 Enter a device name.
3 Select **Select** or **Done**.

Updating the Media Player Software
You can update the software on compatible connected stereos
and accessories.
1 Download the software update onto a USB flash drive.
   Software updates and instructions are available on your device product page.
2 Insert the USB flash drive into the USB port of the stereo.
3 On the chartplotter media screen, select **Menu > Installation > Update Software**.
4 Select the item to update.

SiriusXM Weather

⚠️ WARNING
The weather information provided through this product is subject
to service interruptions and may contain errors, inaccuracies, or
outdated information, and consequently should not be relied
upon exclusively. Always use common sense while navigating,
and check alternate weather information sources prior to making
safety-related decisions. You acknowledge and agree that you
shall be solely responsible for use of the weather information
and all decisions taken with respect to navigating in weather.
Garmin will be responsible for any consequences of using
SiriusXM weather information.

NOTE: SiriusXM data is not available in all regions.
A Garmin SiriusXM satellite weather receiver and antenna
receives satellite weather data and shows it on various Garmin
devices, including the Navigation chart on a compatible
chartplotter. The weather data for each feature comes from
reputable weather data centers such as the National Weather
Service and the Hydrometeorological Prediction Center.

SiriusXM Equipment and Subscription Requirements
To use satellite weather, you must have a compatible satellite
weather receiver. To use SiriusXM satellite radio, you must have
a compatible satellite radio receiver. You must also have a valid
subscription to receive satellite weather and radio. For more
information, refer
to the instructions for your satellite weather and radio
equipment.

Weather Data Broadcasts
Weather data is broadcast at different intervals for each weather
feature. For example, radar is broadcast at five-minute intervals.
When the Garmin receiver is turned on, or when a different
weather feature is selected, the receiver must receive new data
before it can be shown. You might experience a delay before
weather data or a different feature appears on the chart.

NOTE: Any weather feature can change in appearance if the
source that provides the information changes.

Changing the Weather Chart
1 From a combination screen or SmartMode layout with a
   weather chart, select **Menu > Weather Menu > Change Weather**.
2 Select a weather chart.

Viewing Precipitation Information
Precipitation ranging from very light rain and snow, up to strong
thunderstorms, is indicated in varying shades and colors.
Precipitation is shown either independently or with other weather
information.

   Select Charts > Precipitation.
   The time stamp in the upper-left corner of the screen
   indicates the elapsed time since the weather data provider
   last updated the information.

Precipitation Views
From the precipitation weather chart, select Menu.

RADAR Loop: Shows precipitation information as an image of
the latest update or as an animated loop of the latest
updates. The time stamp indicates the elapsed time since the
service provider generated the weather radar frame currently
displayed on the screen.

Cloud Cover: Shows cloud cover data.
Waypoints: Shows waypoints.
Legend: Shows the weather legend.

Storm Cell and Lightning Information
Storm cell are represented by 🌪 on the weather precipitation
chart. They indicate both the present position of a storm and the
projected path of that storm in the immediate future.
Red cones appear with a storm cell icon, and the widest part of
each cone points in the direction of the projected path of the
storm cell. The red lines in each cone indicate where the storm
will most likely be in the near future. Each line represents 15
minutes.
Lightning strikes are represented by ⚡. Lightning appears on the
weather precipitation chart if strikes were detected within the last
seven minutes. The ground-based lightning detection network
detects cloud-to-ground lightning only.

NOTE: This feature is not available on all devices and in all
subscriptions.

Hurricane Information
The weather Precipitation chart can show the present position of
a hurricane 🌪, a tropical storm, or a tropical depression. A red
line stemming from a hurricane icon indicates the projected path
of the hurricane. Darkened dots on the red line indicate the
projected locations through which the hurricane will pass, as
received from the weather data provider.

Weather Warnings and Weather Bulletins
When a marine weather warning, weather watch, weather
advisory, weather bulletin, or other weather statement is issued,
shading indicates the area to which the information applies. The
aqua lines on the chart indicate the boundaries of marine
forecasts, coastal forecasts, and offshore forecasts. Weather
bulletins may consist of either weather watches or weather
advisories.
To view information about the warning or bulletin, select the
shaded area.
Forecast Information
The Forecast chart shows city forecasts, marine forecasts, warnings, hurricane warnings, METARS, county warnings, weather fronts and pressure centers, surface pressure, and weather buoys.

Viewing Forecast Information for Another Time Period
1. Select Charts > Forecast.
2. Select an option:
   • To view the weather forecast for the next 48 hours, in 12-hour increments, select Next Forecast multiple times.
   • To view the weather forecast for the previous 48 hours, in 12-hour increments, select Previous Forecast multiple times.

Weather Fronts and Pressure Centers
Weather fronts appear as lines that indicate the leading edge of an air mass.

<table>
<thead>
<tr>
<th>Front Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cold front</td>
</tr>
<tr>
<td></td>
<td>Warm front</td>
</tr>
<tr>
<td></td>
<td>Stationary front</td>
</tr>
<tr>
<td></td>
<td>Occluded front</td>
</tr>
<tr>
<td></td>
<td>Trough</td>
</tr>
</tbody>
</table>

Pressure-center symbols often appear near weather fronts.

<table>
<thead>
<tr>
<th>Pressure-Center Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>Indicates a low-pressure center, which is a region of relatively lower pressure. Moving away from a low-pressure center results in increased pressure. Winds flow counterclockwise around low-pressure centers in the northern hemisphere.</td>
</tr>
<tr>
<td>H</td>
<td>Indicates a high-pressure center, which is a region of relatively higher pressure. Moving away from a high-pressure center results in decreased pressure. Winds flow clockwise around high-pressure centers in the northern hemisphere.</td>
</tr>
</tbody>
</table>

Viewing a Marine Forecast or an Offshore Forecast
1. Select Charts > Forecast.
2. Pan the chart to an offshore location.
3. Select Marine Forecast or Offshore Forecast.

City Forecasts
City forecasts appear as weather symbols. The forecast is viewed in 12-hour increments.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Weather</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Partly cloudy</td>
</tr>
<tr>
<td></td>
<td>Cloudy</td>
</tr>
<tr>
<td></td>
<td>Windy</td>
</tr>
<tr>
<td></td>
<td>Fair (sunny, hot, clear)</td>
</tr>
<tr>
<td></td>
<td>Rain (drizzle, sleet, showers)</td>
</tr>
<tr>
<td></td>
<td>Foggy</td>
</tr>
<tr>
<td></td>
<td>Smoke (dusty, hazy)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Weather</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thunderstorms</td>
</tr>
<tr>
<td></td>
<td>Smoke (dusty, hazy)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Weather</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Snow (snow showers, flurries, blizzard, blowing snow, sleet, freezing rain, freezing drizzle)</td>
</tr>
</tbody>
</table>

Viewing Sea Conditions
The Sea Conditions feature shows information about surface conditions, including winds, wave height, wave period, and wave direction.

Select Charts > Sea Conditions.

Surface Winds
Surface wind vectors appear on the Sea Conditions chart using wind barbs that indicate the direction from which the wind is blowing. A wind barb is a circle with a tail. The line or flag attached to the tail of the wind barb indicates the wind speed. A short line represents 5 knots, a long line represents 10 knots, and triangle represents 50 knots.

<table>
<thead>
<tr>
<th>Wind Barb</th>
<th>Wind Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calm</td>
</tr>
<tr>
<td>O</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 knots</td>
</tr>
<tr>
<td>O</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 knots</td>
</tr>
<tr>
<td>O</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 knots</td>
</tr>
</tbody>
</table>

Wave Height, Wave Period, and Wave Direction
Wave heights for an area appear as variations in color. Different colors indicate different wave heights, as shown in the legend. The wave period indicates the time (in seconds) between successive waves. Wave period lines indicate areas that have the same wave period.

Wave directions appear on the chart using red arrows. The direction of each arrow pointer indicates the direction in which a wave is moving.

Viewing Forecast Sea Conditions Information for Another Time Period
1. Select Charts > Sea Conditions.
2. Select an option:
   • To view forecasted sea conditions for the next 36 hours, in 12-hour increments, select Next Forecast multiple times.
   • To view the forecasted sea conditions for the previous 36 hours, in 12-hour increments, select Previous Forecast multiple times.

Viewing Fishing Information
The weather Fishing chart shows present water temperature, present surface pressure conditions, and fishing forecasts.

Select Charts > Fishing.

Surface Pressure and Water Temperature Data
Surface-pressure information appears as pressure isobars and pressure centers. Isobars connect points of equal pressure. Pressure readings can help to determine weather and wind conditions. High-pressure areas are generally associated with fair weather. Low-pressure areas are generally associated with clouds and the chance of precipitation. Isobars packed closely together show a strong pressure gradient. Strong pressure gradients are associated with areas of stronger winds.

Pressure units are shown in millibars (mb), inches of Mercury (inHg), or hectopascals (hPa).

Colored shading indicates the surface temperature of the water, as shown in the legend in the corner of the display.
Forecasting Fish Locations
You can show areas that contain optimal weather conditions for specific species of fish.

NOTE: This feature is not available on all devices and in all subscriptions.
1. From the weather Fishing chart, select Menu > Fish Species.
2. Select a species of fish.
4. Repeat steps 2 and 3 to show areas with optimal weather conditions for additional species of fish.

Changing the Sea Surface Temperature Color Range
You can change the color range dynamically to view higher resolution sea surface temperature readings.
1. From the weather fishing chart, select Menu > Sea Temperature.
2. Select an option:
   • To allow the chartplotter to adjust the temperature range automatically, select Auto Configure.
   The chartplotter automatically finds the lower and upper limits for the current screen, and updates the temperature-color scale.
   • To enter the lower and upper limits for the temperature range, select Lower Limit or Upper Limit, and enter the lower or upper limit.

Visibility Information
Visibility is the forecast maximum horizontal distance that can be seen at the surface, as shown in the legend on the left of the screen. Variations in the visibility shading show the forecast change in surface visibility.
NOTE: This feature is not available on all devices and in all subscriptions.

Select Charts > Visibility.

Viewing Forecast Visibility Information for Another Time Period
1. Select Charts > Visibility.
2. Select an option:
   • To view the visibility forecast for the next 36 hours, in 12-hour increments, select Next Forecast multiple times.
   • To view the visibility forecast for the previous 36 hours, in 12-hour increments, select Previous Forecast multiple times.

Viewing Buoy Reports
Report readings are taken from buoys and coastal observation stations. These readings are used to determine air temperature, dew point, water temperature, tide, wave height and period, wind direction and speed, visibility, and barometric pressure.
1. From a weather chart, select .
2. Select Buoy.

Viewing Local Weather Information near a Buoy
You can select an area near a buoy to view forecast information.
1. From a weather chart, select a location on the chart.
2. Select Local Weather.
3. Select an option:
   • To view present weather conditions from a local weather service, select Current Cond..

Viewing Video
Before you can view video, you must connect to a compatible source.
Compatible devices include video devices connected to the ports on the chartplotter or to the Garmin Marine Network, as well as supported network (IP-based) video cameras, encoders, and thermal cameras.

Select A/V, Gauges, Controls > Video.

Selecting a Video Source
1. From the video screen, select Menu > Source.
2. Select the source of the video feed.

Alternating Among Multiple Video Sources
If you have two or more video sources, you can alternate between them using a specific time interval.
1. From the video screen, select Menu > Source > Alternate.
You can connect multiple supported video cameras and up to two video encoders to the Garmin Marine Network. You can select and view up to four video sources at once. Chartplotters with multiple composite built-in video inputs can display a single built-in video input only. When the cameras are connected, the network detects them automatically and displays them in the source list.

**Using Video Presets on Networked Video Cameras**

You can save, name, and activate video presents for each networked video source.

**Saving Video Presets on a Networked Video Camera**

1. From a video screen, select **Menu > Video Setup > Presets**.
2. Select a preset.
3. Select **Rename**.
4. Enter preset name.

**Activating Video Presets on a Networked Video Camera**

You can quickly return networked cameras to preset values.

1. From a video screen, touch the screen.
2. Select a video preset.

**Camera Settings**

Some cameras provide additional options to control the camera view.

**NOTE:** Not all options are available on all camera models and chartplotter models. Refer to the camera manual for a list of available features. You may need to update the camera software to use this feature.

From the infrared video screen, select **Menu**. **IR/Visible**: Displays an infrared or visible camera image. **Scan**: Surveys the surrounding area. **Freeze**: Pauses the camera image. **Change Colors**: Selects the color scheme of the infrared image.

**Video Setup**: Opens more video options.

**Video Settings**

Some cameras provide additional setup options.

**NOTE:** Not all options are available on all camera models and chartplotter models. You may need to update the camera software to use this feature.

From the video screen, select **Menu > Video Setup**.

**Set Input**: Associates the camera with a video source. **Mirror**: Reverses the image like a rearview mirror. **Standby**: Places the camera in standby mode to conserve power and protect the lens when not in use. **Home Position**: Sets the home position of the camera. **Scan Speed**: Sets how quickly the camera moves during a scan. **Scan Width**: Sets the width of the image captured by the camera during a scan. **Name**: Allows you to enter a new name for this camera. **FLIR™ Menu**: Provides access to the settings for the camera.

**Associating the Camera to a Video Source**

You may need to associate the camera with a video source.

1. From the video screen, select **Menu > Source**.
2. Select the camera.
3. Select **Video Setup > Set Input**.
4. Select the video input.

**Video Camera Movement Control**

**NOTICE**

Do not aim the camera at the sun or extremely bright objects. Damage to the lens may occur.

Always use the chartplotter controls or buttons to pan and tilt the camera. Do not manually move the camera unit. Manually moving the camera may damage the camera.

**NOTE:** This feature is available only when a compatible camera is connected. You may need to update the camera software to use this feature.

You can control the movements of the connected video cameras that support panning, tilting, and zooming.

**Controlling Video Cameras Using On-Screen Controls**

On-screen controls allow you to control pan-tilt-zoom (PTZ) cameras. Refer to the camera manual for a list of available features.

1. From a video screen, touch the screen.
2. Select an option:
   - To zoom in and out, use the zoom button.
   - To pan or tilt the camera, use the compass rose.

**TIP:** Hold within the compass rose to continue to move the camera in the desired direction.

**Controlling a Video Camera Using Gestures**

When a networked video camera supports gesture responses, you can control pan-tilt-zoom cameras using gestures directly on the chartplotter screen. Check your camera user manual for a list of available features.

**TIP:** Using gestures allows video control without displaying the video controls.

1. From a video screen, touch the screen.
2 Select an option:
   • To zoom in and out with the camera, use pinch and zoom gestures.
   • To pan or tilt the camera, swipe the screen in the desired direction.

**Configuring the Video Appearance**

**NOTE:** Not all options are available on all camera models and chartplotter models.

1 From the video screen, select **Menu > Video Setup**.

2 Select an option:
   • To show the video using a stretched aspect ratio, select **Aspect > Stretch**. The video cannot be stretched beyond the dimensions provided by the connected video device, and it may not fill the entire screen.
   • To show the video using a standard aspect ratio, select **Aspect > Standard**.
   • To adjust the brightness, select **Brightness**, and select **Up**, **Down**, or **Auto**.
   • To adjust the color saturation, select **Saturation**, and select **Up**, **Down**, or **Auto**.
   • To adjust the contrast, select **Contrast**, and select **Up**, **Down**, or **Auto**.
   • To allow the chartplotter to automatically select the source format, select **Standard > Auto**.

**Configuring the PC Display**

Before you can configure the PC display mode, you must set the video source to analog or digital PC.

1 When in PC display mode, select anywhere on the screen.

2 Select an option:
   • To adjust the screen brightness, select the brightness arrows.
   • To adjust the screen contrast, select the contrast arrows.

**Exiting PC Display Mode**

1 When in PC display mode, select anywhere on the screen.

2 Select the display mode icon in the upper-left corner.
   The video source changes to Video 1.

**Garmin VIRB® Action Cameras**

Most VIRB action cameras connect to the chartplotter from the camera menu (Connecting a VIRB Action Camera, page 45). The VIRB 360 camera connects using the VIRB app (Connecting a VIRB 360 Action Camera, page 45).

In this manual, the term "VIRB action camera" refers to all models except the VIRB 360 camera. "VIRB 360 camera" refers to only the 360 model.

**Connecting a VIRB 360 Action Camera**

1 Download and open the GarminVIRB app on your mobile device.

2 Hold Wi-Fi for two seconds to enable the Wi-Fi technology on the camera.

3 If you are using an Apple® mobile device, go to the Wi-Fi settings on your mobile device, and connect to the camera access point using the name and password on the camera screen.

4 On your mobile device, start the GarminVIRB app.
   The app searches for your camera.

5 If you are using a mobile device with Android™, when the security prompt appears, enter the password for the camera access point.

**TIP:** The access point name and password appear on the camera screen.

The app connects to your camera.

6 Set up the chartplotter's Wi-Fi network.

7 From the GarminVIRB app, select > WiFi Connections.
   A list of nearby Wi-Fi access points appears.

8 Select the chartplotter's Wi-Fi network, and enter the network password.
   The app and the camera connect to the chartplotter's Wi-Fi network.

**Connecting a VIRB Action Camera**

You connect a VIRB action camera to the chartplotter using the camera setting. If you are connecting a VIRB 360 camera, connect through the VIRB app (Connecting a VIRB 360 Action Camera, page 45).

1 Set up the chartplotter Wi-Fi network Setting Up the Wi-Fi Wireless Network, page 5.

2 From the VIRB camera main menu, select Wireless > Wi-Fi > Status to turn on Wi-Fi wireless technology.

3 Select Mode > Connect.

4 Select Add New.
   The camera searches for nearby Wi-Fi networks.

5 Select the chartplotter's Wi-Fi network, and enter the network password.
   The app and the camera connect to the chartplotter's Wi-Fi network.

You can control the camera using the chartplotter.

**Controlling the VIRB Action Camera with the Chartplotter**

Before you can control a VIRB action camera with the chartplotter, you must connect the devices using a wireless connection (Connecting a Wireless Device to the Chartplotter, page 5).

You can connect up to five VIRB action cameras to the chartplotter.

After you connect the VIRB action camera with the chartplotter, a new option is added to A/V, Gauges, Controls. You can start and stop recording on the VIRB action camera using the chartplotter.

**NOTE:** The VIRB image shown on the chartplotter is a in a lower resolution than the VIRB action camera records. To view the high-resolution video, view the video on a computer or television.

1 Select A/V, Gauges, Controls > VIRB®.

2 Select an option:
   • To take a still photograph, select 📸.
   • To begin recording, select 🎥.
     When recording, the remaining recording memory is shown.
   • To stop recording, select 🎥 again.
   • If you have more than one VIRB action camera connected, use the arrows to select a different action camera to control.
   • To view stored videos or images, select 🎥.

**VIRB Action Camera Settings**

Select A/V, Gauges, Controls > VIRB® > Menu.

**Name:** Allows you to enter a new name for the VIRB action camera.

**Recording:** Starts and stops recording.

**Take Photo:** Takes a still photograph.

**Sleep:** Puts the VIRB action camera into a low power mode to conserve battery power.
**VIRB Action Camera Video Setup Settings**

Select A/V, Gauges, Controls > VIRB® > Menu > Video Setup.

**Aspect:** Sets the video aspect ratio.

**Video Mode:** Sets the video mode. For example, you can select the Slow-Mo option to shoot slow motion videos.

**Video Size:** Sets the size or pixel dimensions of videos.

**Video FPS:** Sets the frames per second.

**Photo Size:** Sets the size or pixel dimensions of photos.

**Field of View:** Sets the zoom level.

**Adding the VIRB Action Camera Controls to Other Screens**

Before you can control a VIRB action camera with the chartplotter, you must connect the devices using a wireless connection (Connecting a Wireless Device to the Chartplotter, page 5).

You can add the VIRB action camera control bar to other screens. This allows you to start and stop recording from other functions in the chartplotter.

1. Open the screen to which you want to add the VIRB action camera control bar.
2. Select Menu > Edit Overlays > Bottom Bar > VIRB Bar.

When viewing a screen that has the VIRB action camera controls, you can select \[\] to open the full screen view of the VIRB action camera.

**Controlling the VIRB Action Camera Video Playback**

You can view VIRB action camera video and images using the chartplotter.

**NOTE:** The VIRB playback on the chartplotter is shown in the same quality as the live view on the chartplotter. To view the high-resolution video, view the video on a computer or television.

1. From the VIRB® screen, select \[\].
2. Wait a few seconds for the thumbnail images to load.
3. Select a video or image.
4. Control the playback using the on-screen buttons or menu options:
   - To stop the video, select \[\].
   - To pause the video, select \[\].
   - To replay the video, select \[\].
   - To play the video, select \[\].
   - To skip ahead or back in the video, drag the slider.

**Deleting a VIRB Video**

You can delete a video or image from the VIRB action camera.

1. Open the VIRB video or image to delete.
2. Select Menu > Delete File.

**Starting a VIRB Video Slideshow**

You can view a slideshow of the videos and images on the VIRB action camera.

1. From the VIRB® screen, select \[\].
2. Wait a few seconds for the thumbnail images to load.
3. Select a video or image.
4. Select Menu > Start Slideshow.

To stop the slideshow, select Menu > Stop Slideshow.

---

### Device Configuration

**System Settings**

Select Settings > System.

**Sounds and Display:** Adjusts the display and audio settings.

**GPS:** Provides information about the GPS satellites and settings.

**System Information:** Provides information about the devices on the network and the software version.

**Station Information:** Adjusts the setup of the station.

**Auto Power Up:** Controls which devices turn on automatically when power is applied.

**Auto Power Off:** Automatically turns off the system after it has been asleep for the selected length of time.

**Simulator:** Turns the simulator on or off and allows you to set the time, date, speed, and simulated location.

**Sounds and Display Settings**

Select Settings > System > Sounds and Display.

**Beeper:** Turns on and off the tone that sounds for alarms and selections.

**Backlight:** Sets the backlight brightness. You can select the Auto option to adjust the backlight brightness automatically based on the ambient light.

**Backlight Sync:** Synchronizes the backlight brightness of other chartplotters in the station.

**Color Mode:** Sets the device to display day or night colors. You can select the Auto option to allow the device to set day or night colors automatically based on the time of day.

**Startup Image:** Sets the image that appears when you turn on the device.

**GPS Settings**

Select Settings > System > GPS.

**Skyview:** Shows the relative position of GPS satellites in the sky.

**Speed Filter:** Averages the speed of your vessel over a short period of time for smoother speed values.

**WAAS/EGNOS:** Turns on or off WAAS (in North America) or EGNOS (in Europe), which can provide more-accurate GPS position information. When using WAAS or EGNOS, the device may take longer to acquire satellites.

**GLONASS:** Turns on or off GLONASS usage (Russia satellite system). When the system is used in situations with poor sky visibility, this configuration can be used in combination with GPS to provide more accurate position information.

**Source:** Allows you to select the preferred source for GPS.

**Station Settings**

Select Settings > System > Station Information.

**Change Station:** Sets the entire station to a new set of defaults based on the location of this station. You can also select to use this display as a stand-alone, individual display, instead of grouping it with other displays to make a station.

**GRID™ Pairing:** Allows you to pair a GRID™ remote input device with this station.

**Display Order:** Sets the order of the displays, which is important when using a GRID remote input device.

**Autopilot Enabled:** Allows you to control the autopilot from this device.

**Reset Stations:** Restores the factory default view for the layouts in this station.

**Reset Layouts:** Restores the factory default layouts for all displays in the station.

**Viewing System Software Information**

You can view the software version, the basemap version, all supplemental map information (if applicable), the software version for an optional Garmin radar (if applicable), and the unit...
ID number. You may need this information to update the system software or to purchase additional map data information.

Select Settings > System > System Information > Software Information.

Viewing the Event Log
The event log shows a list of system events.

Select Settings > System > System Information > Event Log.

Preferences Settings
Select Settings > Preferences.

Units: Sets units of measure.
Language: Sets the on-screen text language.
Navigation: Sets navigation preferences.
Keyboard Layout: Arranges the keys on the on-screen keyboard.
Screenshot Capture: Allows the device to save images of the screen.
User Data Sharing: Allows you to share waypoints and routes over the Garmin Marine Network. All chartplotters that share waypoints and routes must have this setting turned on.
Menu Bar Display: Shows or automatically hides the menu bar when it is not needed.

Units Settings
Select Settings > Preferences > Units.

System Units: Sets the unit format for the device.
Variance: Sets the magnetic declination, the angle between magnetic north and true north, for your present location.
North Reference: Sets the direction references used in calculating heading information. True sets geographic north as the north reference. Grid sets grid north as the north reference (000°). Magnetic sets the magnetic north as the north reference.
Position Format: Sets the position format in which a given location reading appears. Do not change this setting unless you are using a map or chart that specifies a different position format.
Map Datum: Sets the coordinate system on which the map is structured. Do not change this setting unless you are using a map or chart that specifies a different map datum.
Time: Sets the time format, time zone, and daylight saving time.

Navigation Settings
NOTE: Some settings and options require additional charts or hardware.
Select Settings > Preferences > Navigation.

Route Labels: Sets the type of labels shown with route turns on the map.
Turn Transition: Adjusts how the chartplotter transitions to the next turn or leg or the route. You can set the transition to be based on time or distance before the turn. You can increase the time or distance value to help improve the accuracy of the autopilot when navigating a route or an Auto Guidance line with many frequent turns or at higher speeds. For straighter routes or slower speeds, lowering this value can improve autopilot accuracy.

Speed Sources: Sets the source for the speed readings.
Auto Guidance: Sets the measurements for the Preferred Depth, Vertical Clearance, and Shoreline Distance, when you are using some premium maps.
Route Start: Selects a starting point for route navigation.

Auto Guidance Path Configurations

The Preferred Depth and Vertical Clearance settings influence how the chartplotter calculates an Auto Guidance path. If an area has an unknown water depth or an unknown obstacle height, the Auto Guidance path is not calculated in that area. If an area at the beginning or the end of an Auto Guidance path is shallower than the Preferred Depth or lower than the Vertical Clearance settings, the Auto Guidance path may not be calculated in that area, depending on the map data. On the chart, the course through those areas appears as a gray line or a magenta and gray striped line. When your boat enters one of those areas, a warning message appears.

NOTE: Auto Guidance is available with premium charts, in some areas.

NOTE: Not all settings apply to all maps.
You can set the parameters the chartplotter uses when calculating an Auto Guidance path.

Preferred Depth: Sets the minimum water depth, based on chart depth data, that your boat can safely travel over.

NOTE: The minimum water depth for the premium charts (made before 2016) is 3 feet. If you enter a value of less than 3 feet, the charts only use depths of 3 feet for Auto Guidance path calculations.

Vertical Clearance: Sets the minimum height of a bridge or obstacle, based on chart data, that your boat can safely travel under.

Shoreline Distance: Sets how close to the shore you want the Auto Guidance path to be placed. The Auto Guidance path may move if you change this setting while navigating. The available values for this setting are relative, not absolute. To ensure that the Auto Guidance line is placed the appropriate distance from shore, you can assess the placement of the Auto Guidance path using one or more familiar destinations that require navigation through a narrow waterway (Adjusting the Distance from Shore, page 16).

Adjusting the Distance from Shore
The Shoreline Distance setting indicates how close to the shore you want the Auto Guidance line to be placed. The Auto Guidance line may move if you change this setting while navigating. The available values for the Shoreline Distance setting are relative, not absolute. To ensure the Auto Guidance line is placed the appropriate distance from shore, you can assess the placement of the Auto Guidance line using one or more familiar destinations that require navigation through a narrow waterway.

1 Dock your vessel or drop the anchor.
2 Select Settings > Preferences > Navigation > Auto Guidance > Shoreline Distance > Normal.
3 Select a destination that you have navigated to previously.
4 Select Navigate To > Auto Guidance.
5 Review the placement of the Auto Guidance line, and determine whether the line safely avoids known obstacles and the turns enable efficient travel.
6 Select an option:
   • If the placement of the Auto Guidance line is satisfactory, select Menu > Navigation Options > Stop Navigation, and proceed to step 10.
   • If the Auto Guidance line is too close to known obstacles, select Settings > Preferences > Navigation > Auto Guidance > Shoreline Distance > Far.
   • If the turns in the Auto Guidance line are too wide, select Settings > Preferences > Navigation > Auto Guidance > Shoreline Distance > Near.
7 If you selected Near or Far in step 6, review the placement of the Auto Guidance line, and determine whether the line safely avoids known obstacles and the turns enable efficient travel. Auto Guidance maintains a wide clearance from obstacles in open water, even if you set the Shoreline Distance setting to Near or Nearest. As a result, the chartplotter may not reposition the Auto Guidance line, unless the destination selected requires navigation through a narrow waterway.

8 Select an option:
- If the placement of the Auto Guidance line is satisfactory, select Menu > Navigation Options > Stop Navigation, and proceed to step 10.
- If the Auto Guidance line is too close to known obstacles, select Settings > Preferences > Navigation > Auto Guidance > Shoreline Distance > Farthest.
- If the turns in the Auto Guidance line are too wide, select Settings > Preferences > Navigation > Auto Guidance > Shoreline Distance > Nearest.

9 If you selected Nearest or Farthest in step 8, review the placement of the Auto Guidance line, and determine whether the line safely avoids known obstacles and the turns enable efficient travel. Auto Guidance maintains a wide clearance from obstacles in open water, even if you set the Shoreline Distance setting to Near or Nearest. As a result, the chartplotter may not reposition the Auto Guidance line, unless the destination selected requires navigation through a narrow waterway.

10 Repeat steps 3 through 9 at least once more, using a different destination each time, until you are familiar with the functionality of the Shoreline Distance setting.

## Communications Settings

### NMEA 0183 Settings
Select Settings > Communications > NMEA 0183 Setup.

- **Port Types:** See Setting the Communication Format for Each NMEA 0183 Port, page 48.
- **Output Sentences:** See Configuring NMEA 0183 Output Sentences, page 48.
- **Position Precision:** Adjusts the number of digits to the right of the decimal point for transmission of NMEA output.
- **XTE Precision:** Adjusts the number of digits to the right of the decimal point for NMEA crosstalk error output.
- **Waypoint IDs:** Sets the device to transmit waypoint names or numbers via NMEA 0183 while navigating. Using numbers may resolve compatibility issues with older NMEA 0183 autoplots.
- **Defaults:** Restores the NMEA 0183 settings to the original factory defaults.
- **Diagnosics:** Displays NMEA 0183 diagnostic information.

### Configuring NMEA 0183 Output Sentences
You can enable and disable NMEA 0183 output sentences.

1 Select Settings > Communications > NMEA 0183 Setup > Output Sentences.

2 Select an option.

3 Select one or more NMEA 0183 output sentences, and select Back.

4 Repeat steps 2 and 3 to enable or disable additional output sentences.

### Setting the Communication Format for Each NMEA 0183 Port
You can configure the communication format for each internal NMEA 0183 port when connecting your chartplotter to external NMEA 0183 devices, a computer, or other Garmin devices.

1 Select Settings > Communications > NMEA 0183 Setup > Port Types.

2 Select an input or output port.

3 Select a format:
   - To support the input or output of standard NMEA 0183 data, DSC, and sonar NMEA input support for the DPT, MTW, and VHW sentences, select NMEA Std..
   - To support the input or output of standard NMEA 0183 data for most AIS receivers, select NMEA High Speed.
   - To support the input or output of Garmin proprietary data for interfacing with Garmin software, select Garmin.

4 Repeat steps 2–3 to configure additional input or output ports.

### NMEA 2000 Setup
Select Settings > Communications > NMEA 2000 Setup.

#### Device List
Displays the devices connected to the network.

#### Label Devices
Changes the labels for available connected devices.

### Naming Devices and Sensors on the Network
You can name devices and sensors connected to the Garmin Marine Network and the NMEA 2000 network.

1 Select Settings > Communications.

2 Select Marine Network or NMEA 2000 Setup > Device List.

3 Select a device from the list on the left.

4 Select Change Name.

5 Enter the name, and select Done.

### Marine Network
The Marine Network allows you to share data from Garmin peripheral devices with the chartplotters quickly and easily. You can connect a chartplotter to the Marine Network to receive data from and share data with other devices and chartplotters that are compatible with the Marine Network.

Select Settings > Communications > Marine Network.

### Setting Alarms

#### Navigation Alarms
Select Settings > Alarms > Navigation.

- **Arrival:** Sets an alarm to sound when you are within a specified distance or time from a turn or a destination.
- **Anchor Drag:** Sets an alarm to sound when you exceed a specified drift distance while anchored.
- **Off Course:** Sets an alarm to sound when you are off course by a specified distance.

#### Setting the Anchor Drag Alarm
You can set an alarm to sound if you have moved more than an allowable distance. This is very useful when anchoring overnight.

1 Select Settings > Alarms > Navigation > Anchor Drag.

2 Select Alarm to turn on the alarm.

3 Select Set Radius, and select a distance on the chart.

4 Select Back.

#### System Alarms

- **Alarm Clock:** Sets an alarm clock.
- **Unit Voltage:** Sets an alarm to sound when the battery reaches a specified low voltage.
- **GPS Accuracy:** Sets an alarm to sound when the GPS location accuracy falls outside the user-defined value.

#### Sonar Alarms

**NOTE:** Not all options are available on all transducers.
You can set an alarm to sound when the total amount of fuel onboard falls below a specified value. Before you can set a fuel level alarm, a compatible fuel flow sensor must be connected to the chartplotter.

**Shallow Water**: Sets an alarm to sound when the depth is less than the specified value.

**Deep Water**: Sets an alarm to sound when the depth is greater than the specified value.

**FrontVü Alarm**: Sets an alarm to sound when the depth in front of the vessel is less than the specified value, which can help you avoid running aground (Setting the FrontVü Depth Alarm, page 27). This alarm is available only with Panoptix FrontVü transducers.

**Water Temp.**: Sets an alarm to sound when the transducer reports a temperature that is 2°F (1.1°C) above or below the specified temperature.

**Contour**: Sets an alarm to sound when the transducer detects a suspended target within the specified depth from the surface of the water and from the bottom.

**Fish**: Sets an alarm to sound when the device detects a suspended target.
- **on/off** sets the alarm to sound when fish of all sizes are detected.
- **on/off** sets the alarm to sound only when medium or large fish are detected.
- **on/off** sets the alarm to sound only when large fish are detected.

### Setting Weather Alarms
Before you can set weather alarms, you must have a compatible chartplotter connected to a weather device, such as a GXM device, and have a valid weather subscription.

1. Select **Settings > Alarms > Weather**.
2. Turn on alarms for specific weather events.

### Setting the Fuel Alarm
Before you can set a fuel level alarm, a compatible fuel flow sensor must be connected to the chartplotter.

You can set an alarm to sound when the total amount of remaining onboard fuel reaches the level you specify.

1. Select **Settings > Alarms > Fuel > Set Total Fuel Onboard > On**.
2. Enter the remaining amount of fuel that triggers the alarm, and select **Done**.

### My Vessel Settings
**NOTE**: Some settings and options require additional charts or hardware.

Select **Settings > My Vessel**.

**Depth and Anchoring**: Allows you to enter information about the keel (Setting the Keel Offset, page 19) and the anchor.

**Temp. Offset**: Allows you to set an offset value to compensate for the water temperature reading from a NMEA 0183 water-temperature sensor or a temperature-capable transducer (Setting the Water Temperature Offset, page 49).

**Calibrate Water Speed**: Calibrates the speed-sensing transducer or sensor (Calibrating a Water Speed Device, page 50).

**Fuel Capacity**: Sets the combined fuel capacity of all the fuel tanks on your vessel (Setting the Fuel Capacity of the Vessel, page 37).

**Vessel Type**: Enables some chartplotter features based on the boat type.

**CZone™**: Sets the digital switching circuits.

### System Profiles
Allows you to save your system profile to a memory card and import system profile settings from a memory card. This can be helpful for charter or fleet vessels, and for sharing your setup information with a friend.

### Setting the Keel Offset
You can enter a keel offset to compensate the water depth reading for the transducer installation location. This allows you to view the depth of the water below the keel or the true depth of the water, depending on your needs.

If you want to know the water depth below the keel or the lowest point of your boat and the transducer is installed at the water line or anywhere above the end of the keel, measure the distance from the transducer location to the keel of the boat.

If you want to know the true water depth and the transducer is installed below the water line, measure the distance from the bottom of the transducer up to the water line.

**NOTE**: This option is only available when you have valid depth data.

1. Measure the distance:
   - If the transducer is installed at the water line (1) or anywhere above the end of the keel, measure the distance from the transducer location to the keel of the boat. Enter this value as a positive number.
   - If the transducer is installed at the bottom of the keel (2) and you want to know the true depth of the water, measure the distance from the transducer to the water line. Enter this value in as a negative number.

2. Select **Settings > My Vessel > Depth and Anchoring > Keel Offset**.
3. Select + if the transducer is installed at the water line, or select – if the transducer is installed at the bottom of the keel.
4. Enter the distance measured in step 1.

### Setting the Water Temperature Offset
Before you can set the water temperature offset, you must have a NMEA 0183 water-temperature sensor or a temperature-capable transducer to measure water temperature.

The temperature offset compensates for the temperature reading from a temperature sensor.

1. Measure the water temperature using the temperature sensor or a thermometer that is known to be accurate.
2. Subtract the water temperature measured in step 1 from the water temperature measured in step 2.

3. Select **Settings > My Vessel > Depth and Anchoring > Water Temp. Offset**.
4. Enter the offset value as a positive or negative number.
This is the temperature offset. Enter this value in step 5 as a positive number if the sensor connected to the chartplotter measures the water temperature as being colder than it actually is. Enter this value in step 5 as a negative number if the sensor connected to the chartplotter measures the water temperature as being warmer than it actually is.

4 Select Settings > My Vessel > Temp. Offset.
5 Enter the temperature offset calculated in step 3.

Calibrating a Water Speed Device
If you have a speed-sensing transducer connected to the chartplotter, you can calibrate that speed-sensing device to improve the accuracy of water-speed data displayed by the chartplotter.

1 Select Settings > My Vessel > Calibrate Water Speed.
2 Follow the on-screen instructions.
   If the boat is not moving fast enough or the speed sensor is not registering a speed, a message appears.
3 Select OK, and safely increase the boat speed.
4 If the message appears again, stop the boat, and ensure the speed-sensor wheel is not stuck.
5 If the wheel turns freely, check the cable connections.
6 If you continue to get the message, contact Garmin product support.

Other Vessels Settings
When your compatible chartplotter is connected to an AIS device or VHF radio, you can set up how other vessels are displayed on the chartplotter.

Select Settings > Other Vessels.
AIS: Enables and disables AIS signal reception.
DSC: Enables and disables digital selective calling (DSC).
Collision Alarm: Sets the collision alarm (Setting the Safe-Zone Collision Alarm, page 9).
AIS-MOB Test: Enables test signals from man overboard (MOB) devices.
AIS-SART Test: Enables test transmissions from Search and Rescue Transponders (SART).

Settings that are Synced on the Garmin Marine Network
The following devices sync certain settings when connected to the Garmin Marine Network.
- echoMAP™ 70 series
- GPSMAP 507 series (software version 3.0 or later)
- GPSMAP 701 series (software version 3.0 or later)
- GPSMAP 702 series
- GPSMAP 800 series
- GPSMAP 902 series
- GPSMAP 1000 series
- GPSMAP 1002 series
- GPSMAP 1202 series
- GPSMAP 7400/7600 series
- GPSMAP 8400/8600 series

The following settings are synced, if applicable, to the device.
Alarm Settings (also syncs alarm acknowledgment):
- Arrival
- Anchor Drag
- Off Course
- GPS Accuracy
- Shallow Water
- Deep Water (Not available in the GPSMAP 8400/8600 series)
- Water Temp.
- Contour (Not available in echoMAP 70s and GPSMAP 507/701 series)
- Fish
- Collision Alarm

General Settings:
- Auto Guidance Preferred Depth
- Auto Guidance Vertical Clearance
- Beeper
- Color Mode
- Keyboard Layout
- Language
- Map Datum
- North Reference
- Position Format
- System Units
- Calibrate Water Speed
- Radar Antenna Size

Chart Settings:
- Chart Borders
- Hazard Colors
- Heading Line
- Land POIs
- Light Sectors
- Navaid Size
- Navaid Type
- Photo Points
- Preferred Depth
- Shallow Shading
- Service Points
- Vessel Icon (Cannot be synced between all models)

Restoring the Original Chartplotter Factory Settings
NOTE: This procedure deletes all settings information you have entered.
1 Select Settings > System > System Information > Factory Settings.
2 Select an option.

Sharing and Managing User Data

Copying Waypoints, Routes, and Tracks from HomePort to a Chartplotter
Before you can copy data to the chartplotter, you must have the latest version of the HomePort software program loaded on your computer and a memory card installed in the chartplotter.
Copy the data from HomePort to the prepared memory card.
For more information, see the HomePort help file.

Selecting a File Type for Third-Party Waypoints and Routes
You can import and export waypoints and routes from third-party devices.
1 Insert a memory card into the card slot.
2 Select Info > User Data > Data Transfer > File Type.
3 Select GPX.
To transfer data with Garmin devices again, select the ADM file type.

**Copying User Data from a Memory Card**
You can transfer user data from a memory card to transfer from other devices. User data includes waypoints, routes, Auto Guidance paths, tracks, and boundaries.

**NOTE:** Only boundary files with an .adm extension are supported.
1 Insert a memory card into the card slot.
2 Select Info > User Data > Data Transfer.
3 If necessary, select the memory card to copy data to.
4 Select an option:
   • To transfer data from the memory card to the chartplotter and combine it with existing user data, select Merge from Card.
   • To transfer data from the memory card to the chartplotter and overwrite existing user data, select Replace from Card.
5 Select the file name.

**Copying User Data to a Memory Card**
You can save user data to a memory card to transfer to other devices. User data includes waypoints, routes, Auto Guidance paths, tracks, and boundaries.
1 Insert a memory card into the card slot.
2 Select Info > User Data > Data Transfer > Save to Card.
3 If necessary, select the memory card to save the data to.
4 Select an option:
   • To create a new file, select Add New File, and enter a name.
   • To add the information to an existing file, select the file from the list, and select Save to Card.

**Copying Built-In Maps to a Memory Card**
You can copy maps from the chartplotter to a memory card for use with HomePort.
1 Insert a memory card into the card slot.
2 Select Info > User Data > Data Transfer.
3 Select Copy Built-In Map.

**Backing Up Data to a Computer**
1 Insert a memory card into the card slot.
2 Select Info > User Data > Data Transfer > Save to Card.
3 Select a file name from the list, or select Add New File.
4 Select Save to Card.
5 Remove the memory card, and insert it into a card reader attached to a computer.
6 Open the Garmin\UserData folder on the memory card.
7 Copy the backup file on the card and paste it to any location on the computer.

**Restoring Backup Data to a Chartplotter**
1 Insert a memory card into the card slot on the chartplotter.
2 Insert the memory card into your computer.
3 Remove the memory card.
4 Select Info > User Data > Data Transfer > Replace from Card.

**Saving System Information to a Memory Card**
You can save system information to a memory card as a troubleshooting tool. A product support representative may ask you to use this information to retrieve data about the network.
1 Insert a memory card into the card slot.
2 Select Settings > System > System Information > Garmin Devices > Save to Card.
3 If necessary, select the memory card to save system information to.
4 Remove the memory card.

**Appendix**

**Registering Your Device**

**NOTE:** You should use the ActiveCaptain App to register the device (Getting Started with the ActiveCaptain App, page 4).
Help us better support you by completing our online registration today. Keep the original sales receipt, or a photocopy, in a safe place.
1 Insert a memory card into the card slot on the chartplotter.
2 Wait a few moments.
   The chartplotter opens the card management page and creates a file named GarminDevice.xml in the Garmin folder on the memory card.
3 Remove the memory card.
4 Insert the memory card into your computer.
5 On your computer
6 Follow the on-screen instructions to download, install, and open the Garmin Express application.
7 Select ➕ > Add a Device.
8 While the application searches, select Sign In next to Have marine charts or devices? near the bottom of the screen.
9 Create or sign in to your Garmin account.
10 Follow the on-screen instructions to set up your vessel.
11 Select ➕ > Add.
   The Garmin Express application searches the memory card for the device information.
12 Select Add Device to register the device.
   When registration is complete, the Garmin Express application searches for additional charts and chart updates for your device.
When you add devices to the chartplotter network, repeat these steps to register the new devices.

**Software Update**

**NOTE:** You can use the ActiveCaptain app to update the device software (Updating Software with the ActiveCaptain App, page 4).
You may need to update the device software when you install the device or add an accessory to the device.
This device supports up to a 32 GB memory card, formatted to FAT32.
Before you update the software, you can check to the software version installed on your device (Viewing System Software Information, page 46). Select See All Devices in this...
Bundle, and compare the installed software version to the software version listed for your product.

If the software on your device is older than the one listed on the website, follow the steps to load the software on a memory card (Loading the New Software on a Memory Card, page 52), and then update the device software (Updating the Device Software, page 52).

Loading the New Software on a Memory Card
You must copy the software update to a memory card using a computer that is running Windows® software.

NOTE: You can contact Garmin customer support to order a preloaded software update card if you do not have a computer with Windows software.

1 Insert a memory card into the card slot on the computer.

TIP: You can also download updated owner's manuals to load on the chartplotter from this web page.

3 Select GPSMAP Series with SD Card.

4 Select Download next to GPSMAP Series with SD Card.

5 Read and agree to the terms.

6 Select Download.

7 Choose a location, and select Save.

8 Double-click the downloaded file.

A Garmin folder containing the software update is created in the selected location. A dialog box opens to assist in transferring the software update to a memory card.

9 Select Next.

10 Select the drive associated with the memory card, and select Next > Finish.

A Garmin folder containing the software update is created on the memory card. The software update can take several minutes to load onto the memory card.

Updating the Device Software
Before you can update the software, you must obtain a software-update memory card or load the latest software onto a memory card (Loading the New Software on a Memory Card, page 52).

1 Turn on the chartplotter.

2 After the home screen appears, insert the memory card into the card slot.

NOTE: In order for the software update instructions to appear, the device must be fully booted before the card is inserted.

3 Follow the on-screen instructions.

4 Wait several minutes while the software update process completes.

5 When prompted, leave the memory card in place and restart the chartplotter manually.

6 Remove the memory card.

NOTE: If the memory card is removed before the device restarts fully, the software update is not complete.

Digital Switching
Your chartplotter can be used to monitor or control circuits when a compatible system is connected. For example, you can control the interior lights and navigation lights on the vessel. You can also monitor live well circuits.

To access the digital switching controls, select Info > Circuit Control.

For more information about purchasing and configuring a digital switching system, contact your Garmin dealer.

Pairing the GRID Remote Input Device with the Chartplotter
Before you can use a GRID remote input device with a chartplotter, you must pair the devices.

You can initiate the pairing of the devices from the chartplotter or from the GRID remote input device.

Pairing the GRID Device with the Chartplotter from the Chartplotter
1 Select Settings > System > Station Information > GRID™ Pairing > Add.

2 On the GRID remote input device, press SELECT.

Pairing the GRID Device with the Chartplotter from the GRID Device
1 On the GRID remote input device, press + and HOME at the same time.

A selection page opens on all of the chartplotters on the Garmin Marine Network.

2 Rotate the wheel on the GRID remote input device to highlight Select on the chartplotter you want to control with the GRID remote input device.

3 Press SELECT.

Rotating the GRID Joystick
For certain installation situations, you can rotate the orientation of the GRID joystick.

1 Select Settings > Communications > Marine Network.

2 Select the GRID device.

Cleaning the Screen
NOTICE
Cleaners containing ammonia will harm the anti-reflective coating.

The device is coated with a special anti-reflective coating which is very sensitive to waxes and abrasive cleaners.

1 Apply an eyeglass lens cleaner specified as safe for anti-reflective coatings to the cloth.

2 Gently wipe the screen with a soft, clean, lint-free cloth.

Viewing Images on a Memory card
You can view images that are saved on a memory card. You can view .jpg, .png, and .bmp files.

1 Insert a memory card with image files into the card slot.

2 Select the folder containing the images.

3 Select

Wait a few seconds for the thumbnail images to load.

Use the arrows to scroll through the images.

7 If necessary, select Menu > Start Slideshow.

Screenshots
You can capture a screenshot of any screen shown on your chartplotter as a bitmap (.bmp) file. You can transfer the screenshot to your computer. You can also view the screenshot in the image viewer (Viewing Images on a Memory card, page 52).

Capturing Screenshots
1 Insert a memory card into the card slot.

2 Select Settings > Preferences > Screenshot Capture > On.

3 Go to a screen you want to capture.

4 Hold Home for at least six seconds.
Copying Screenshots to a Computer
1 Remove the memory card from the chartplotter, and insert it into a card reader that is attached to a computer.
2 From Windows Explorer, open the Garmin\scrn folder on the memory card.
3 Copy a .bmp file from the card and paste it to any location on the computer.

Troubleshooting

My device will not acquire GPS signals
If the device is not acquiring satellite signals, there could be a few causes. If the device has moved a large distance since the last time it has acquired satellites or has been turned off for longer than a few weeks or months, the device may not be able to acquire the satellites correctly.

• Ensure the device is using the latest software. If not, update the device software.
• Make sure the device has a clear view of the sky so the antenna can receive the GPS signal. If it is mounted inside of a cabin, it should be close to a window so it can receive the GPS signal.
• Check the fuse in the power cable.
The fuse should be located in a holder that is part of the red wire of the power cable. Check that the proper size fuse is installed. Refer to the label on the cable or the installation instructions for the exact fuse size needed. Check the fuse to make sure there is still a connection inside of the fuse. You can test the fuse using a multimeter. If the fuse is good, the multimeter reads 0 ohm.
• Check to make sure the device is receiving is at least 10 V, but 12 V is recommended. To check the voltage, measure the female power and ground sockets of the power cable for DC voltage. If the voltage is less than 10 V, the device will not turn on.
• If the device is receiving enough power but does not turn on, contact Garmin

My device will not turn on or keeps turning off
Devices erratically turning off or not turning on could indicate an issue with the power supplied to the device. Check these items to attempt to troubleshoot the cause of the power issue.

• Make sure the power source is generating power.
You can check this several ways. For example, you can check whether other devices powered by the source are functioning.
• Check the fuse in the power cable.
The fuse should be located in a holder that is part of the red wire of the power cable. Check that the proper size fuse is installed. Refer to the label on the cable or the installation instructions for the exact fuse size needed. Check the fuse to make sure there is still a connection inside of the fuse. You can test the fuse using a multimeter. If the fuse is good, the multimeter reads 0 ohm.
• Check to make sure the device is receiving is at least 10 V, but 12 V is recommended.
To check the voltage, measure the female power and ground sockets of the power cable for DC voltage. If the voltage is less than 10 V, the device will not turn on.
• If the device is receiving enough power but does not turn on, contact Garmin

My device is not creating waypoints in the correct location
You can manually enter a waypoint location to transfer and share data from one device to the next. If you have manually entered a waypoint using coordinates, and the location of the point does not appear where the point should be, the map datum and position format of the device may not match the map datum and position format originally used to mark the waypoint.
Position format is the way in which the GPS receiver's position appears on the screen. This is commonly displayed as latitude/longitude in degrees and minutes, with options for degrees, minutes and second, degrees only, or one of several grid formats.
Map datum is a math model which depicts a part of the surface of the earth. Latitude and longitude lines on a paper map are referenced to a specific map datum.
1 Find out which map datum and position format was used when the original waypoint was created.
If the original waypoint was taken from a map, there should be a legend on the map that lists the map datum and position format used to create that map. Most often this is found near the map key.
2 Select Settings > Preferences > Units.
3 Select the correct map datum and position format settings.
4 Create the waypoint again.

Specifications

Specifications

<table>
<thead>
<tr>
<th>Device</th>
<th>Specification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seven-inch models</td>
<td>Dimensions (W × H × D)</td>
<td>224 × 142.5 × 53.9 mm (6 13/16 × 5 7/8 × 2 1/8 in.)</td>
</tr>
<tr>
<td></td>
<td>Display size (W × H)</td>
<td>154 × 86 mm (6.1 × 3.4 in.)</td>
</tr>
<tr>
<td></td>
<td>Weight</td>
<td>0.86 kg (1.9 lbs)</td>
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<tr>
<td></td>
<td>Compass-safe distance</td>
<td>71 cm (28 in.)</td>
</tr>
<tr>
<td></td>
<td>Max. power usage at 10 Vdc</td>
<td>24 W</td>
</tr>
<tr>
<td></td>
<td>Typical current draw at 12 Vdc</td>
<td>1.5 A</td>
</tr>
<tr>
<td></td>
<td>Max. current draw at 12 Vdc</td>
<td>2.0 A</td>
</tr>
<tr>
<td>Nine-inch models</td>
<td>Dimensions (W × H × D)</td>
<td>256.4 × 162.3 × 52.5 mm (10 1/8 × 6 7/8 × 2 1/16 in.)</td>
</tr>
<tr>
<td></td>
<td>Display size (W × H)</td>
<td>197 × 114 mm (7.74 × 4.49 in.)</td>
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<tr>
<td></td>
<td>Weight</td>
<td>1.14 kg (2.5 lbs)</td>
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<tr>
<td></td>
<td>Compass-safe distance</td>
<td>76 cm (30 in.)</td>
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<tr>
<td></td>
<td>Max. power usage at 10 Vdc</td>
<td>27 W</td>
</tr>
<tr>
<td></td>
<td>Typical current draw at 12 Vdc</td>
<td>1.8 A</td>
</tr>
<tr>
<td></td>
<td>Max. current draw at 12 Vdc</td>
<td>2.3 A</td>
</tr>
<tr>
<td>Sonar models</td>
<td>Frequencies*</td>
<td>Traditional: 50/200, 77/200, 83/200 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single Channel CHIRP: from 40 to 240 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Garmin ClearVu CHIRP: 260/455/800 kHz (dependent on transducer)</td>
</tr>
<tr>
<td></td>
<td>Transmit power (RMS)**</td>
<td>CHIRP: 1000 W</td>
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<tr>
<td></td>
<td></td>
<td>Garmin ClearVu and SideVu CHIRP: 500 W</td>
</tr>
<tr>
<td></td>
<td>Depth***</td>
<td>5,000 ft at 1 kW</td>
</tr>
<tr>
<td>All models</td>
<td>Temperature range</td>
<td>From -15° to 55°C (from 5° to 131°F)</td>
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<tr>
<td></td>
<td>Material</td>
<td>Polycarbonate plastic and die-cast aluminum</td>
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<tr>
<td></td>
<td>Water rating****</td>
<td>IEC 60529 IPX7</td>
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<tr>
<td></td>
<td>Fuse</td>
<td>6 A, 125 V fast-acting</td>
</tr>
<tr>
<td></td>
<td>Input power</td>
<td>From 10 to 32 Vdc</td>
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<tr>
<td></td>
<td>NMEA 2000 LEN</td>
<td>2</td>
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<tr>
<td></td>
<td>NMEA 2000 draw</td>
<td>75 mA max.</td>
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</tbody>
</table>

*Dependent upon the transducer.
**Dependent upon the transducer rating and depth.
### NMEA 2000 PGN Information

#### Transmit and Receive

<table>
<thead>
<tr>
<th>PGN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>059392</td>
<td>ISO acknowledgment</td>
</tr>
<tr>
<td>059904</td>
<td>ISO request</td>
</tr>
<tr>
<td>060160</td>
<td>ISO transport protocol: Data transfer</td>
</tr>
<tr>
<td>060416</td>
<td>ISO transport protocol: Connection management</td>
</tr>
<tr>
<td>060928</td>
<td>ISO address claimed</td>
</tr>
<tr>
<td>065240</td>
<td>Commanded address</td>
</tr>
<tr>
<td>126208</td>
<td>Request group function</td>
</tr>
<tr>
<td>126996</td>
<td>Product information</td>
</tr>
<tr>
<td>126998</td>
<td>Configuration information</td>
</tr>
<tr>
<td>127237</td>
<td>Heading/track control</td>
</tr>
<tr>
<td>127250</td>
<td>Vessel heading</td>
</tr>
<tr>
<td>127258</td>
<td>Magnetic variance</td>
</tr>
<tr>
<td>127488</td>
<td>Engine parameters: Rapid update</td>
</tr>
<tr>
<td>127489</td>
<td>Engine parameters: Dynamic</td>
</tr>
<tr>
<td>127493</td>
<td>Transmission parameters: Dynamic</td>
</tr>
<tr>
<td>127505</td>
<td>Fluid level</td>
</tr>
<tr>
<td>127508</td>
<td>Battery status</td>
</tr>
<tr>
<td>128259</td>
<td>Speed: Water referenced</td>
</tr>
<tr>
<td>128267</td>
<td>Water depth</td>
</tr>
<tr>
<td>129025</td>
<td>Position: Rapid update</td>
</tr>
<tr>
<td>129026</td>
<td>COG and SOG: Rapid update</td>
</tr>
<tr>
<td>129029</td>
<td>GNSS position data</td>
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<tr>
<td>129283</td>
<td>Cross track error</td>
</tr>
<tr>
<td>129284</td>
<td>Navigation data</td>
</tr>
<tr>
<td>129539</td>
<td>GNSS DOPs</td>
</tr>
<tr>
<td>129540</td>
<td>GNSS satellites in view</td>
</tr>
<tr>
<td>130306</td>
<td>Wind data</td>
</tr>
<tr>
<td>130310</td>
<td>Environmental parameters (obsolete)</td>
</tr>
<tr>
<td>130311</td>
<td>Environmental parameters (obsolete)</td>
</tr>
<tr>
<td>130312</td>
<td>Temperature (obsolete)</td>
</tr>
</tbody>
</table>

#### Transmit

<table>
<thead>
<tr>
<th>PGN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>126464</td>
<td>Transmit and receive PGN list group function</td>
</tr>
<tr>
<td>127497</td>
<td>Trip parameters: Engine</td>
</tr>
</tbody>
</table>

#### Receive

<table>
<thead>
<tr>
<th>PGN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>065030</td>
<td>Generator average basic AC quantities (GAAC)</td>
</tr>
<tr>
<td>126992</td>
<td>System time</td>
</tr>
<tr>
<td>127251</td>
<td>Rate of turn</td>
</tr>
<tr>
<td>127257</td>
<td>Attitude</td>
</tr>
<tr>
<td>127498</td>
<td>Engine parameters: Static</td>
</tr>
<tr>
<td>127503</td>
<td>AC input status (obsolete)</td>
</tr>
<tr>
<td>127504</td>
<td>AC output status (obsolete)</td>
</tr>
<tr>
<td>127506</td>
<td>DC detailed status</td>
</tr>
<tr>
<td>127507</td>
<td>Charger status</td>
</tr>
<tr>
<td>127509</td>
<td>Inverter status</td>
</tr>
<tr>
<td>128275</td>
<td>Distance log</td>
</tr>
<tr>
<td>129038</td>
<td>AIS class A position report</td>
</tr>
</tbody>
</table>

### NMEA 0183 Information

#### Type | Sentence | Description
--- | --- | ---
Transmit | GPAPB | APB: Heading or track controller (autopilot) sentence "B"
| GPBOD | BOD: Bearing (origin to destination) |
| GPBWC | BWC: Bearing and distance to waypoint |
| GPGGA | GGA: Global positioning system fix data |
| GPGLL | GLL: Geographic position (latitude and longitude) |
| GPGSA | GSA: GNSS DOP and active satellites |
| GPGSV | GSV: GNSS satellites in view |
| GPRMB | RMB: Recommended minimum navigation information |
| GPRMC | RMC: Recommended minimum specific GNSS data |
| GPTE | RTE: Routes |
| GPVTG | VTG: Course over ground and ground speed |
| GPWPL | WPL: Waypoint location |
| GPXTE | XTE: Cross track error |
| PGRME | E: Estimated error |
| PGRMM | M: Map datum |
| PGRMZ | Z: Altitude |
| SDDBT | DBT: Depth below transducer |
| SDDPT | DPT: Depth |
| SDMTW | MTW: Water temperature |
| SDVHW | VHW: Water speed and heading |

Receive | DPT | Depth
--- | --- | ---
<p>| DBT | Depth below transducer |
| MTW | Water temperature |
| VHW | Water speed and heading |
| WPL | Waypoint location |
| DSC | Digital selective calling information |
| DSE | Expanded digital selective calling |
| HDG | Heading, deviation, and variation |
| HDM | Heading, magnetic |
| MWD | Wind direction and speed |
| MDA | Meteorological composite |</p>
<table>
<thead>
<tr>
<th>Type</th>
<th>Sentence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWV</td>
<td>Wind speed and angle</td>
<td></td>
</tr>
<tr>
<td>VDM</td>
<td>AIS VHF data-link message</td>
<td></td>
</tr>
</tbody>
</table>

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Index

A
ActiveCaptain 4
quickdraw 12
updating charts 4
updating software 4
aerial photos 8
AIS 8–10
distress signal device 9
radar 30
SART 9
targeting 8, 9
threats 9, 30
turning on 50
alarms 18, 48
anchor drag 48
arrival 48
collision 9, 50
deep water 25, 48
gauge 36
fuel 37, 49
alarms 18, 48
anchor drag 48
arrival 48
collision 9, 50
deep water 25, 48
gauge 36
fuel 37, 49
alarms 18, 48
anchor drag 48
arrival 48
collision 9, 50
deep water 25, 48
engine 36
fuel 37, 49
gauges 36
navigation 48
off course 48
shallow water 25, 48
sonar 25, 48
water temperature 25, 48
weather 49
AM 39
anchor 48
anchor drag alarm 48
animated currents, tides 7
antenna, GPS 2
arrival alarm 48
Auto Guidance 13, 15, 16, 47
paths 16
shoreline distance 16, 47
autopilot 33
adjusting the heading 34
circles pattern 34
cloverleaf pattern 34
engaging 33
orbit pattern 34
pattern steering 34
reducing rudder activity 33
search pattern 34
Shadow Drive 33
steering increment 33
steering patterns 34
u-turn pattern 34
Williamson turn pattern 34
zigzag pattern 34
B
backlight 3, 5
battery, management 37, 38
boundaries
copying 51
linking to SmartMode layout 18
showing 10
boundary line 18
boundary lines 18
buoy reports 43
C
camera 46
configuration 44
controlling 44–46
home position 44
pausing 44
standby 44
celestial information 38
chart
layers 10
settings 10
charts 6, 8, 10, 11
appearance 9–11
details 7
fishing 6
layers 9, 10
measuring distance 7
navigation 6–8
quickdraw 11, 12
radar 11
settings 9
symbols 6
updating 4
circuits 52
clock 48
alarm 48
collision alarm 9, 50
color mode 3
combinations 3
compass
data bar 3
rose 10
courses 13
current stations 38
indicators 8
D
DAB 39, 40
data
backup 51
copying 51
management 50
deleting, all user data 18
deep log 37
deep shading 10, 13
destinations
navigation chart 13
selecting 13
device
cleaning 52
registration 51
digital selective calling 34, 35
channels 36
contacts 35
individual routine call 36
turning on 35, 50
digital switching 52
distress call 35
distress signal device 9
DSC. See digital selective calling
E
EBL 30
adjusting 30
measuring 30
showing 30
EGNOS 46
gauge 36
configuring 36
status alarms 36
EPIRB 9
event log 47
F
factory settings 50
stations 3
favorites 2
Fish Eye 3D
sonar cone 11
suspected targets 11
tracks 11
fishfinder. See sonar fishing chart 6, 43
FM 39
fuel capacity 37
fuel gauges 36, 37
status alarm 37, 49
synchronizing with actual fuel 37
G
Garmin ClearVu 21
Garmin Marine Network 18, 48
Garmin product support. See product support
gauges 36
engine 36
fuel 36, 37
limits 36
status alarms 36
trip 37
wind 37
GLONASS 46
Go To 13, 14
GPS 53
EGNOS 46
GLONASS 46
signals 2
source 2
WAAS 46
GPS accuracy 48
graphs
air temperature 37
atmospheric pressure 37
configuring 37
depth 37
water temperature 37
wind angle 37
wind speed 37
GRID 52
GRID pairing 46, 52
gybing. See tacking and gybing
H
heading 34
adjusting 34
heading hold 20
holding 33
line 10, 20
Shadow Drive 34
help. See product support
home screen 2
customizing 2, 3
I
images 4, 52
J
jibing. See tacking and gybing
JoyStick 52
K
keel offset 19, 49
keyboard 47
L
language 46, 47
locking, screen 1
M
man overboard 14, 34, 35
manual viewer 1
maps. See charts
marine services 13
mark location 14
MARPA
navigation chart 10
tagged object 30
targeting 30
threats 9, 30
measuring distance 21
charts 7
media player 38–41
alphabetical search 39
DAB 39, 40
device name 41
FUSION-Link 38
muting 39
preset 39, 44
radio 40
repeating 39
shuffling 39
SiriusXM Satellite Radio 40
source 38
tuner region 39
tuning mode 39
VHF 39
zones 39
sonar 23
synchronizing 18
tracked vessel 35
viewing list of 14
weather 41, 42
alarms 49
broadcasts 41
charts 10, 41, 43
fishing 42, 43
fishing chart 43
forecast 41–43
navigation chart 43
overlay 43
precipitation 41
sea conditions 42
subscription 41, 43
surface pressure 42
visibility 43
water temperature 42, 43
wave information 42
winds 42
Wi-Fi 4
Wi-Fi technology 5
wind, rose 10
wind angle graph 37
wind gauges 37
wind hold 20
adjusting 20
wind sensor 5
wind speed graph 37
wireless devices 5, 45, 46
connecting a wireless device 5, 6
connecting to a wireless device 4
network configuration 5

Z
zoom
chart 6
sonar 24