

Follow the instructions in this installation guide to gimbal mount the control head.

INSTALLATION PREPARATION

Read the instructions in this transducer guide completely to understand the mounting guidelines before starting the installation.

Visit our [Web site](#) at for additional information and resources for transducer installations.

Supplies: In addition to the hardware supplied with your control head, you will need a powered hand drill and various drill bits, Phillips head screwdriver, flat head screwdriver, pencil, safety glasses and dust mask, marine-grade silicone sealant, dielectric grease [optional], extension cables [optional], Ethernet cables [optional], and accessory cables [optional]. Also, see **Connect Power** to determine the type of connection, fuse size, and additional equipment you will need for the installation.

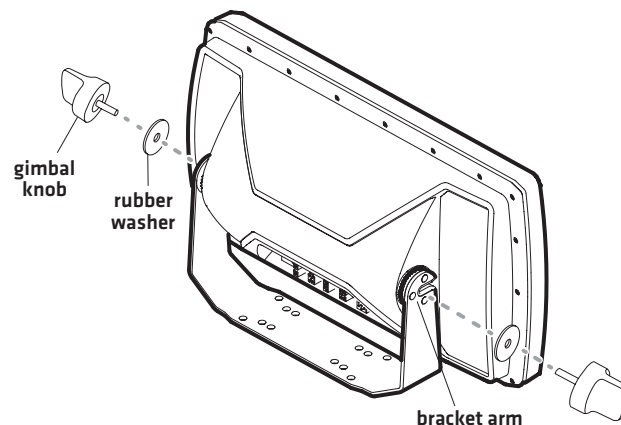
Accessories and Ethernet: Accessories and Ethernet equipment are available for purchase. The installation guides are available with the product, or they can be downloaded from our [Web site](#).


INSTALLATION OVERVIEW

1 | Plan the Mounting Location

1. Place 1 rubber washer onto each gimbal knob.
2. Install the gimbal knobs [with washers] into each side of the control head. Tighten the knobs just enough so you can slide the control head into the gimbal bracket arms.

Assembling the Control Head and Bracket



 **NOTE:** If you prefer to mount the control head overhead, flip the bracket to the top of the control head. The opening in the gimbal bracket arms must face the rear of the control head.

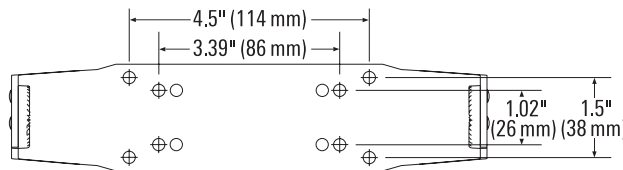
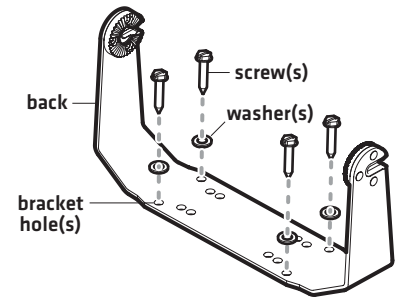
3. Place the assembled control head in various locations to determine the best mounting location with the following requirements:
 - a stable, protected surface to protect the control head from excessive wave shock, vibration, and water
 - sufficient space for the control head tilt range
 - visibility during operation, as well as easy installation and removal
 - access above and below the mounting surface to pass the cables through to the control head
 - space for the 1" [25 mm] cable hole located 2" to 4" [50 to 100 mm] behind the chosen mounting location
4. Test route all cables [transducer, power, Ethernet, accessories] to the control head mounting location. Leave enough cable length for installing the cable tray and for the control head tilt range.
5. After you have selected the mounting location, loosen the gimbal knobs and remove the control head from the gimbal bracket.

2 | Install the Gimbal Bracket

- Place the gimbal bracket in the chosen position on the mounting surface. Mark the four outer mounting screw locations using a pencil or center punch.

NOTE: The outer set of mounting holes is recommended. You may use the inside set of mounting holes if necessary. There may be additional, unused mounting holes on the gimbal bracket.

- Set the gimbal bracket aside. Drill the four mounting screw holes using a 5/32" [4 mm] drill bit.
- Cable Hole:** Mark and drill a 1" [25 mm] hole 2" to 4" [50 to 100 mm] behind the bracket. You will use this hole for routing the cables to the control head in another section.
- Place the bracket on the mounting surface aligned with the drilled holes. Fill the mounting holes with marine-grade silicone sealant.
- Place one flat washer onto each #10 x 1" wood screw. Insert the four screws with washers into the mounting holes [see the illustration *Installing the Gimbal Bracket*]. **Hand tighten only!**

Bracket Hole Pattern Measurements

Installing the Gimbal Bracket

3 | Connect Power

It is important to review the following information before you start the power installation:

- Cable Length:** A 6' [2 m] long power cable is included. You may shorten or lengthen the cable using 18 gauge multi-stranded copper wire. See the *Recommended Power Cable Extension Information* table for details.

Recommended Power Cable Extension Information

Extension Length	Wire Gauge
1 to 6 ft	18 AWG
6 to 12 ft	14 AWG
12 to 24 ft	12 AWG

Please consult a U.S. Coast Guard ABYC-approved wire gauge diagram or a certified NMEA Marine Electronics Installer.

- Power Supply:** The control head must be connected to a 12 VDC power supply using the fuse size shown in the Required Fuse Size table.

Required Fuse Size

Model	Fuse Size	Fuse Type
HELIX 8	4A	slow-blow or MDL equivalent
HELIX 9	4A	slow-blow or MDL equivalent
HELIX 10	4A	slow-blow or MDL equivalent
HELIX 12	5A	slow-blow or MDL equivalent
HELIX 15	6.25A	slow-blow or MDL equivalent

HELIX® SERIES CONTROL HEAD Installation Guide

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- **Fuse Panel or Battery:** The control head power cable can be connected to the electrical system of the boat at the fuse panel (usually located near the console), or directly to the battery. In order to minimize the potential for interference with other marine electronics, a separate power source (such as a second battery) may be necessary.

⚠ WARNING! Some boats have 24 or 36 Volt electric systems, but the control head **MUST** be connected to a 12 VDC power supply.

⚠ WARNING! Make sure that the power cable is disconnected from the control head at the beginning of this procedure.

⚠ WARNING! Humminbird® is not responsible for over-voltage or over-current failures. The control head must have adequate protection through the proper selection and installation of the fuse size shown in the **Required Fuse Size** table.

1. Confirm that the power cable is disconnected from the control head.
2. Connect the power cable wires to the fuse panel or battery as follows:

Fuse Terminal Connection: Use crimp-on type electrical connectors (not included) that match the terminal on the fuse panel. Attach the black wire to ground (-), and the red wire to positive (+) 12 VDC power. Install the required fuse (as shown in the **Required Fuse Size** table).

Battery Connection: Install an inline fuse holder (not included) and the required fuse (as shown in the **Required Fuse Size** table). Attach the black wire to ground (-), and the red wire to positive (+) 12 VDC power.

📄 NOTE: For multi-control head installations and troubleshooting information, download the Power Troubleshooting Guide from our Web site. Also, see the Operations Summary Guide to set the Low Battery Alarm and use Standby Mode to conserve power.

📄 NOTE: If you have a trolling motor, it is important to keep the control head power and trolling motor power as separate as possible.

4 | Route the Cables to the Control Head

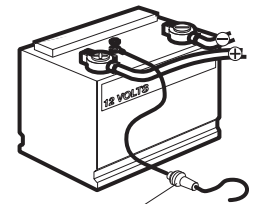
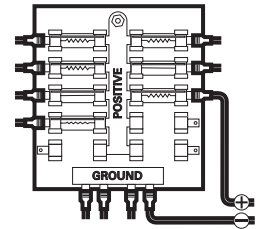
1. **Sonar:** Proceed to your transducer installation guide and follow the instructions to install the transducer.
2. **Accessories [optional]:** Install accessories using the guides provided with them.
3. **Ethernet [optional]:** Install Ethernet cables and hardware using the Ethernet Installation Guide.

📄 NOTE: The installation guides for Ethernet and optional-purchase accessories are available with your product, and they can be downloaded from our Web site.

4. Route all cables to the control head. Your boat may have a pre-existing wiring channel or conduit that you can follow. Route the cables as far as practical from the antenna cable of VHF radios or tachometer cables to reduce the possibility of interference.

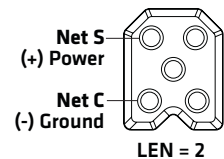
⚠ CAUTION! Do NOT mount the cables where the connectors could be submerged in water or flooded. If cables are installed in a splash-prone area, it may be helpful to apply dielectric grease to the inside of the connectors to prevent corrosion. Dielectric grease can be purchased separately from a general hardware or automotive store.

5. Pass the cables through the cable hole.

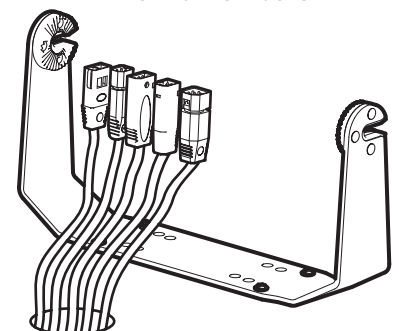


Inline Fuse Holder

NMEA 2000® Port [optional]



Routing the Cables Behind the Bracket

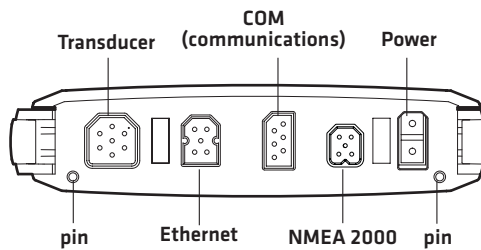
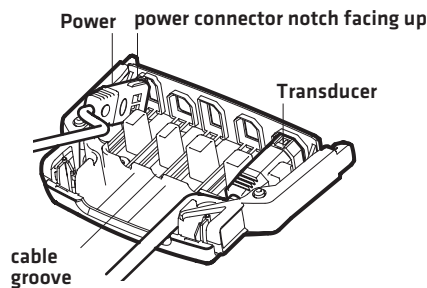


5 | Assemble the Cable Tray

The cable tray is an important part of the control head installation. It secures the cables and protects them from potential damage.

1. Use a Phillips head screwdriver to remove the screws from the bottom of the cable tray.
2. **Hold the cable tray together and turn it over**, so the Humminbird logo is facing up. Lift the cover and set it aside.
3. See the illustration *Locating the Cable Tray Slots*. Insert each cable connector into the correct slots in the tray.

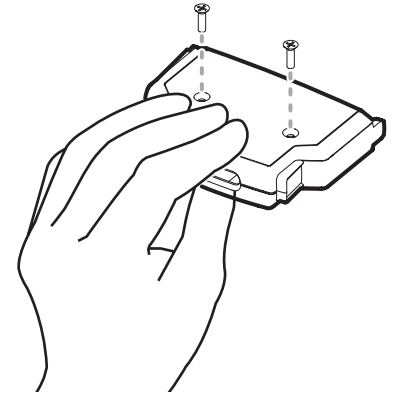
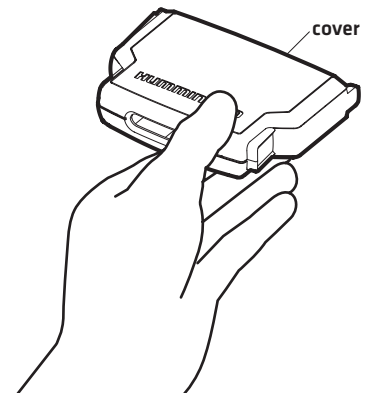
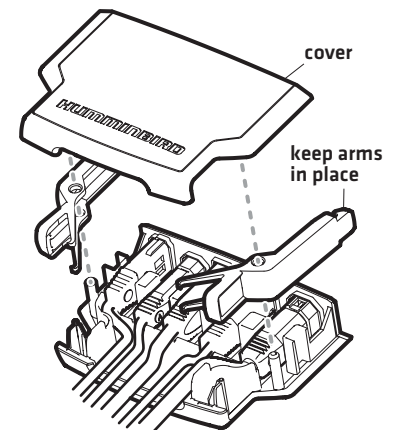
Each slot is shaped specifically for each connector, and insertion should be easy. Route the cables using the grooves in the tray.

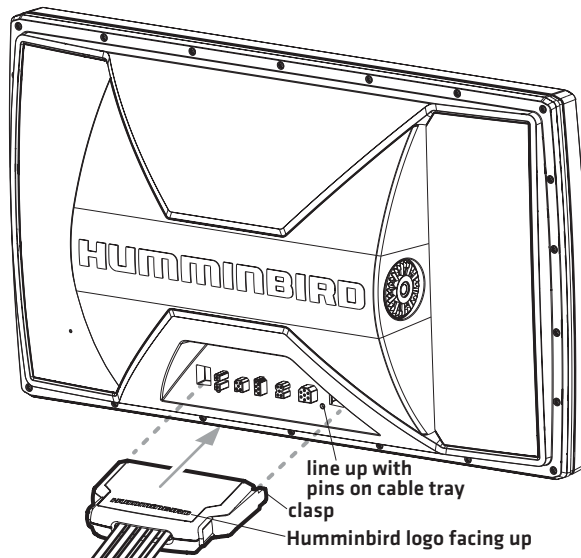
Locating the Cable Tray Slots

Inserting the Cable Connectors into the Cable Tray


CAUTION! It is important to place the connectors into the correct slots and right side up. See the illustration *Locating the Cable Tray Slots* for details.

4. Place the cover onto the tray. Hold the tray together and turn it over.
If the cable tray arms fall out, see the illustration *Assembling the Cable Tray* to put them back in place.
5. Install the screws in the holes on the bottom of the tray. **Hand tighten only**. See the illustration *Removing the Screws* to replace the screws. **Hand tighten only**.
6. Turn over the cable tray so the Humminbird logo is facing up.
Confirm the cables hang straight, and untwist them if necessary.
7. Line up the slots on the cable tray with the matching ports on the back of the control head. Line up the cable tray pins with the holes on the control head [see the illustration *Locating the Cable Tray Slots*].

With the Humminbird logo facing up, plug the cable tray into the back of the control head. The cable tray clasps should click into place. See the illustration *Connecting the Cable Tray to the Control Head*.

Removing the Screws

Turning over the Cable Tray

Assembling the Cable Tray


Connecting the Cable Tray to the Control Head


8. Pull carefully on the cable tray to confirm the installation is secure. Make sure both clasps clicked into place in step 7.

6 | Secure the Control Head Installation

1. Slide the control head into the bracket.
2. Confirm there is enough cable slack to allow for the control head to pivot through its full tilt range and for connecting or disconnecting the cables.



NOTE: If there is excess cable that needs to be gathered at one location, dress the cable routed from both directions so that a single loop is left extending from the storage location. Doubling the cable up from this point, form the cable into a coil. Storing excess cable using this method can reduce electronic interference.

3. Adjust the control head to the viewing angle you prefer. Hand tighten the gimbal knobs until the assembly is secured. **Hand tighten only!**

Remove the Cable Tray (Optional): Squeeze the sides of the cable tray until it releases.

7 | Test the System Installation

1. Press the POWER key to turn on the control head.
2. While the Title screen is shown on the display, press the MENU key.
3. Press the DOWN Cursor key to choose **System Status**, and press the RIGHT Cursor key to select it.

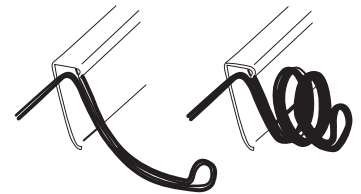
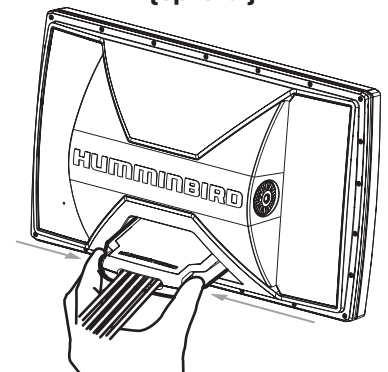



NOTE: If you wait too long, the system will automatically start whichever menu is highlighted, and you will have to start again.


4. **Accessories:** Press the VIEW key. Review the Accessory Test View to confirm accessories are listed as connected.
5. **GPS Reception:** Press the VIEW key. Review the GPS Diagnostic View and confirm that a **latitude/longitude position** is displayed and the **Fix Type** is listed as Enhanced or 3D.
6. **Power Off:** Press and hold the POWER key to power off the unit.
7. **Sonar Test:** Test and finalize the transducer installation using the instructions in the transducer installation guide. When the transducer test and installation are completed, your control head is ready for on-the-water operation. When you power on the control head, it will start Normal mode automatically if a functioning transducer is detected.




NOTE: For operations information, see the Operations Summary Guide included with your control head and the control head operations manual.

Storing Excess Cable

Removing the Cable Tray (Optional)


 **WARNING!** Disassembly and repair of this electronic unit should only be performed by authorized service personnel. Any modification of the serial number or attempt to repair the original equipment or accessories by unauthorized individuals will void the warranty.

 **WARNING!** This device should not be used as a navigational aid to prevent collision, grounding, boat damage, or personal injury. When the boat is moving, water depth may change too quickly to allow time for you to react. Always operate the boat at very slow speeds if you suspect shallow water or submerged objects.

FCC NOTICE: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including interference that may cause undesired operation.

 **CAUTION!** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

ENVIRONMENTAL COMPLIANCE STATEMENT: It is the intention of Johnson Outdoors Marine Electronics, Inc. to be a responsible corporate citizen, operating in compliance with known and applicable environmental regulations, and a good neighbor in the communities where we make or sell our products.

WEEE DIRECTIVE: EU Directive 2002/96/EC "Waste of Electrical and Electronic Equipment Directive [WEEE]" impacts most distributors, sellers, and manufacturers of consumer electronics in the European Union. The WEEE Directive requires the producer of consumer electronics to take responsibility for the management of waste from their products to achieve environmentally responsible disposal during the product life cycle.

WEEE compliance may not be required in your location for electrical & electronic equipment (EEE), nor may it be required for EEE designed and intended as fixed or temporary installation in transportation vehicles such as automobiles, aircraft, and boats. In some European Union member states, these vehicles are considered outside of the scope of the Directive, and EEE for those applications can be considered excluded from the WEEE Directive requirement.



This symbol [WEEE wheelee bin] on product indicates the product must not be disposed of with other household refuse. It must be disposed of and collected for recycling and recovery of waste EEE.

Johnson Outdoors Marine Electronics, Inc. will mark all EEE products in accordance with the WEEE Directive. It is our goal to comply in the collection, treatment, recovery, and environmentally sound disposal of those products; however, these requirements do vary within European Union member states. For more information about where you should dispose of your waste equipment for recycling and recovery and/or your European Union member state requirements, please contact your dealer or distributor from which your product was purchased.



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HELIX[®] SERIES

Operations Summary Guide

SAFETY INFORMATION! You must read the *Important Information* *out your Humminbird® Product* insert (included with your control head)

before proceeding with this operations summary guide.

FEATURES: A transducer is required to enable sonar, and a GPS fix is required to enable navigation. Your control head may not have all the features described in this guide. Also, the illustrations may not look exactly like the screens on your control head, but your unit will operate in a similar way.

SD OR MICROSD CARDS: Your control head may be compatible with either an SD card or a microSD card. Please see your control head

operations manual for compatibility details.

OPERATIONS MANUALS: The complete operations manuals for your control head and accessories are available on our Web site

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KEY FUNCTIONS Overview



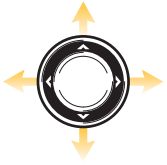
POWER/LIGHT key: Press once to power on the control head. During operation, press once to use Sonar, Light, Background, and Standby menus. Press and hold to power off the control head.



ZOOM In/Out keys: Press once to adjust the zoom range in Sonar Zoom View, the sensitivity in sonar views (Sonar, DI, SI), and the chart scale in Chart Views.
Active Cursor: Press once to zoom in or out of the active cursor area in Side Imaging® and Down Imaging® Views.



VIEW key: Press once to display the next view in the View Rotation (see *View Rotation Overview*). Press and hold to open the Views X-Press Menu.



CURSOR CONTROL key: Press once OR press and hold any arrow on the key to freeze the display and move the active cursor in all Sonar and Chart Views. Press any arrow on the key to browse the menu system, select a menu, and change or activate menu settings (see *Menu Overview*).



MENU key: Press once to open an X-Press Menu. Press twice to open the Main Menu (see *Menu Overview*).



CHECK/INFO key: Press once to open the Chart Info submenu in Chart View. Press once to switch frequencies in sonar views (if available).
Active Cursor: Press once to display chart information in Chart View.



MARK key: Press once to mark a waypoint at the boat's position.
Active Cursor: Press twice to mark a waypoint at the cursor position. Press and hold to save a screen snapshot to the installed SD or microSD card.



GOTO/MOB key: Press once to display saved navigation data.
Active Cursor: Press twice to mark and start navigation towards a waypoint.
Man Overboard (MOB): Press and hold to activate Man Overboard. See your control head operations manual for more information about this feature.



EXIT key: Press once to close a menu, exit active cursor mode, or turn off an alarm. Press once to display the previous view in the view rotation (see *View Rotation Overview*).



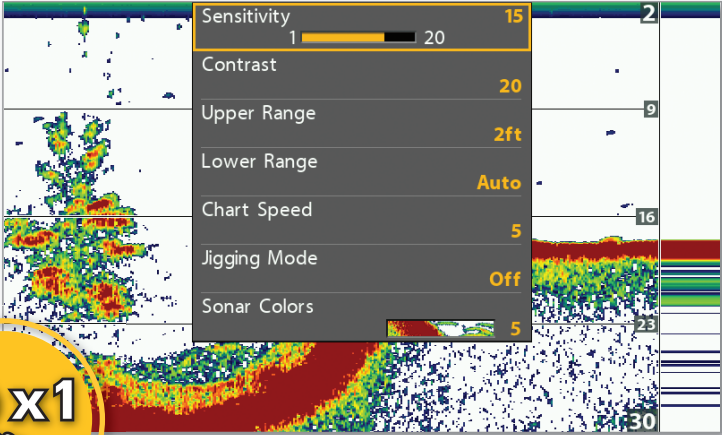
VIEW SHORTCUT key: Press and hold to save a shortcut to the on-screen view. Press once to display the view saved to the key (see *View Rotation Overview*).

MENU Overview

► Open an X-Press Menu

X-Press Menus display menu options that are related to the view on the screen and the current operation mode (such as navigation).

Sonar X-Press Menu

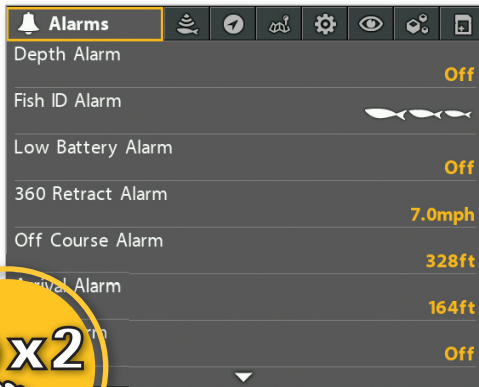


In this illustration, the Sonar X-Press Menu is displayed because the Sonar View is displayed on the screen.

► Open the Main Menu

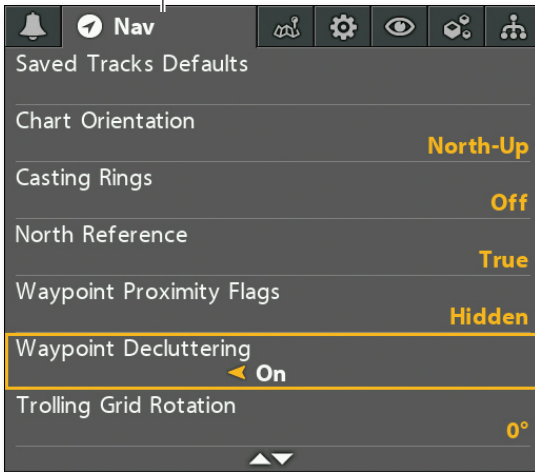
The Main Menu is divided into tabbed categories (Alarms, Sonar, Chart, etc.). The available tabs will vary by model. See your control head operations manual for more details.

Main Menu



▶ Select a Menu and Change the Setting

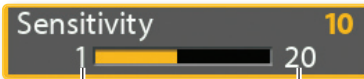
Select a Tab



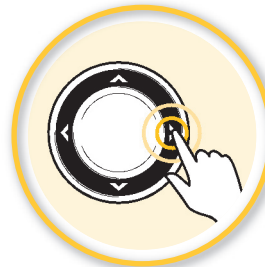
Select a Menu



Change a Menu Setting



Start an Action or Open a Submenu



Getting **STARTED**

▶ **Power On/Off**

ON: Press Once



OFF: Press and Hold



▶ **Select the Start-Up Mode**

Press the MENU key once while the control head is powering on.

On the Water: If a transducer is connected to the control head, **Normal** mode will be selected automatically. If a transducer is not connected, select Normal, and press the RIGHT Cursor key.

Review System Connections: Select **System Status** and then press the VIEW key until Accessory Test View is displayed on-screen. During Normal mode, open the Views X-Press Menu > System > Accessory Test.

Accessory Test View

Accessory Test	
360 Imaging	UNCONNECTED
GPS	CONNECTED
i-Pilot	UNCONNECTED
NMEA2K Gateway	CONNECTED
Radar	CONNECTED
Remote	UNCONNECTED
Remote Dongle	UNCONNECTED
Speed	UNCONNECTED
Temperature	UNCONNECTED

Review System Connections: If a connected accessory is shown as unconnected, confirm the cable or network connections.



NOTE: If the control head is on a network, see your accessory manual for more connection information.

SETTING UP the Control Head

Your control head settings should be changed based on the area you are fishing, water conditions, bottom, and weather conditions. It is also important to set up system alarms. Some of the menus in this section are provided in the Quick Setup Menu the first time you power on the unit.

▶ **Set the Menu System to Normal or Advanced**

Main Menu > Setup tab > User Mode

- Select **Normal** to see greater simplicity and fewer menu choices.
- Select **Advanced** to see all the menus available in the menu system.

▶ **Set the Language**

Main Menu > Setup tab > Language

The available languages are determined by your control head model.



WARNING! Do NOT enable Asian Mode if you do not require Asian languages. Before you select Asian Mode, contact Humminbird Technical Support for important information.

▶ **Set the Maximum Depth**

Main Menu (Advanced) > Sonar tab > Max Depth

Set the maximum depth of the body of water.

- Select **Auto** for the control head to acquire bottom readings as needed (within the capabilities of the unit).
- Select **the body of water depth** so the control head will not attempt to acquire sonar data below that depth, allowing more detail to be shown on the screen.



NOTE: Side Imaging units default to the Side Imaging range setting if the SI Range is set deeper than Max Depth. (Side Imaging X-Press Menu > SI Range)

▶ **Select the Water Type**

Main Menu (Advanced) > Sonar tab > Water Type

Water Type configures your unit for operation in fresh or salt water. In salt water, you can also choose the shallow or deep setting. Water Type affects the accuracy of deep water depth readings.

- **If the depth is more than 330 ft (100 m), select Salt (deep).**

▶ **Select an Accessory Transducer (optional)**

Main Menu > Sonar tab > Connected Transducer

The control head will automatically select the transducer that was included with your control head. If a compatible accessory transducer is connected to the control head, select it from the Connected Transducer menu, so the related menus and views are added to the system.

▶ **Select the Units of Measurement**

Main Menu > Setup tab > Units - Depth, Units - Distance, etc.
(G3/G3N and older models)

Main Menu > Data Sources tab > Units > Depth, Distance, etc.
(G4N models)

Select the units of measurement format for your control head.

▶ **Turn On/Off Sounds**

Main Menu > Setup tab > Sound Control

If you are using alarms, but don't want key sounds, it is important to select Alarms Only to receive an audio alert when an alarm is triggered.

▶ **Adjust the Backlight and Background**

Press the POWER/LIGHT key during operation.

- **Adjust the Backlight:** Select Light.
- **Change the Background:** Select Background.

▶ **Pair a Phone with the Control Head**

If you have a *Bluetooth*-supported control head, you can pair a phone with it using *Bluetooth* wireless technology.

- 1 Select the Main Menu > Accessories tab.
- 2 Select Phone Bluetooth > Connect New Phone. Press the RIGHT Cursor key.

Follow the on-screen prompts to start the pairing process.

- 3 When the phone name displays in the menu, select it. Press the RIGHT Cursor key.
- 4 When prompted, tap Pair on your phone.

In your phone Settings menu, turn on Show Notifications.

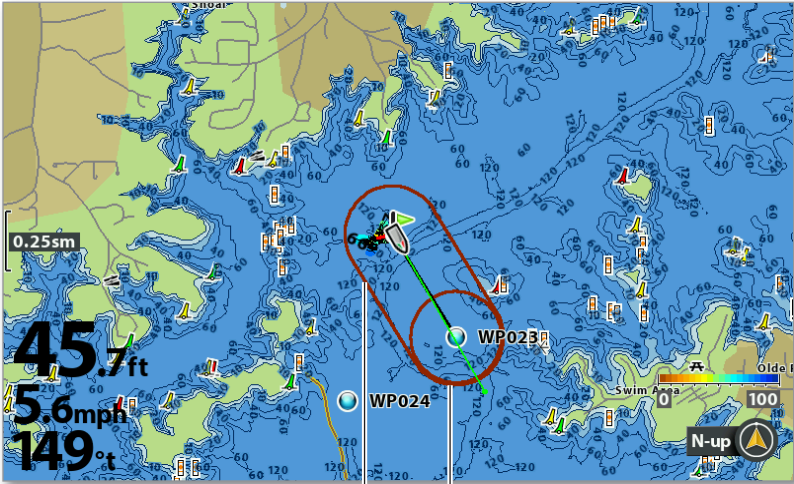
Set Alarms

Main Menu > Alarms tab

Sonar and Navigation alarms are described briefly here. See your control head operations manual for more details about the variety of alarm options.

When an alarm is turned on, an alert will sound or display on the control head to indicate the threshold (setting) has been exceeded. **When an alarm is triggered**, you can silence it by pressing any key on the control head.

Chart View Displaying Off Course Limits and Arrival Circle



Off Course Limits

If the boat travels beyond the set threshold, the alarm will be triggered.

Arrival Circle

When the boat reaches the arrival circle, the alarm will be triggered.

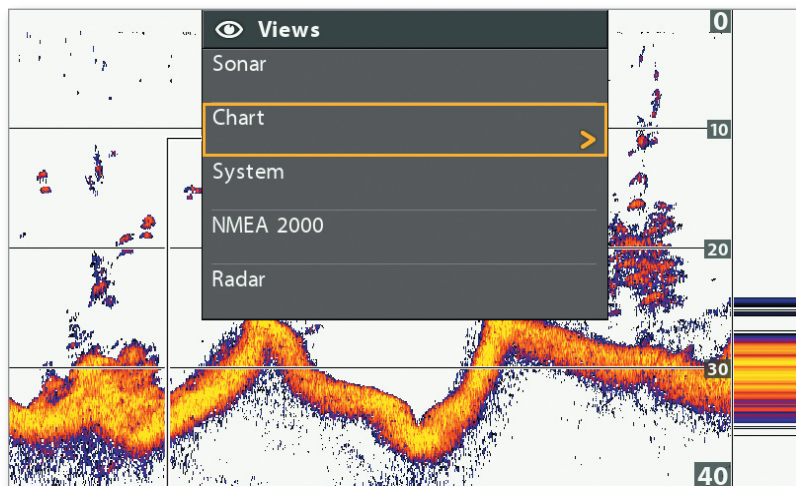
- **Depth Alarm** is triggered when the depth becomes equal to or less than the menu setting.
- **Low Battery Alarm** is triggered when the input battery voltage is equal to or less than the menu setting. The battery must be connected to the unit.
- **Off Course Alarm** sets how far the boat can move off course during navigation before an alarm will be triggered.
- **Arrival Alarm** sets how close the boat must be to the destination waypoint before the alarm will be triggered.
- **Drift Alarm** sets how far the boat can move from its anchored position outside the drift alarm perimeter before an alarm will be triggered.

VIEW ROTATION Overview

► Change the On-Screen View

Use the Views X-Press Menu to quickly display a view.

Views X-Press Menu



Select a view category, then select the view you want to display.



OR



**Press and Hold to Open
the Views X-Press Menu**

**Next View:
Press Once**

**Previous View:
Press Once**

► Save View Shortcuts

You can program the VIEW SHORTCUT keys to display a saved view immediately. You can save one view on each key.

SAVE: Press and Hold

- 1 With the view you want to save displayed on-screen, press and hold a VIEW SHORTCUT key for several seconds.



▶ Use Combo Views

X-Press Menu > Active Pane

X-Press Menu > Split Position

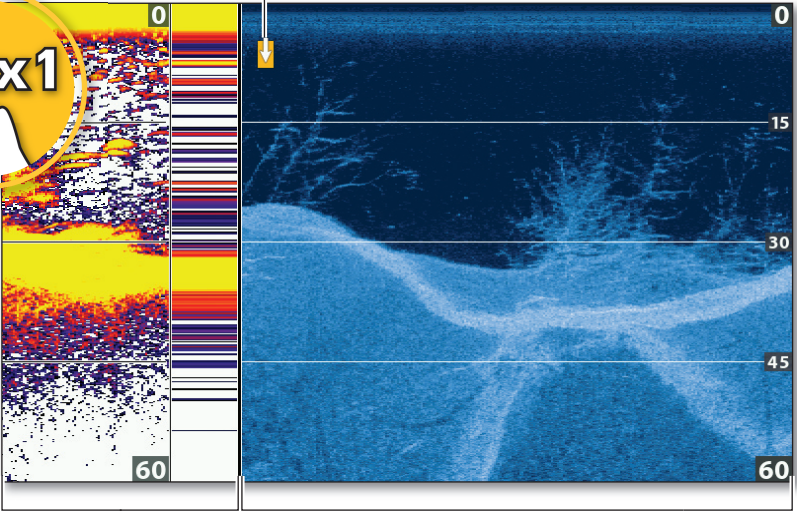
Combo Views display two views (or more) on the screen at the same time. To change the settings, select menus or actions, or change the size of either view, you must select the view as the Active Pane from the X-Press menu.

Sonar/Down Imaging Combo View

**Open the
X-Press Menu**



↓ indicates the selected pane (Active Pane)



Split Position
adjusts pane size

Split Position
adjusts pane size

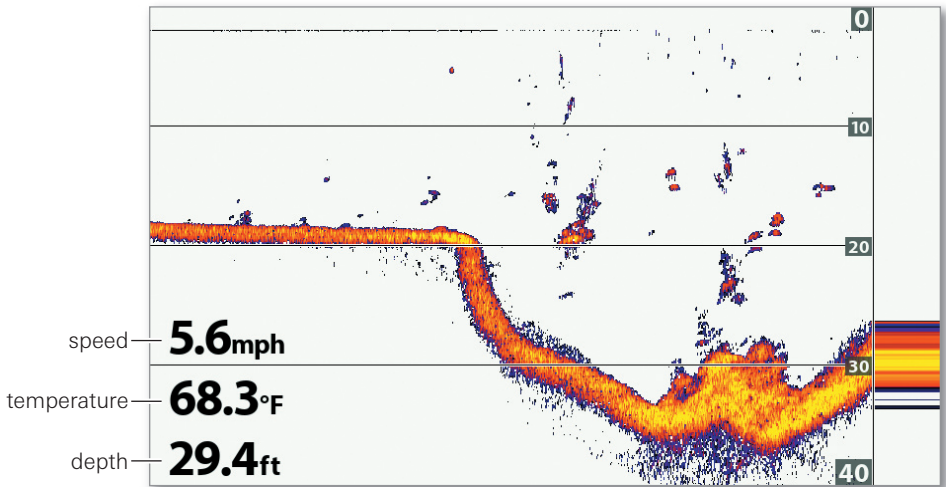
▶ Display Digital Readouts

Main Menu (Advanced) > Setup tab > Digital Readouts

Digital Readout data can be displayed on-screen as an overlay or in data boxes. The format and readouts you choose will be applied to all views.

- Select **Overlay** to display preset digital readouts as an overlay on the view.
- Select **Boxes** to display digital readouts in boxes on the view. You can select the readouts to be displayed in each box (see *Select Digital Readouts*).
- Select **Off** to hide the digital readouts.

Sonar View with Digital Readouts Set to Overlay



Select Digital Readouts

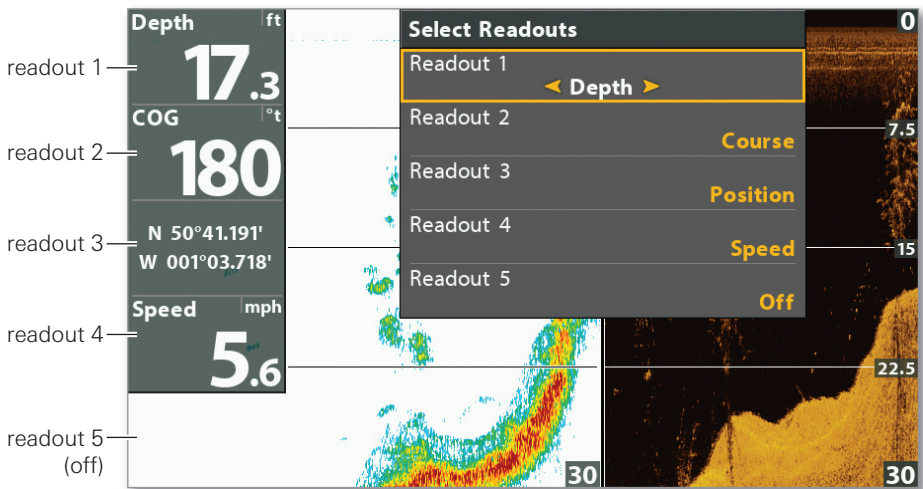
Main Menu (Advanced) > Setup tab > Select Readouts OR Edit Data Boxes

Main Menu (Advanced) > Setup tab > Select Nav Readouts OR Edit Navigation Data Boxes

If you have Digital Readouts set to Boxes, you can select the data that will be displayed in each box.

- Use the **Select Readouts** (G3/G3N and older models) or **Edit Data Boxes** (G4N models) menu to set your standard digital readouts.
- Use the **Select Nav Readouts** (G3/G3N and older models) or **Edit Navigation Data Boxes** (G4N models) menu to set the digital readouts that will be displayed during navigation.

Select Readouts Menu



Select a Readout Position



Select a Readout

Understand the Digital Readouts

See below for examples of digital readouts available in the Select Readouts and Select Nav Readouts menus. The available digital readouts are determined by the installed equipment and the selected sources on the network.

Bearing	The direction to a destination waypoint measured in degrees from north.
COG	Course Over Ground is the direction the boat is traveling measured in degrees from North. When the COG is equal to Bearing, the boat is said to be on course and will arrive at the destination in the most efficient manner.
Depth	The depth of the water from the transducer or digital depth sensor to the bottom. This measurement includes the depth offset setting.
DMG	Distance Made Good is the straight line distance actually traveled between the start position to the current boat position.
DTG	Distance To Go is the distance between the boat position and the next waypoint on the route.
ETA	Estimated Time of Arrival to the next waypoint on the route.
Position	The latitude and longitude coordinates of the boat position based on the GPS receiver installation location.
Speed	The measurement of the boat's progress across a given distance based on the speed measurement provided by the GPS.
Temp	The detected water temperature by the transducer's internal temperature probe or an accessory temperature sensor.
Timer	The digital readout for the timer set in the Alarms tab. See your control head operations manual for details.
Triplog	The elapsed time since the triplog was last reset, the distance traveled since last reset, and the average speed during timed interval.
TTG	Time To Go is the estimated time required to reach the next waypoint on the route.
Voltage	Power supplied to the control head.
Water Speed	The speed of water as it flows past the boat (optional-purchase speed wheel required).
XTE	Cross Track Error is the straight-line distance of the boat from the intended route. XTE measures how far the boat is off course.

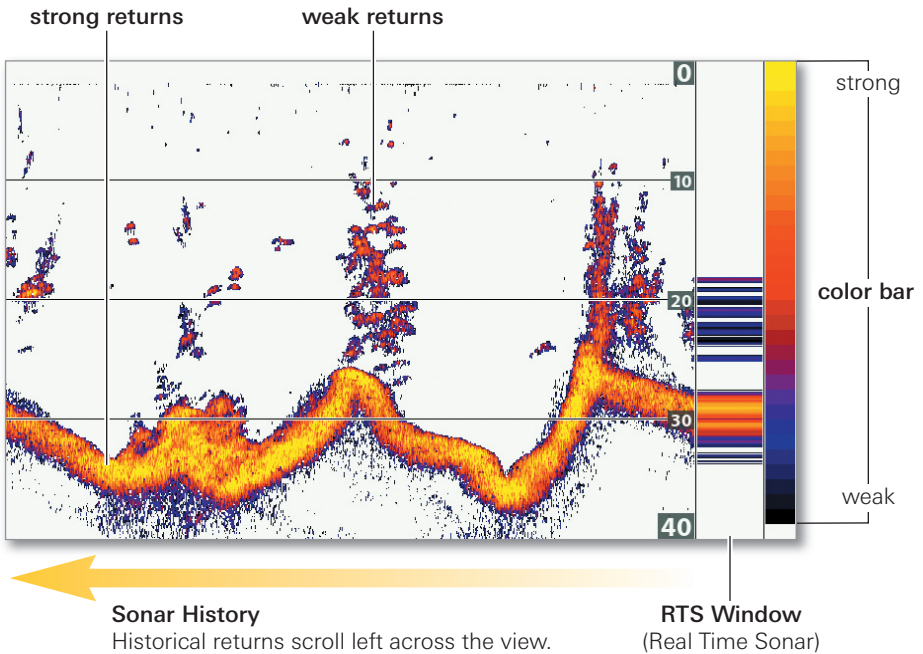
SONAR

Interpretation and Display Settings

You can use the settings included with your control head, or you can customize the Sonar display.

The Sonar View displays the return intensity based on the Sonar Colors and Bottom View menu settings. You can also choose to turn on/off fish symbols (Fish ID+™), change the 2D SwitchFire® mode, adjust sensitivity, and more.

Sonar View: Sonar Colors Palette 1



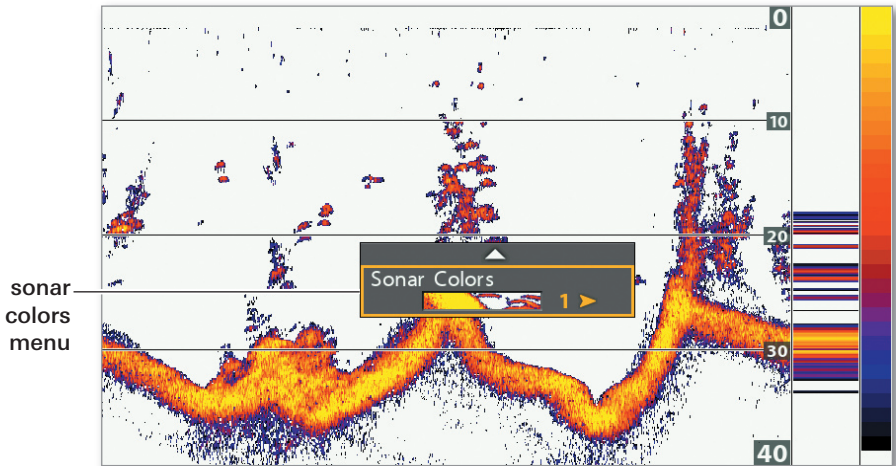
- **Weak Returns** could be vegetation or small fish.
- **Strong Returns** could be compacted sediment, rocks, tree limbs, or other structure.

Change the Color Palette

Sonar X-Press Menu > Sonar Colors

The palette you choose will be applied to the Sonar View, Sonar Zoom View, Split Sonar View, and Sonar Combo Views.

Changing the Color Palette in Sonar View

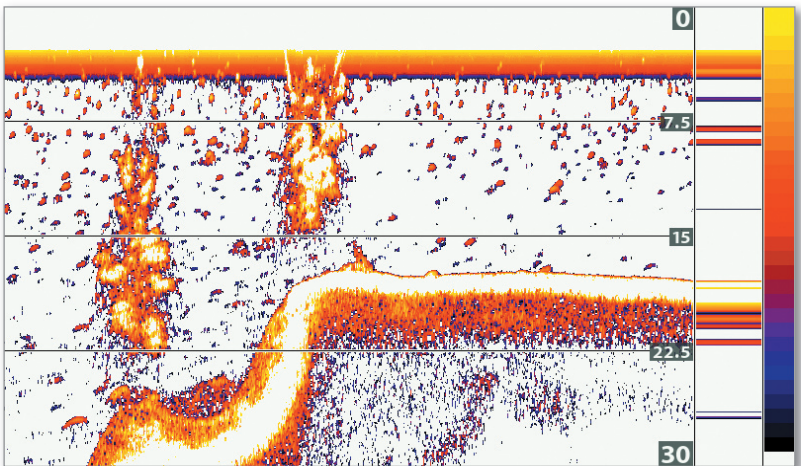


Select the Bottom View Display

Main Menu > Sonar tab > Bottom View

Select the method used to represent bottom and structure on the display.

Sonar View with Bottom View Set to WhiteLine



- **WhiteLine** highlights the strongest sonar returns in white.
- **Structure ID** represents the strongest returns as specified by the selected color palette.

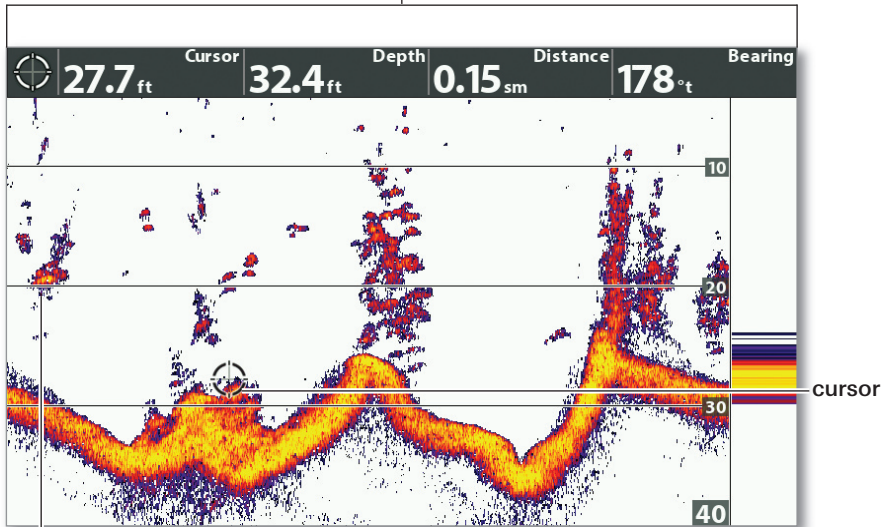
SONAR on the Go ▶▶▶

▶ Adjust Display Settings and Freeze the Display

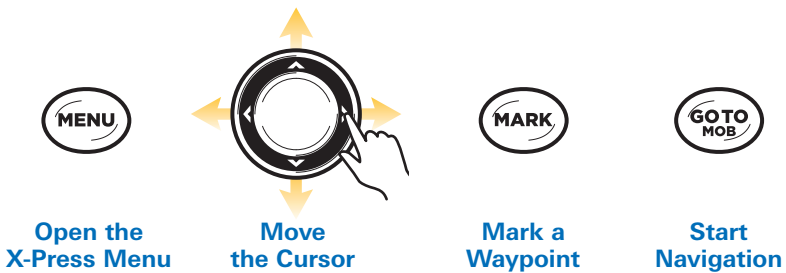
Use the Sonar X-Press Menu to see more detail on the view or filter the information you don't want to see. Move the cursor to freeze the display, review sonar history, and mark waypoints (GPS fix required).

Sonar View with Active Cursor

cursor digital readouts



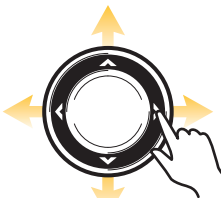
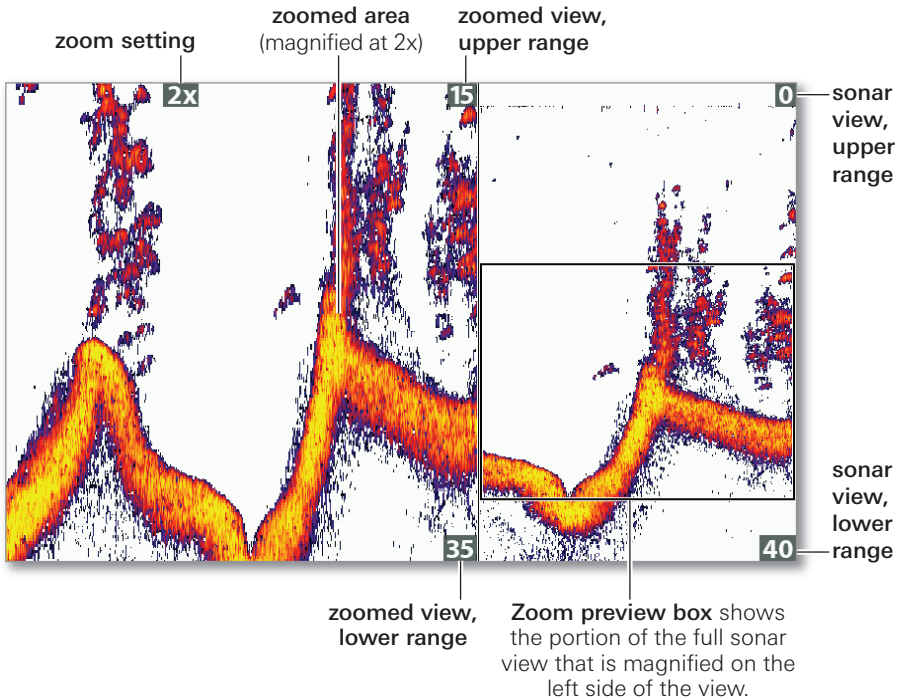
Sensitivity on the Sonar X-Press Menu can be adjusted to display more or less sonar returns on the screen.



Magnify Bottom Sonar Returns

Sonar Zoom View provides a magnified view of the bottom and structure. If the control head has GPS reception, you can also mark waypoints and start navigation.

Using the Sonar Zoom View



Move
the Cursor



Zoom In



Zoom Out



Mark a
Waypoint



Start
Navigation



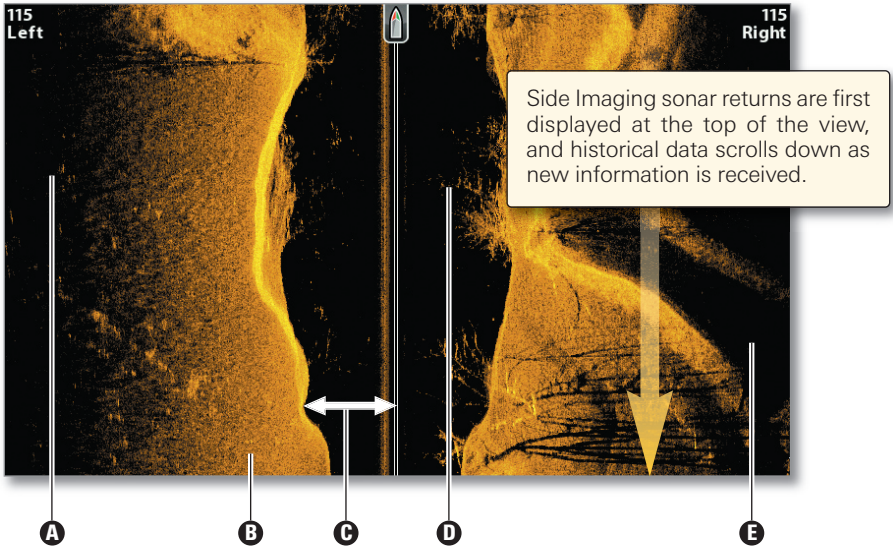
NOTE: If your unit does not have ZOOM keys, open the Sonar X-Press Menu (Advanced) > Zoom Level to adjust the magnification.

SIDE IMAGING

Interpreting the Display

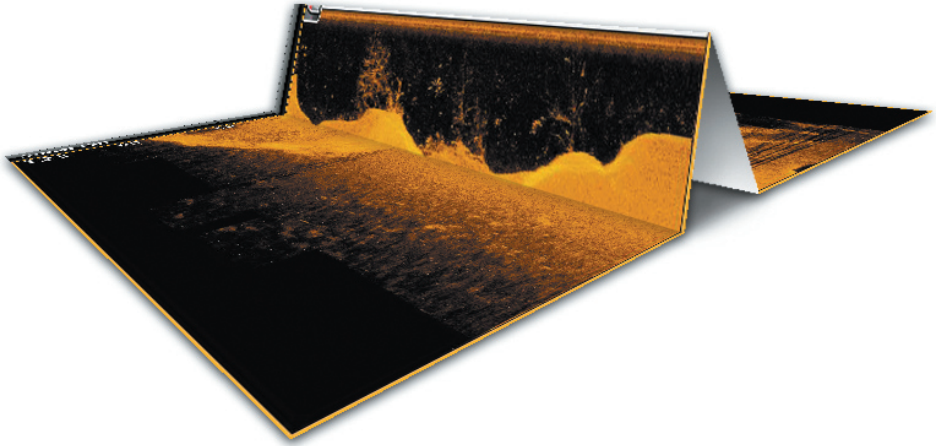
Side Imaging beams “illuminate” the bottom contour, structure, and fish. The side beam coverage is very thin from front to back, yet very wide from top to bottom. The bottom composition determines the intensity of the sonar return, and upward slopes that face the transducer reflect sonar better than downward slopes that face away from the transducer.

Interpreting the Side Imaging View



- A Shadows:** The longer the shadow, the taller the object. Fish also cast shadows, and their distance from the bottom can be interpreted by their shadow.
- B Light Shades** represent denser terrain (possibly compacted sediment, timber, rocks) or rising terrain.
- C Water Column** shows the relative depth of the water under the boat at any given time. Variations in the width of the water column show variations in the distance to the bottom as the boat passes over. See the illustrations *Interpreting the Side Imaging View*.
- D White Streaks or Clouds** may represent fish on the display.
- E Dark Shades** represent soft returns (possibly sand or mud) or descending terrain.

Interpreting the Side Imaging View



To visualize how Side Imaging works, the Side Imaging View illustration can be folded down the middle and then folded again at the lowest point of the water column. The raised area reveals the water column with its relative depth of the water under the boat. In the Side Imaging View, variations in the width of the water column show variations in the distance to the bottom as the boat passes over.

For Best Side Imaging Performance

- Boat speed: 2 to 6 mph
- Straight line navigation
- Minimum turning time and wave turbulence

See your control head operations manual for more information about the Side Imaging beams and how to interpret the Side Imaging display.

SIDE IMAGING Display Settings

You can use the default settings included with your control head, or you can customize the Side Imaging display.

► Change the Color Palette

Side Imaging X-Press Menu > SI Colors

Select the color palette to use for the Side Imaging Views.

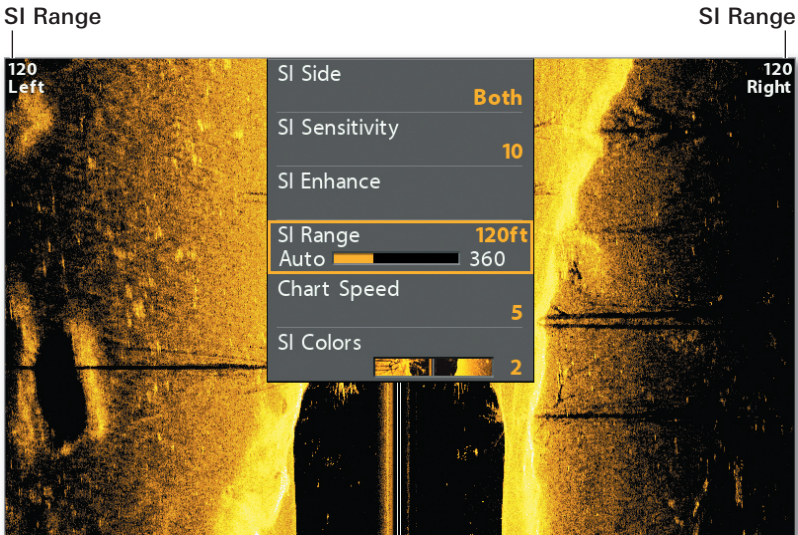
► Adjust the Side Imaging Range

Side Imaging X-Press Menu > SI Range

SI Range sets the deepest range that will be displayed by the Side Imaging View.

- **Auto:** The range will automatically adjust to follow the bottom.
- **Manual:** Select a low range setting to focus on a shorter distance of the water column and show greater detail on the screen. Select a higher range setting to view farther into the water and see an overview of details on the screen.

Adjusting the SI Range

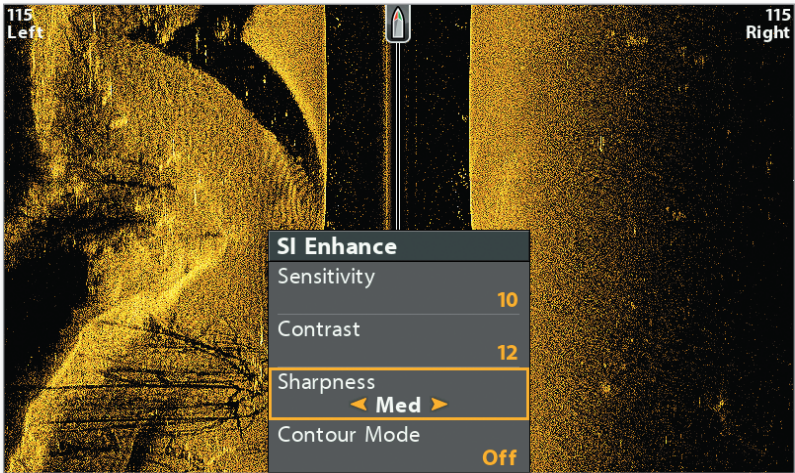


▶ Enhance the Side Imaging View

Side Imaging X-Press Menu > SI Enhance

The SI Enhance dialog box allows you to adjust your Side Imaging View in four categories: Sensitivity, Contrast, Sharpness, and Contour Mode.

SI Enhance Menu

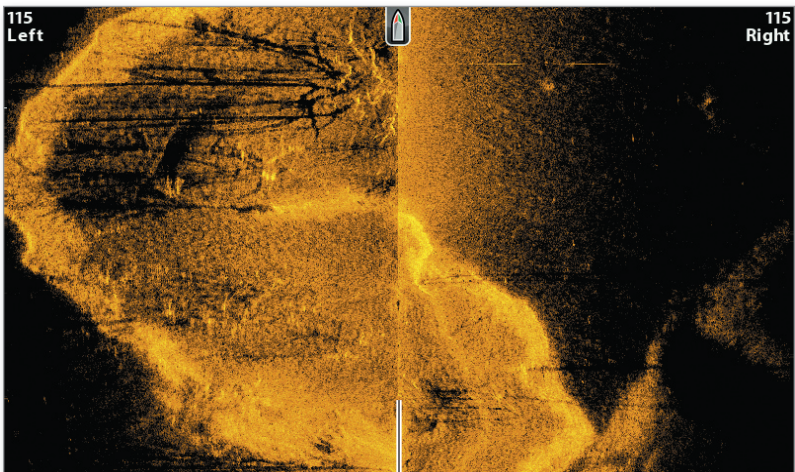


▶ Display or Hide the Water Column

Side Imaging X-Press Menu > SI Enhance > Contour Mode

Contour Mode controls how the water column is displayed in the Side Imaging View. The location of a target on the view is influenced by the Contour Mode setting.

Side Imaging View with Contour Mode On



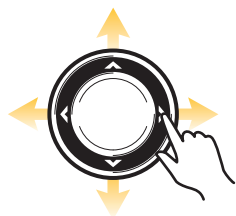
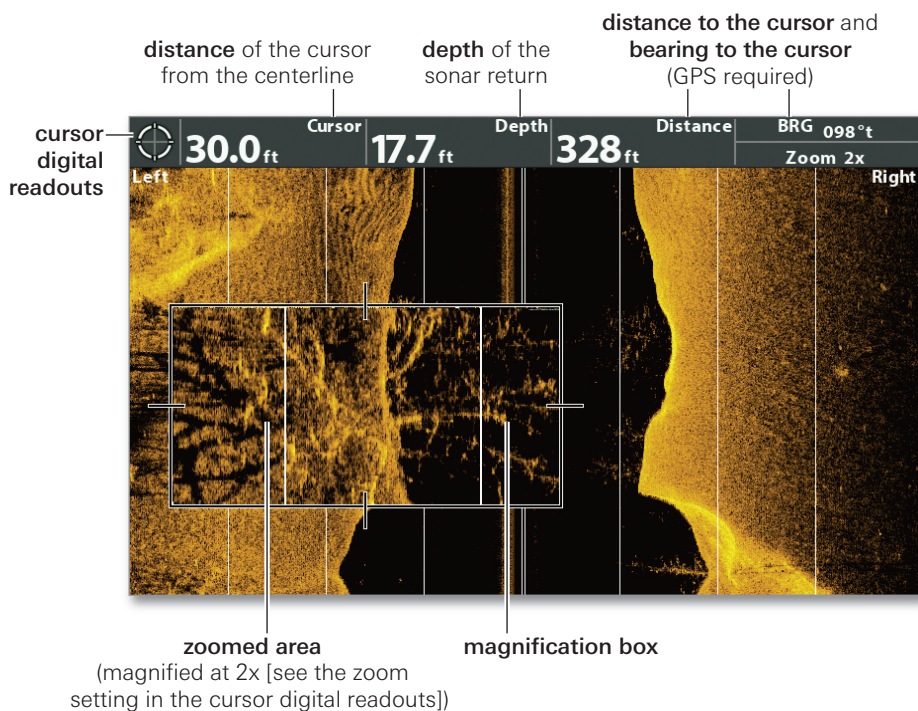
The water column is removed.

SIDE IMAGING on the Go ▶▶▶

▶ Freeze the Display and Magnify Selected Returns

Use the Cursor Control key to activate the cursor, freeze the display, and move the cursor over a sonar return.

Using ZOOM on the Side Imaging View



**Activate the Cursor
& Freeze the Display**



Zoom In



Zoom Out



**Mark a
Waypoint**



**Start
Navigation**

▶ Turn On SI Navigation

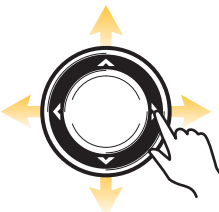
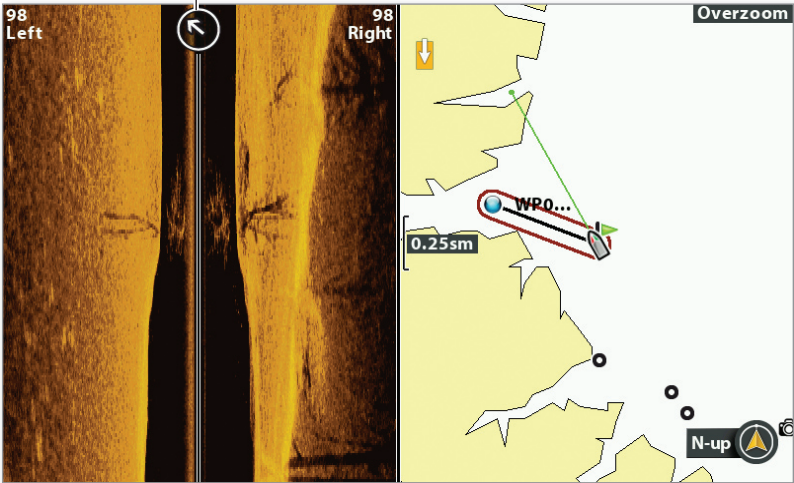
Main Menu > Nav tab > SI Navigation

SI Navigation controls how the boat icon is displayed in Side Imaging Views. **If SI Navigation is turned on**, an arrow icon indicates the direction the boat needs to turn to reach the next waypoint during navigation. **If SI Navigation is turned off**, the boat icon will not change during navigation.

Chart/Side Imaging Combo View with SI Navigation On (with built-in Contour XD)



The **arrow** will point the direction that you need to steer your boat in order to reach the waypoint.



Move
the Cursor



Zoom In



Zoom Out



Mark a
Waypoint



Start
Navigation

DOWN IMAGING Display Settings

▶ Change the Color Palette

[Down Imaging X-Press Menu > DI Colors](#)

Select the color palette to use for all Down Imaging Views.

▶ Display or Hide Depth Lines

[Main Menu \(Advanced\) > Sonar tab > Depth Lines](#)

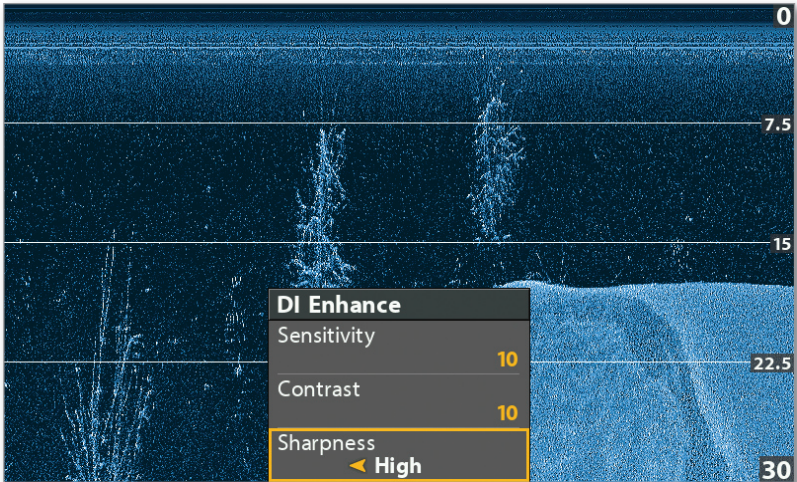
Turn Depth Lines On to display the incremental marks between the upper and lower depth range. Turning Depth Lines On will also affect the Sonar Views.

▶ Enhance the Down Imaging View

[Down Imaging X-Press Menu > DI Enhance](#)

The DI Enhance dialog box allows you to adjust your Down Imaging View in three categories: Sensitivity, Contrast, and Sharpness.

Down Imaging View



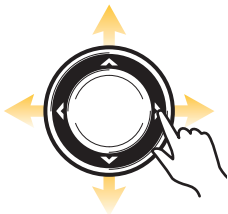
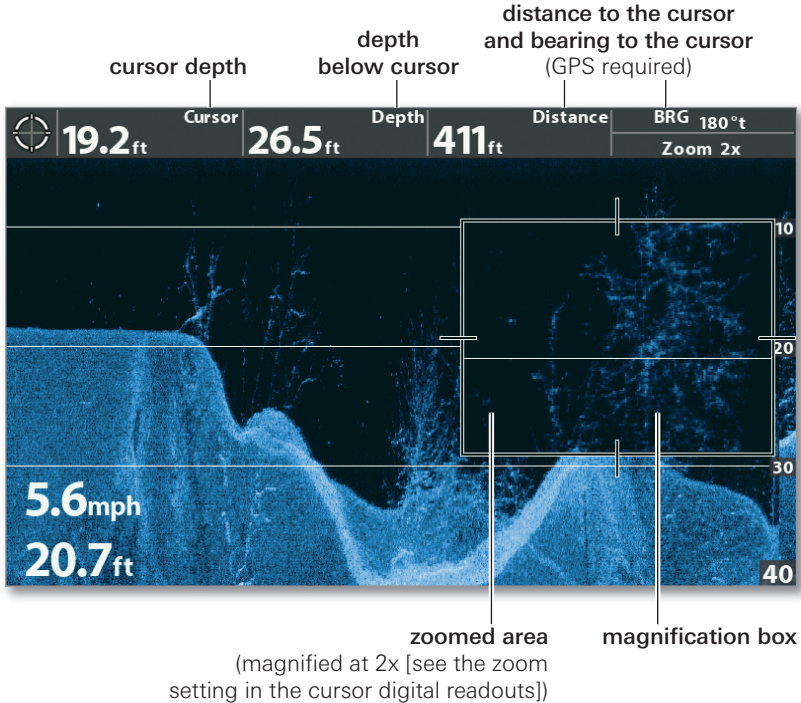
The Sharpness setting makes the sonar returns appear more defined.

DOWN IMAGING on the Go

Freeze the Display and Magnify Selected Returns

Use the Cursor Control key to activate the cursor, freeze the display, and move the cursor over a sonar return.

Using ZOOM on the Down Imaging View



Activate the Cursor & Freeze the Display



Zoom In



Zoom Out



Mark a Waypoint



Start Navigation



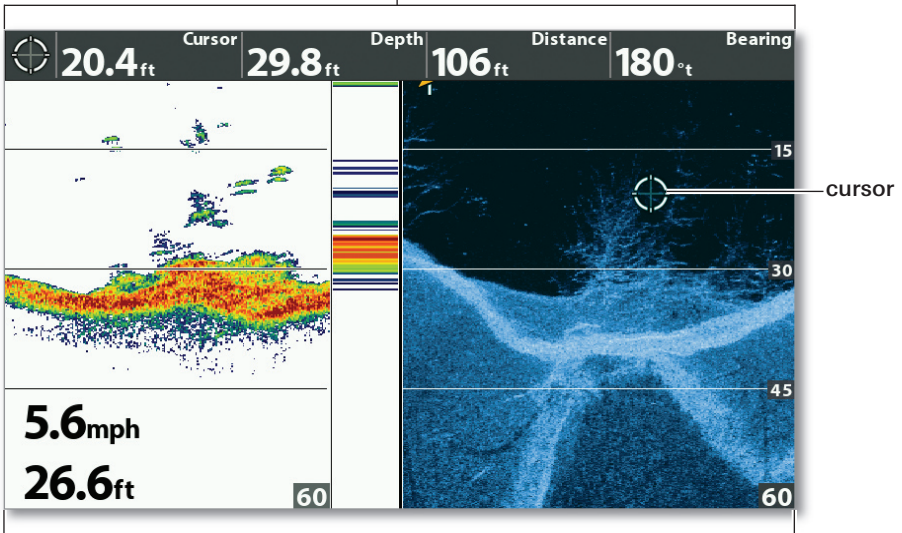
NOTE: If your unit does not have ZOOM keys, move the cursor, and open the Down Imaging X-Press Menu (Advanced) > DI Zoom to adjust the magnification.

Use the Down Imaging Combo Views

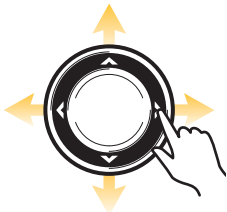
In the Down Imaging/Sonar Combo View, you can compare Down Imaging with traditional Sonar. Use the Cursor Control key to move the cursor over a sonar return, and the +ZOOM key to magnify the return.

Sonar/Down Imaging Combo View with Active Cursor

Cursor digital readouts show the cursor's depth and related position information (GPS required).



Use the Combo View to compare sonar returns.



**Activate and
Move the Cursor**



Zoom In



Zoom Out



**Mark a
Waypoint**



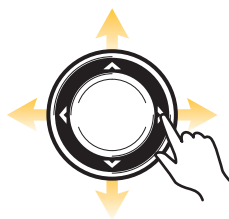
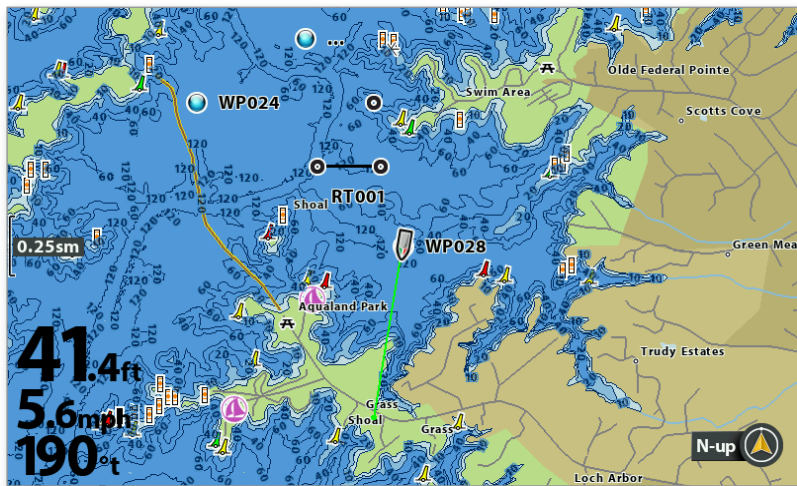
**Start
Navigation**

CHART Display Overview

HELIX GPS models allow you to mark waypoints, create routes, and start navigation. A GPS fix is required for all chart and navigation features.

You can also use the Waypoint Management dialog box to create new waypoints and routes from scratch, as well as manage your navigation data (see *Navigation: Waypoint Management Dialog Box*). See your control head operations manual for more information.

Chart View with Built-In Humminbird Basemap



Activate and
Move the Cursor



Zoom In



Zoom Out



Mark a
Waypoint

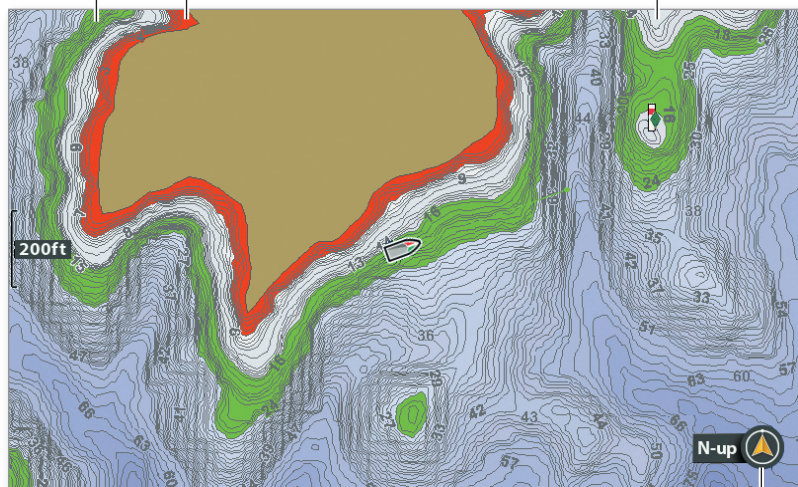


Start
Navigation

CHART VIEW Display Settings

Chart View with Humminbird LakeMaster

Depth Highlights can be customized to show deep and shallow waters.



North-Up Indicator displays the Chart Orientation and will change as the orientation and data source change (currently set to North-Up).

▶ Add Maps to the Control Head

Main Menu > Chart tab > Map Source

In addition to the built-in maps, you can install a compatible Humminbird LakeMaster®, Humminbird CoastMaster™, Humminbird ChartSelect® (see Navionics chart card for additional chart information). When you install an SD or microSD chart card in the card slot, the map source will change automatically. To change the map source manually, use the Map Source menu.

▶ Set the Chart Orientation

Main Menu > Chart tab > Chart Orientation

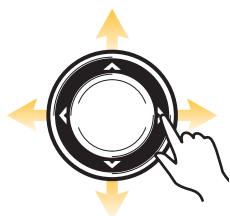
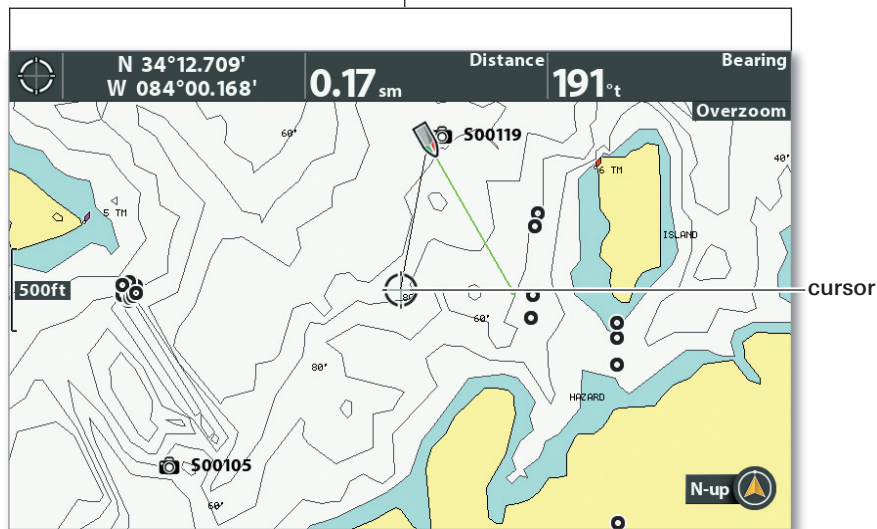
Chart Orientation allows you to select how the Chart Views are displayed. The North-Up Indicator works with this feature also (see the above illustration).

- **North-Up:** True North is shown at the top of the view. Objects located to the north of the boat are drawn above the boat.
- **Head-Up:** The boat's current heading points up, and the chart rotates around the boat icon so that it always points up on the view.
- **Course-Up:** During navigation, the projected course is shown at the top of the view. If not navigating, the last known projected course is shown.

CHART on the Go

Chart View with Active Cursor

cursor digital readouts



**Activate and
Move the Cursor**



Zoom In



Zoom Out



**Mark a
Waypoint**



**Start
Navigation**

Mark a Man Overboard (MOB) Waypoint

Press and hold the GOTO/MOB key.

As soon as you know that you have a man overboard (MOB), activate MOB navigation to maximize the chances for a successful rescue. The MOB waypoint indicates the point at which your man went overboard and the relation of the boat to that point. See your control head operations manual for details about this feature.

Press and Hold

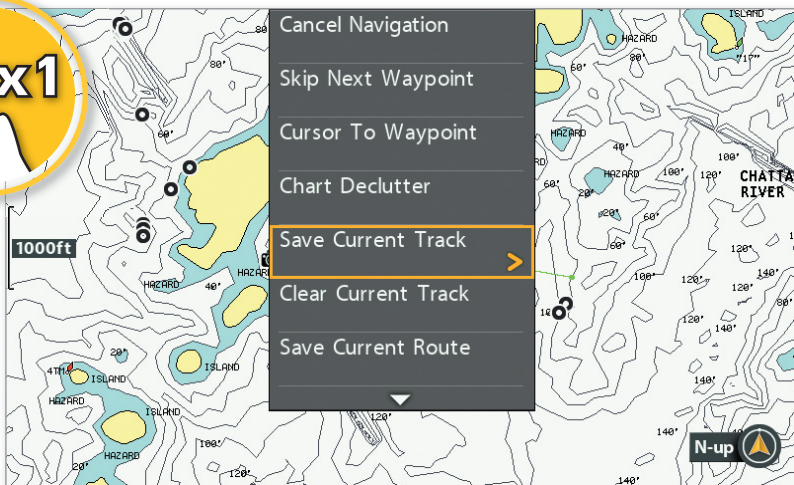


CHART X-Press Menu

Open X-Press Menu



Chart X-Press Menu



Use the **Chart X-Press Menu** to save the current track and route, as well as cancel navigation.

▶ Save the Current Track

[Chart X-Press Menu > Save Current Track](#)

It is important to save the current track before powering off the control head.

▶ Save the Current Route

[Chart X-Press Menu > Save Current Route](#)

▶ Cancel Navigation

[Chart X-Press Menu > Cancel Navigation](#)

▶ Clear the Current Track

[Chart X-Press Menu > Clear Current Track](#)

Waypoint Management Dialog Box

Route, track, and waypoint names, as well as other details, can be edited from the Waypoint Management dialog box. See your control head operations manual for more information.

Open the Waypoint Management Dialog Box:

[Main Menu](#) > [Nav tab](#) > [Waypoints, Routes, Tracks](#)

Waypoint Management Dialog Box

The screenshot shows the 'Waypoints, Routes, Tracks' dialog box. On the left, a list of waypoints is shown with 'WP007' selected. A bracket labeled 'saved navigation data' points to this list. The details for 'WP007' are shown on the right, including Name, Icon, Category, Visibility, Latitude, Longitude, and Created date. Below the list, there are buttons for 'Home < Bass08' and 'Default Group: Home'. To the right of the dialog box, there are two diagrams of a control head. The top diagram is labeled 'Select' and shows a hand pointing at a circular button with a checkmark. The bottom diagram is labeled 'Open/Close Submenu' and shows a hand pointing at a circular button with a left-pointing arrow.

▶ Edit a Waypoint

[Select a Saved Waypoint](#)

[Select Edit](#) > [Waypoint Name \(WP#\)](#), [Icon](#), [Visibility](#), etc.

Waypoint Name: Use the Cursor Control key to set the fields in the dialog box. Press the CHECK/INFO key to save.

▶ Create a New Waypoint

[Options](#) > [New](#) > [New Waypoint](#)

Use the Cursor Control key to set the fields in the dialog box.

▶ Start Navigation on a Saved Route

[Select a Saved Route](#)

[Select Travel](#) > [Forward OR Travel](#) > [Reverse](#)

▶ Edit the Track Name

[Select a Saved Track](#) > [Edit](#)

Use the Cursor Control key to set the fields in the dialog box.

MANAGE your Humminbird



WARNING! Humminbird is not responsible for the loss of data files (waypoints, routes, tracks, groups, snapshots, recordings, etc.) that may occur due to direct or indirect damage to the unit's hardware or software. It is important to back up your control head's data files periodically. Data files should also be saved to your PC before restoring the unit's defaults or updating the software. See your control head operations manual.

▶ Register your Humminbird

Register your Humminbird product and sign up to receive the latest Humminbird news, including software updates and new product announcements.

- 1** Go to our Web and click Support > Register Your Product.
- 2** Follow the on-screen instructions to register your Humminbird product.

▶ Use Manuals on your Device

Download Humminbird manuals to your mobile device or PC.

- 1 Mobile:** Download the free Adobe Acrobat Reader app to your mobile device.
PC: Download the free Adobe Acrobat Reader software from your PC, and install it on your PC.
- 2** Go to our Web site
and click Support > Manuals. **3** Select the PDF for your control head model or accessory, and save it to your device.
manual.
- 4 Mobile:** Open the Adobe Acrobat Reader app. Open the Humminbird manual.
PC: Open Adobe Acrobat Reader. Open the Humminbird manual.

▶ Manage Navigation Data



WARNING! DO NOT import navigation data from unknown sources into your Humminbird unit without first converting the data to the correct format using HumminbirdPC. Importing corrupted data can cause the unit to malfunction, which can result in lost navigation data.

- **Import and export navigation data on the control head** using an SD or microSD card. See your control head operations manual for complete details.

- **Use HumminbirdPC** to organize your waypoints, routes, tracks, and groups on your personal computer.

Conserve Power Used by the Control Head

- 1** Press the POWER/LIGHT key.
- 2 Start Standby Mode:** Select Standby. Press the RIGHT Cursor key.
Dim the Backlight: Select Light. Press the LEFT Cursor key repeatedly.
- 3 Turn off Standby Mode:** Press the POWER key.

Update the Control Head Software (with an SD or microSD card)

For complete details about the software update process, see your control head operations manual.

- 1** Insert a formatted SD card (or microSD card with adapter) into the slot on your PC.
- 2** Go to our Web site and click Support > Software Updates.
- 3 To update your control head software,** click the series name for your control head model (HELIX, SOLIX, etc.) under Fish Finders.
To update accessory software, click the product name under Accessories & Mapping.
- 4** Select your model number or product name.
- 5** Read the software description, requirements, and the instructions fully before proceeding with the software update.
- 6** Click **Download**.
- 7** Follow the on-screen prompts to save the software file to the SD or microSD card.
- 8** Power on the control head.
- 9** Install the SD or microSD card with the software file into the control head card slot. The control head will recognize the new software and run through a series of prompts to confirm the software installation.

TRANSDUCER RESOURCE GUIDE

532651-1EN_A





 **HUMMINBIRD®**


SIMPLY. CLEARLY. BETTER.

THANK YOU!

Thank you for choosing Humminbird®, the #1 name in marine electronics. Humminbird has built its reputation by designing and manufacturing top quality, thoroughly reliable marine equipment. Your Humminbird is designed for trouble-free use in even the harshest marine environment. We encourage you to read this operations manual carefully in order to get the full benefit from all the features and applications of your Humminbird product.

 **NOTE:** The illustrations in this manual may not look the same as your product, but your unit will function in the same way.

 **NOTE:** To purchase accessories or any additional equipment for your control head configuration, visit our Web site

 **NOTE:** The procedures and features described in this manual are subject to change without notice. This manual was written in English and may have been translated to another language. Humminbird is not responsible for incorrect translations or discrepancies between documents.

NOTE: Product specifications and features are subject to change without notice.

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INTRODUCTION

Proper transducer placement and mounting is one of the most critical aspects of sonar performance. The accuracy of the sonar display is affected by the location and type of transducer. Follow the tips in this resource guide to help you determine the best place to mount your transducer on your boat.



NOTE: Read the transducer installation guide completely to understand the mounting guidelines before starting the installation.



NOTE: Each boat hull represents a unique set of requirements that should be evaluated prior to installation. It is important to read the instructions completely and understand the mounting guidelines before beginning installation.



NOTE: For complete details about the installation and operation of your Humminbird control head, refer to the installation guide included with your control head and your control head operations manual. Operations manuals and installation guides can be downloaded from our Web site

Overview

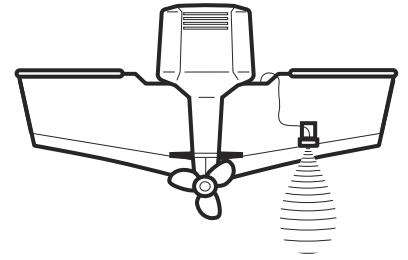
This manual will guide you through the best practices for selecting an installation location for the following types of transducers:

- Transom Mount
- In-Hull Mount
- Thru-Hull Mount
- Trolling Motor Mount

TRANSOM MOUNT

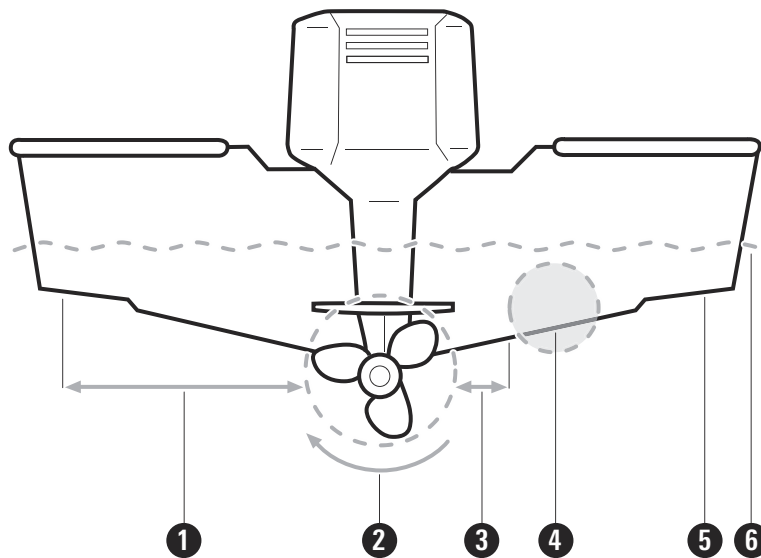
The transom installation, which is the most widely used, places the transducer on the outside of the boat hull. This technique produces the least signal loss, and provides a way to adjust the transducer after installation. The mounting hardware included is designed to protect both the boat and the transducer should the boat strike debris in the water or when trailering.

Transom Mounted Transducer



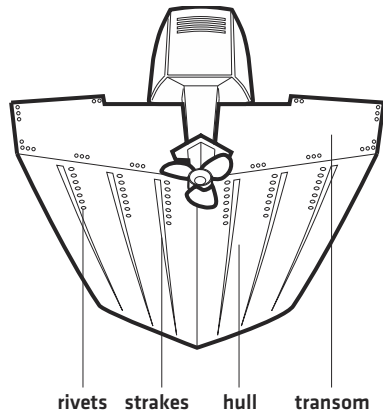
Turbulence

It is very important to locate the transducer in an area that is relatively free of turbulent water. As the boat moves through the water, turbulence is generated by the weight of the boat and the thrust of the propeller[s] – either clockwise or counterclockwise. Consider the following to find the best location with the least amount of turbulence:

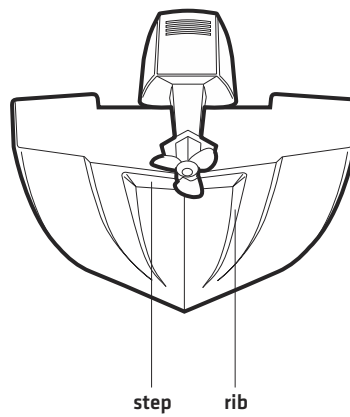


- 1 Avoid areas where there is turbulent water flow.** Turbulent water is normally confined to areas immediately aft of ribs, strakes, or rivets on the bottom of the boat, and in the immediate area of the propeller[s]. The best way to locate turbulence-free water is to view the transom while the boat is moving. This method is recommended if maximum high-speed operation (up to 65 mph) is a high priority. If this is not possible, select a location on the transom where the hull forward of this location is smooth, flat, and free of protrusions or ribs.
- 2 Observe your propeller's direction of rotation** [in forward, as you're facing the stern of the boat from behind]. Clockwise propellers create more turbulence on the port side. Counterclockwise propellers create more on the starboard side.
- 3 Ensure there is adequate distance from the propeller[s].** On outboard or inboard/outboard boats, it is best to locate the transducer at least 15" [38.1 cm] to the side of the propeller[s]. See the **Side Imaging** section for additional Side Imaging mounting requirements.
- 4 The ideal mounting location [right of the propeller[s]].** It is important to note that if you plan to trailer your boat, do not mount the transducer too close to trailer bunks or rollers to avoid moving or damaging the transducer during loading and unloading of the boat.
- 5 For boats with stepped hulls,** it may be possible to mount the transducer on the step. Do not mount the transducer on the transom behind a step to avoid popping the transducer out of the water at higher speeds. The transducer must remain in the water for the control head to maintain the sonar signal.
- 6 The transducer must be mounted so that it is parallel with the waterline, but fully submerged in the water during operation.**

Areas of Possible Turbulence



Stepped Hull



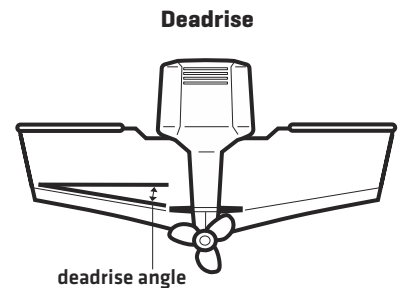
If the transom is behind the propeller[s], it may be impossible to find an area clear from turbulence, and a different mounting technique or transducer type should be considered.

Trailing

If you plan to trailer your boat, do not mount the transducer too close to trailer bunks or rollers to avoid moving or damaging the transducer during loading and unloading of the boat.

Deadrise

The hydrodynamic shape of your transducer allows it to point straight down without deadrise adjustment.



Measuring the Transom Angle

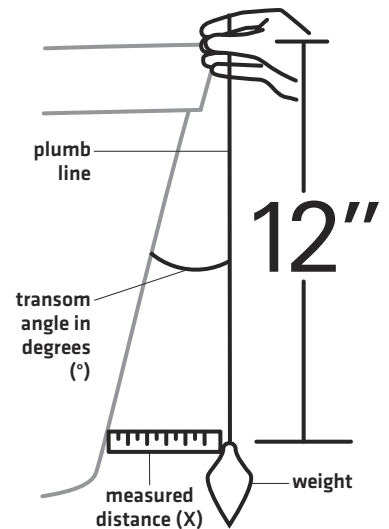
If you do not know your transom angle, measure it using a plumb line (weighted nylon string or monofilament line) exactly 12 inches long.

1. Hold the top of the plumb line against the top of the transom with your finger, and wait until the line hangs straight down.
2. Using a ruler, measure the distance from the bottom of the plumb line to the back of the transom. Refer to the illustration for more information.

NOTE: It is important to take your measurement in the location shown in the **Measuring the Transom Angle** illustration, from exactly 12 inches down from the top of the transom.

3. Once you have calculated your transom angle, use the chart below for the initial position to use to set the ratchets on your transducer assembly.

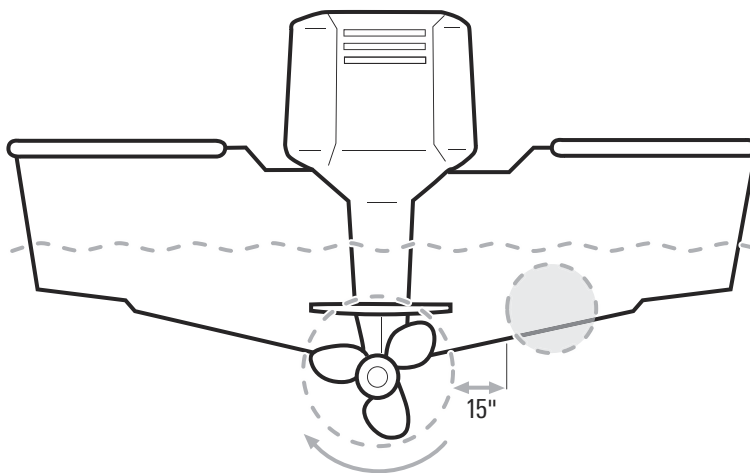
Measuring the Transom Angle



Bead Alignment Number	1	4	2	5	3	1	4	2	5	3	1																									
Transom Angle (°)	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
Measured Distance (x)	0.0 cm	0"	1.1 cm	1/2"	2.5 cm	1"	4.3 cm	1 5/8"	5.9 cm	2 3/8"	7.6 cm	3"	9.3 cm	3 5/8"	11.1 cm	4 3/8"	12.9 cm	5"	14.9 cm	5 7/8"	16.9 cm	6 5/8"														

Leveling Your Boat

Make sure that the boat is level on the trailer, both from port to starboard and from bow to stern, by placing your level on the deck of the boat, first in one direction, then in the other. The transducer must be level with the bottom of the hull to ensure accurate depth readings.



Find a turbulence-free location at least 15" from the propeller(s) and not in line with trailer bunks or rollers.

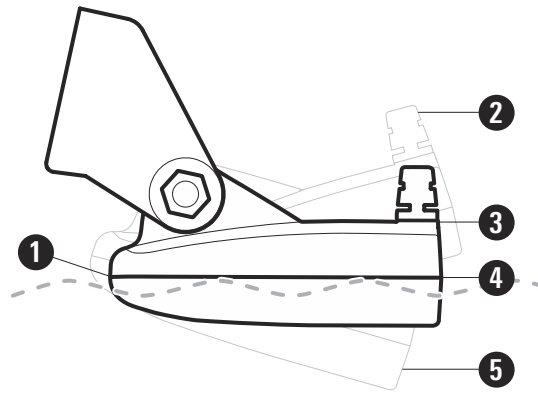
You can use the following tips to make sure your boat is level when out of the water.

1. Launch your boat in the water, and set to sonar scanning speed [2-4 mph].
2. Place a level on the gunnel of the boat.
3. Stack coins under the back of the level until it is leveled.
4. Remove the coins and set them aside for later.
5. Place the boat back on the trailer and on level ground.
6. Put the level back on the gunnel, in the same location you placed it on the water and place the same number of coins under one end.
7. Raise the trailer jack until the level is back to level position. Depending on your boat or trailer, you may need to use blocks under the trailer jack to get it level.

Mounting Angle

The transducer should be even with the bottom of the boat or slightly below the bottom.

Adjusting the Initial Transducer Angle



- ❶ **Leading edge** [the edge closest to the transom of the boat].
- ❷ **One click too high:** the transducer is tilted out of the water and cannot maintain a sonar signal. If the transducer is installed higher than the bottom of the boat, turbulence will roll off the edge of the boat bottom and cause interference.
- ❸ **Trailing edge** [the edge farthest away from the boat].
- ❹ **Correctly aligned:** the transducer side seam is parallel with the water line.
- ❺ **One click too low:** the deeper the transducer is in the water, the more likely that a rooster tail of spray and air bubbles will be generated at high speeds. You also risk the transducer being struck and damaged by objects in the water, so make sure that the transducer is as high as it can be and still be submerged in the water.

High Speed Operation

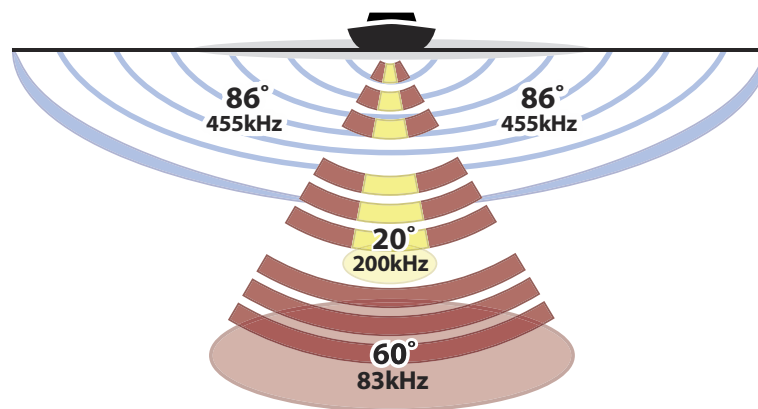
The location of the transducer becomes more critical as boat speed increases. Both front-to-rear and side-to-side transducer mounting angles are critical to high-speed performance. You may have to adjust the mounting angles to get top performance at high speeds. You want to keep the transducer in contact with the water while adding minimal drag. See the **Side Imaging** section for high speed options with your Side Imaging transducer.

Side Imaging

Side Imaging sonar uses two very precise sonar beams that are aimed at right angles to the path of the boat. The side beam coverage is very thin from front to back, yet very wide from top to bottom. The beams provide thin slices of the bottom for high resolution imaging.

The Side Imaging transducer has some special requirements because of its side viewing capabilities:

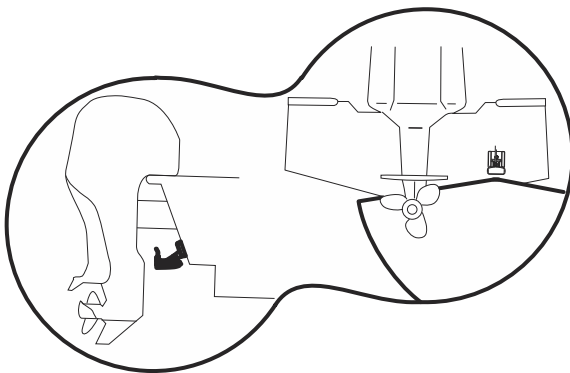
- The Side Imaging transducer must NOT have anything obstructing the 'view' of the side looking beams. For example, nothing can be in the line of sight of these beams (not a hull, motor, or other transducer, etc.).



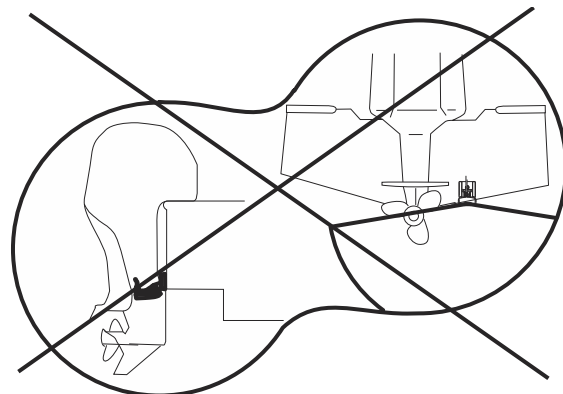
NOTE: You may need to tilt the motor up and out of the way when using the side looking beams.

- In order for the side beams to be displayed accurately, the transducer must be mounted so that it is looking straight down in the water when the boat is in the water.

Transducer Mount Position



Unobstructed View: The jack plate gives the transducer safe distance from the motor and turbulence. The Side Imaging has a clear view side-to-side.



Obstructed View: The transducer is too close to motor turbulence, and the Side Imaging view is blocked by the motor. The view cannot extend from side-to-side.

Straight/Parallel: In order for the side beams to be displayed accurately, the transducer must be mounted parallel with the waterline, so that it is looking straight down in the water when the boat is in the water.

High Speed Operation: Side Imaging sonar is best performed at boat speeds from 2 to 6 mph, and it is not recommended for high-speed operation as gaps between strips of information can appear. However, the transducer can support traditional 2D sonar and Down Imaging sonar at higher speeds.

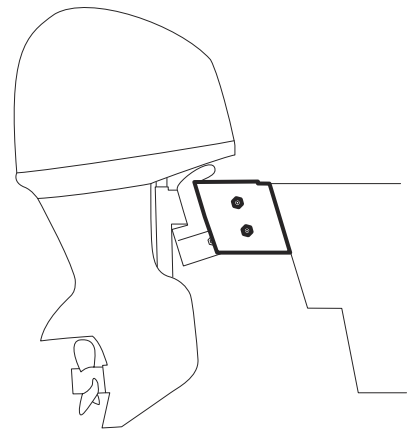
You can install an additional transducer with a Splitter Y-cable so that one transducer is mounted to provide Side Imaging returns and the other transducer is mounted to provide 2D sonar returns at high speeds.

Mounting to a Jack Plate

The transducer transom bracket can be mounted directly to a jack plate by drilling through the jack plate or by installing a bracket to the jack plate.

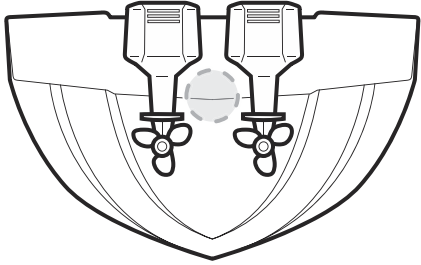
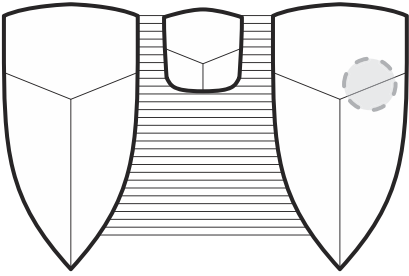
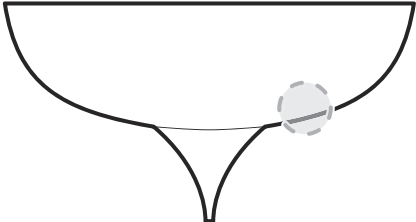
Before installing the transducer on the jack plate, make sure there is enough clearance between the jack plate, engine, transom, and the transducer. Lack of clearance could damage the transducer when the engine is all the way down.

Mounting to a Jack Plate



Considering Different Boat Types

Your boat's hull type will determine the transducer mounting location. Here are some tips for various boat types.

	<p>On twin-drive boats, the transducer should be mounted between drives.</p>
	<p>On pontoon boats, place the transducer on the bottom of the bracket on the back of a pontoon tube. The starboard side usually requires less cord to route to the control head. Also, place the transducer away from electrical interference and a livewell pump. Make sure the transducer is parallel to the water line and not the pontoon.</p> <p>Side Imaging may require a separate Side Imaging transducer mounted on each pontoon, connected with a L/R Y-cable.</p>
	<p>On sailboats, mount the transducer on the starboard side of the boat, at least 6" outside the keel.</p>

IN-HULL MOUNT

In-hull transducers (also known as shoot-through transducers) are installed inside of fiberglass boats. They are epoxied to the boat hull. Since fiberglass has similar sonar characteristics as water, the sonar signal can pass through the boat hull with minimal loss. The hull of the boat must be single layer construction (not double-hulled) and should not contain any foam. Any air trapped in the lamination of fiberglass would prevent the sonar signal from passing through the fiberglass. This method will not work for any Side Imaging transducers.

Some advantages of in-hull mounts include the following:

- no holes in the hull
- no exposure to marine growth
- good high speed performance
- no protruding obstructions that might increase drag
- no worry about damage to the transducer from debris or trailering

However, the disadvantage is that in-hull transducers may experience reduced depth range, depending on the thickness of the hull.

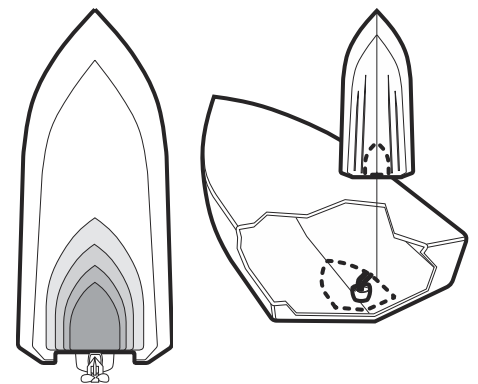
Do not mount Side Imaging or Down Imaging transducers in-hull.

Mounting Location

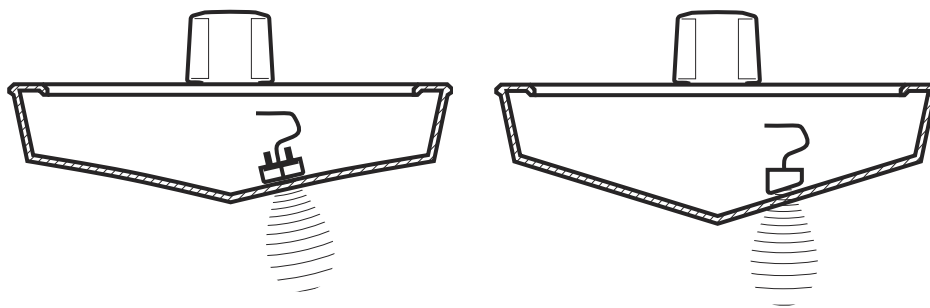
Use the following tips to find the best place to locate your in-hull transducer.

- Observe the outside of the boat hull to find the areas that are mostly free from turbulent water. Avoid ribs, strakes, and other protrusions, as these create turbulence.
- Make sure that the transducer is located as close to the centerline of the hull and as far aft as possible, so that it will remain in contact with the water even at high speeds.
- Install the transducer away from interference caused by power and radiation sources, such as the propeller and other cables.
- Locate the transducer on a flat surface of solid fiberglass. Areas of thicker fiberglass can reduce the depth range. Fiberglass hulls may be reinforced in places for added strength. Do not place the transducer near any wood, metal, or foam reinforcements.
- Ensure the transducer beam will not be blocked by the keel or propeller shaft.

Preferred Mounting Area



Inside the Hull Installation



Once you have selected a mounting location, perform an on-the-water test by placing the transducer in a bag of water or by filling the hull with water and hold down the transducer with a sand bag before permanently installing the transducer with the two-part epoxy.

THRU-HULL MOUNT

Thru-hull transducers are mounted through a hole drilled in the bottom of the boat.

Outside the Boat

⚠ WARNING! Do NOT install the transducer in line with the engine intake.

- The best location for the transducer will be aft midship, as close to centerline of the boat as possible. The transducer should be mounted forward of the propellers on inboard boats, and separated adequately from other transducers, strakes, rivet lines, or other protrusions that may create turbulence. Make sure there is nothing in front, behind, or to the side of the transducer that is closer than 12".
- Do not mount the transducer where it could be damaged from trailering, launching, or storage.
- The transducer must be continuously immersed in water.
- Choose a location with a minimal deadrise angle.

Inside the Boat

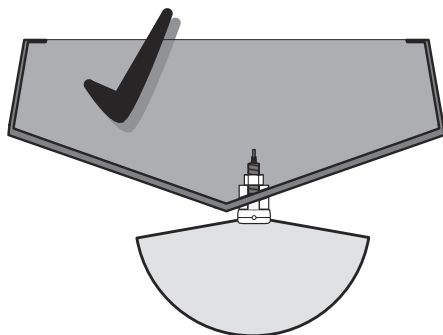
- Ensure there is enough room to access the mounting location for installation and cable routing.
- If you need a leveling block, make sure that the inside surface of the hull is smooth enough to seat the leveling block securely.

Side Imaging

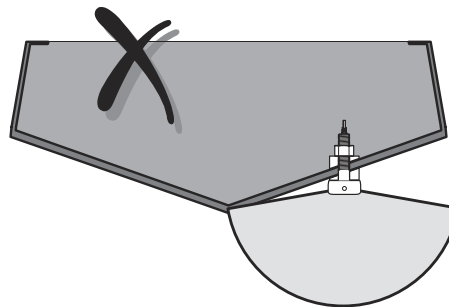
A side imaging transducer must not have anything obstructing the "view" of the side looking beams. For example, nothing can be in the sight line of these beams [not a hull, motor, or other transducer, etc.].

In order for the side beams to be displayed accurately, the transducer must be mounted so that it is looking straight down in the water when the boat is in the water.

Side Imaging - Install the transducer so the beams are not obstructed.



RECOMMENDED:
In the illustration, the transducer is close enough to the centerline so that the hull will not interfere with the Side Imaging beams.



NOT RECOMMENDED:
In the illustration, the transducer is too far from the centerline, and the hull is blocking the Side Imaging beams.

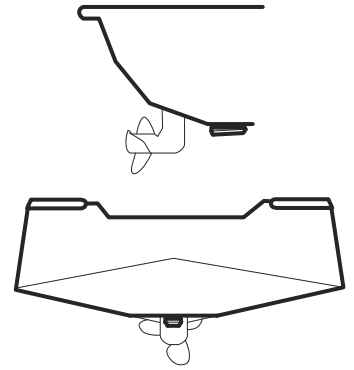
Installation Scenarios

- **Flat Hull, One Transducer:** Locate a flat area on the bottom of the hull, forward of where the propeller shaft comes out of the hull. Make sure there is nothing lower than this location to the right or left.
- **V-shaped Hull, Two Transducers:** Install two thru-hull transducers, one on each side of the V. Connect the transducers with a Y-Cable.
- **Two Back Engines, Two Transducers:** Install two thru-hull transducers outboard from the dual engines. Connect the transducers with an Y-Cable.

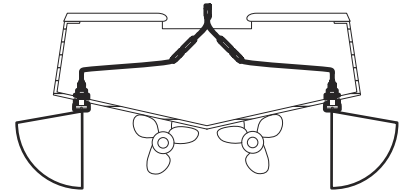


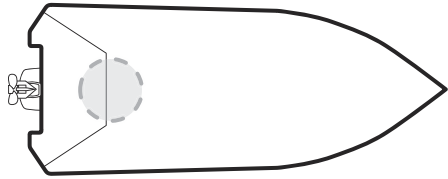
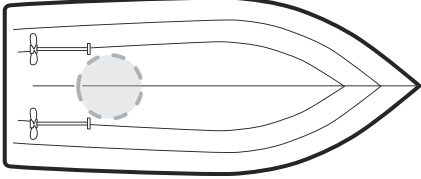
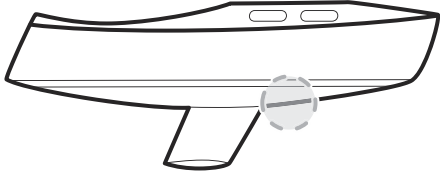
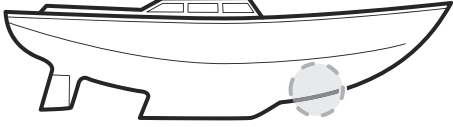
NOTE: Installations with two transducers require a Y-Cable (or Splitter Cable), which vary based on the control head model.

Flat Hull, One Transducer



V-shaped Hull, Two Transducers OR Two Back In-Board Engines, Two Transducers



	<p>For outboard and inboard/outboard boats, mount the transducer just forward and to the side of the engine[s].</p>
	<p>For inboard boats, mount the transducer ahead of the propeller[s] and shaft[s].</p>
	<p>For fin keel sailboats, mount the transducer to the side of the centerline and forward of the fin keel 1' to 2'.</p>
	<p>For full keel sailboats, mount the transducer midship and away from the keel at the point of minimum deadrise angle.</p>

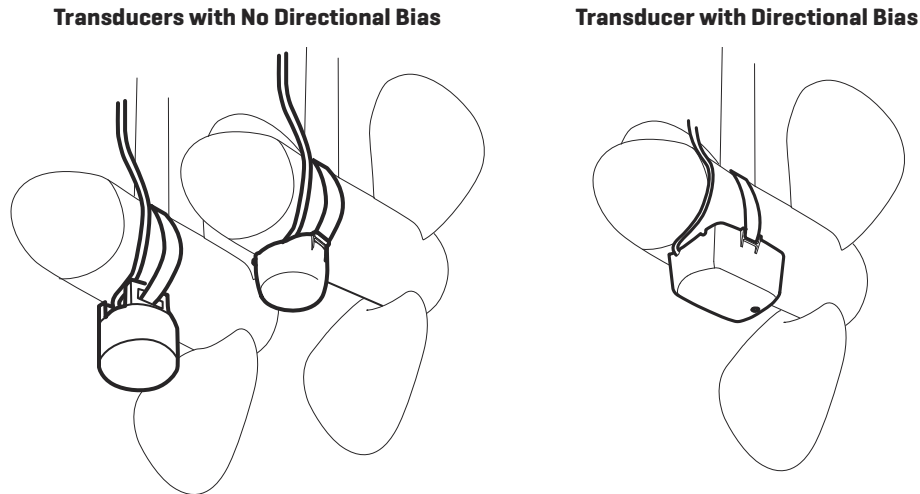
TROLLING MOTOR MOUNT

Confirm the transducer is oriented in the trolling motor's direction of travel.

Position the transducer on the underside of the motor housing with the front of the transducer facing away from the propeller.

Directional Bias

Round, circular-bottomed transducers have no directional bias, and therefore orientation of these types of transducers is not as important. Rounded rectangular transducers, however, do have a directional bias, and must be installed as shown in the illustration.



Routing the Cables

The transducer cable should be routed through the coil cable. Leave enough slack for proper stow and deploy. Make sure that the transducer cable does not get pulled, cut, or crushed.



NOTE: Do not use a transom mount Down Imaging transducer with an adapter kit on a trolling motor. The Down Imaging transducer made for a trolling motor has extra shielding in the housing and cables. If your included transducer will not work for your application, you may exchange it, NEW and UNASSEMBLED, with mounting hardware included, for a transducer appropriate for your application.