



HUMMINBIRD®



⋮⋮⋮⋮ 748 3D Operations Manual

531879-1EN_A

Thank You!

Thank you for choosing Humminbird®, America's #1 name in fishfinders. 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. In the unlikely event that your Humminbird® does require repairs, we offer an exclusive Service Policy - free of charge during the first year after purchase, and available at a reasonable rate after the one-year period. For complete details, see the separate warranty card included with your unit. 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.

To contact our Customer Resource Center, call **1-800-633-1468** or visit our Web site at **humminbird.com**.

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.*

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 product contains chemicals known to the State of California to cause cancer and/or reproductive harm.*

WARNING! *Do not travel at high speed with the unit cover installed. Remove the unit cover before traveling at speeds above 20 mph.*

NOTE: *Some features discussed in this manual require a separate purchase, and some features are only available on international models. Every effort has been made to clearly identify those features. Please read the manual carefully in order to understand the full capabilities of your model.*

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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.



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ROHS STATEMENT: *Product designed and intended as a fixed installation or part of a system in a vessel may be considered beyond the scope of Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.*

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To obtain a list of authorized international distributors, please visit our Web site at www.humminbird.com or contact our Customer Resource Center at (334) 687-6613.

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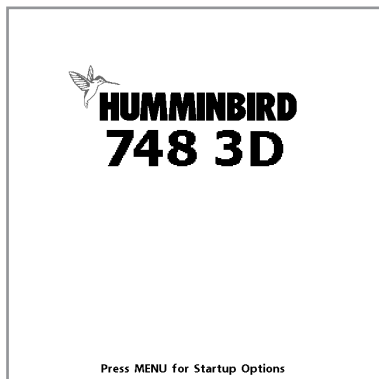
NOTE: Entries in this Table of Contents which list (with Temp/Speed only) require the purchase of separate accessories. You can visit our Web site at humminbird.com to order these accessories online or contact our Customer Resource Center at 1-800-633-1468.


NOTE: Some features discussed in this manual require a separate purchase, and some features are only available on international models. Every effort has been made to clearly identify those features. Please read the manual carefully in order to understand the full capabilities of your model.

Power On

Follow the instructions below to power on your Humminbird® control head.

748 Title Screen



1. Press the  POWER/LIGHT key.
2. When the Title screen is displayed, press the MENU key to access the Start-Up Options Menu.
3. Use the 4-WAY Cursor Control key to select Normal (if there is a transducer attached to the control head) or Simulator (if there isn't a transducer attached to the control head).

*NOTE: See **Start-Up Options Menu** for more information.*

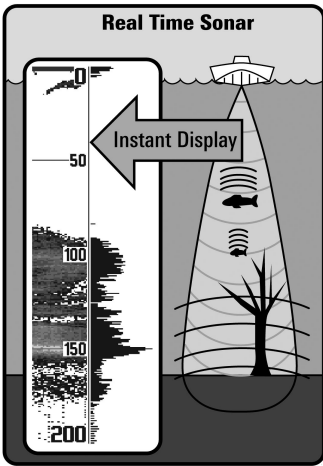
- If a functioning transducer is connected, Normal operation will be selected automatically at power up, and your Fishing System can be used on the water.
- If a transducer is not connected and you wait too long to select a Start-Up Option, the system will default to whichever menu is already highlighted.
- In Simulator you can learn how to use your control head and save settings in advance for later use.

How Sonar Works

Sonar technology is based on sound waves. The 700 Series™ Fishing System uses sonar to locate and define structure, bottom contour and composition, as well as depth directly below the transducer.

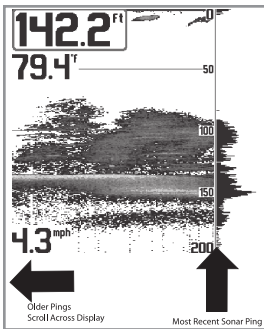
Your 700 Series™ Fishing System sends a sound wave signal and determines distance by measuring the time between the transmission of the sound wave and when the sound wave is reflected off of an object; it then uses the reflected signal to interpret location, size, and composition of an object.

Sonar is very fast. A sound wave can travel from the surface to a depth of 240 ft (70 m) and back again in less than 1/4 of a second. It is unlikely that your boat can “outrun” this sonar signal.

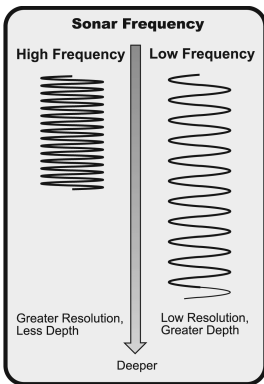


SONAR is an acronym for SOund and NAVigation Ranging. Sonar uses precision sound pulses or “pings” which are emitted into the water in a teardrop-shaped beam.

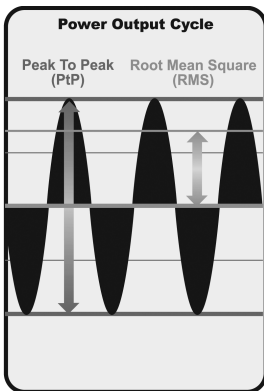
The sound pulses “echo” back from objects in the water such as the bottom, fish, and other submerged objects. The returned echoes are displayed on the LCD screen. Each time a new echo is received, the old echoes are moved across the LCD, creating a scrolling effect.



When all the echoes are viewed side by side, an easy to interpret “graph” of the bottom, fish, and structure appears.



The sound pulses are transmitted at various frequencies depending on the application. Very high frequencies (455 kHz) are used for greatest definition but the operating depth is limited. High frequencies (200 kHz) are commonly used on consumer sonar and provide a good balance between depth performance and resolution. Low frequencies (83 kHz) are typically used to achieve greater depth capability.



The power output is the amount of energy generated by the sonar transmitter. It is commonly measured using two methods:

- Root Mean Square (RMS) measures power output over the entire transmit cycle.
- Peak to Peak (PtP) measures power output at the highest points.

The benefits of increased power output are the ability to detect smaller targets at greater distances, ability to overcome noise, better high speed performance and enhanced depth capability.

3D Sonar

Your Fishing System uses a six-element transducer that transmits at 455 kHz and is capable of reaching depths of 240 ft (75 m). Each transmitted beam is symmetrical and 16 degrees in width. The six beams are lined up next to each other to provide a total coverage of 53 degrees from side to side, and 16 degrees from front to back.

Using multiple narrow beams together gives you a wide area of coverage for terrain interpretation and fish location, without sacrificing the detail only a narrow beam can provide. Your Fishing System gathers information from a continuous series of these returned signals. It then interprets this information to create a detailed 3-dimensional view of the terrain passing beneath your boat as you travel across the water.

***NOTE:** Depth capability is affected by such factors as boat speed, wave action, bottom hardness, water conditions, and transducer installation.*

2D Sonar

Your Fishing System also has the capability of displaying traditional 2-dimensional sonar information from either a 455 kHz beam or an 83 kHz beam.

The 455 kHz single beam has the advantage of providing increased sonar resolution but is limited to a depth capability of 240 ft (75 m). The 83 kHz single beam sonar has the advantage of providing sonar information to 1000 ft (330 m) but provides less resolution than the 455 kHz beam.

***NOTE:** Depth capability is affected by such factors as boat speed, wave action, bottom hardness, water conditions, and transducer installation.*

What's on the 3D Sonar Display

In 3D views, your Fishing System can display a variety of useful information

Depth - Water depth can be set to alarm when the water becomes too shallow.

Temperature - Water surface temperature.

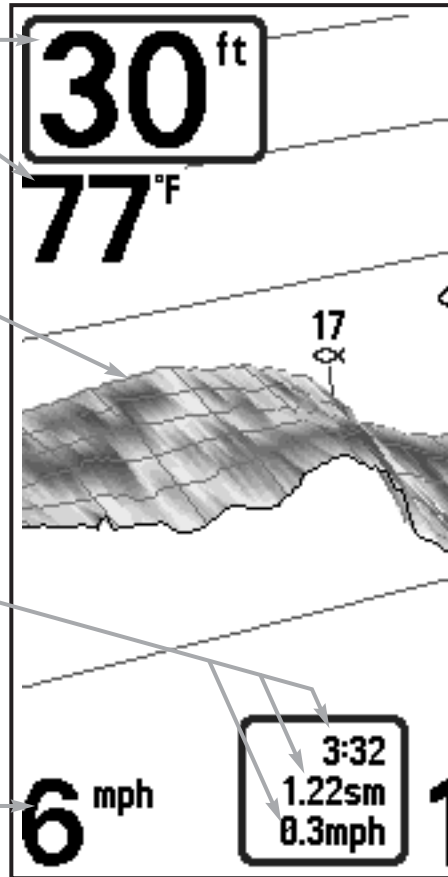
Bottom Contour - Shows the shape of the bottom derived from depth measurements on 6 beams. 3 bottom styles are available; the front edges of the bottom contour are outlined to create a visual anchor. The width of the bottom covered is approximately equal to the depth.

Timer - Elapsed time with Temp/Speed Accessory or GPS Receiver.

Distance - Distance traveled with Temp/Speed Accessory or GPS Receiver.

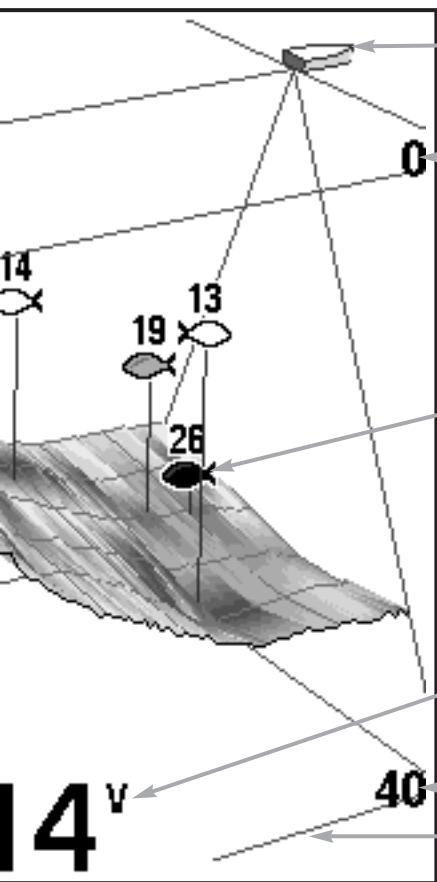
Average Speed - Average speed reading with Temp/Speed Accessory or GPS Receiver.

Speed - If a Temp/Speed accessory or GPS Receiver is attached, the Fishing System can display the speed of the boat and can keep a Triplog of nautical or statute miles traveled.



NOTE: Entries in this view that list (with Temp/Speed or GPS Receiver) are available if the information from the GPS receiver will be displayed on the view.

about the area under and adjacent to your boat, including the following items:



Boat/Direction Arrow - A simple, solid 3D boat is drawn when the Upper Depth Range is 0. A solid 3D arrow is drawn when the Upper Depth Range is not 0.

Upper and Lower Depth Range

Fish ID+™ - A fish icon will be shown at the derived position of the fish. Six fish icon styles will be used to indicate the primary beam in which the fish was found. Left-facing fish indicate fish off the port side of the boat, while right-facing fish indicate fish off the starboard side. Each fish icon is available in three different sizes. Larger fish icons are used to represent stronger returns. The icons used in the 2D Sonar View are identical to the icons used in the 3D Sonar View.

Battery Voltage - The voltage of the boat's battery; can be set to alarm if the voltage falls below a certain point.

Frame - Provides a reference for bottom and Fish ID information. A Range of frame styles are available, from simple to complex.

either device is connected to the Fishing System. If both devices are connected, then only

What's on the 2D Sonar Display

The 700 Series™ Fishing System can display a variety of useful information

Depth - Water depth can be set to alarm when the water becomes too shallow.

Speed - If a Temp/Speed accessory is attached, the Fishing System can display the speed of the boat and can keep a Triplog of nautical or statute miles traveled.

Temperature - Water surface temperature.

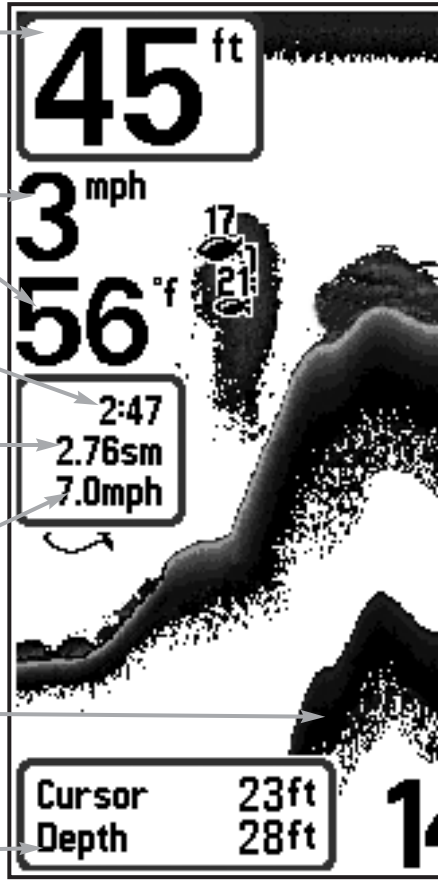
Timer - Elapsed time with Temp/Speed Accessory.

Distance - Distance traveled with Temp/Speed Accessory.

Average Speed - Average speed reading with Temp/Speed Accessory.

Second Sonar Return - When the sonar signal bounces between the bottom and the surface of the water and back again. Use the appearance of the second return to determine bottom hardness. Hard bottoms will show a strong second return, while soft bottoms will show a very weak one or none at all.

Cursor Dialog Box - Displays on the view when the cursor is active.



NOTE: Entries in this view that list (with Temp/Speed or GPS Receiver) are available if the information from the GPS receiver will be displayed on the view.

about the area under your boat, including the following items:



Bait Ball

Hollow Fish Symbol (see *Fish ID+™*)

Thermoclines - Layers of water with different temperatures that appear at different depths and different times of the year. A thermocline typically appears as a continuous band of gray levels moving across the display at the same depth.

Structure - Where fish may be hiding.

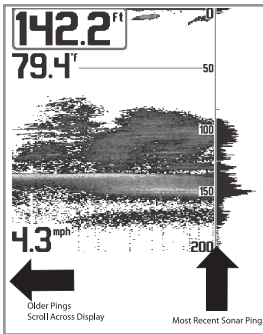
Fish - The Fishing System displays fish as arches and/or fish icons, and can be set to alarm when a fish of a certain size is detected. When a target is detected, a Fish ID+™ symbol appears on the display with the depth displayed above it. The size of the symbol indicates the intensity of the sonar return. The unit will clearly show schools of Bait Fish as "clouds" of different shapes and sizes, depending on the number of fish and boat speed.

Active Cursor

RTS (Real Time Sonar) Window™

Battery Voltage - The voltage of the boat's battery. It can be set to alarm if the voltage falls below a certain point.

either device is connected to the Fishing System. If both devices are connected, then only



Understanding the 2D Sonar Display

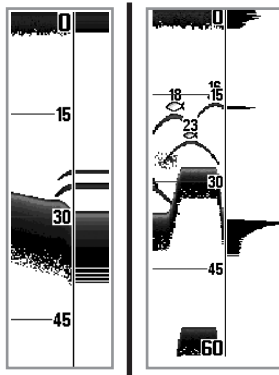
It is important to understand the significance of the display. The display does not show a literal 3-dimensional representation of what is under the water. Each vertical band of data received by the control head and plotted on the display represents something that was detected by a sonar return at a particular time. As both the boat and the targets (fish) may be moving, the returns are only showing a particular segment of time when objects were detected, not exactly where those objects are in relation to other objects shown on the display.

The returned sonar echoes are displayed on the screen. As a new echo is received, the historical data scrolls left across the view.

Real Time Sonar (RTS™) Window

A **Real Time Sonar (RTS™) Window** appears on the right side of the display in the Sonar View only. The RTS Window™ updates at the fastest rate possible for depth conditions and shows only the returns from the bottom, structure, and fish that are within the transducer beam. The RTS Window™ plots the depth and intensity of a sonar return (see *Sonar Menu Tab: RTS Window™*).

The **Narrow RTS Window™** indicates the sonar intensity through the use of grayscale. The grayscale used matches the Bottom View grayscale setting (Inverse, StructureID®, WhiteLine™, Bottom Black). The depth of the sonar return is indicated by the vertical placement of the return on the display depth scale.



The **Wide RTS Window™** indicates the sonar intensity through the use of a bar graph. The length of the plotted return indicates whether the return is weak or strong. The depth of the sonar return is indicated by the vertical placement of the return on the display depth scale. The Wide RTS Window™ does not use grayscale.

SwitchFire™

SwitchFire™ controls how the sonar returns are displayed in the Sonar Views. SwitchFire™ settings are available in the Sonar Menu Tab.

To see the maximum sonar information available within the transducer beam so more fish arches and better jig tracking are shown, choose Max Mode.

To see less clutter and more fish size accuracy interpreted from the transducer beam, choose Clear Mode. See *Sonar Menu Tab: SwitchFire™* for more information.

Freeze Frame and Active Cursor

Press any arrow on the 4-WAY Cursor Control key, and the screen will freeze and a cursor will be displayed. Use the 4-WAY Cursor Control key to move the cursor over a sonar return, and the depth of the sonar return will be displayed in the cursor dialog box.

NOTE: In 2D Sonar Views, the RTS Window™ continues to update in Freeze Frame.

To return to a scrolling display and exit Freeze Frame, press the EXIT key. Freeze Frame is available in the Sonar and Sonar Zoom Views.

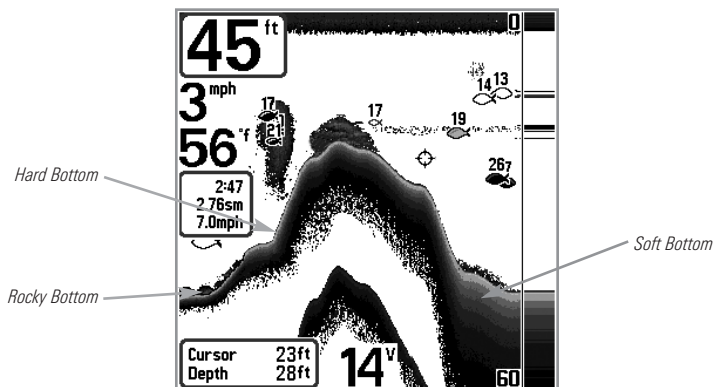
Instant Image Update

Instant Image Update - You can change a variety of sonar menu settings (such as Sensitivity or Upper Range), and the adjustments will be shown instantly on the screen.

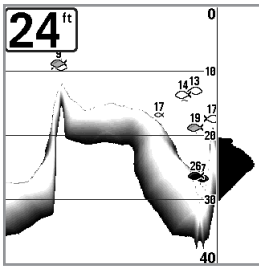
Bottom Presentation

As the boat moves, the unit charts the changes in depth on the display to create a profile of the **Bottom Contour**. The type of bottom can be determined from the return charted on the display. A **Hard Bottom** such as compacted sediment or flat rock appears as a thinner line across the display. A **Soft Bottom** such as mud or sand appears as a thicker line across the display. **Rocky Bottoms** have a broken, random appearance.

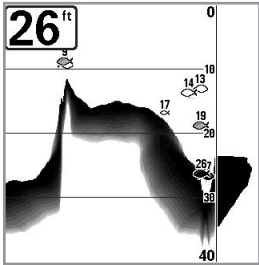
Bottom Contour Profile with RTS Window™



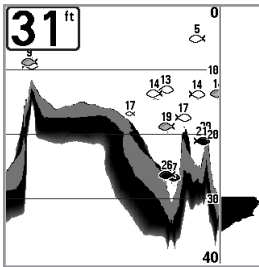
The sonar returns from the bottom, structure, and fish can be represented as **Inverse**, **Structure ID®**, **WhiteLine™**, or **Black** (Bottom Black). See *Sonar X-Press™ Menu: Bottom View* to set the Bottom View.



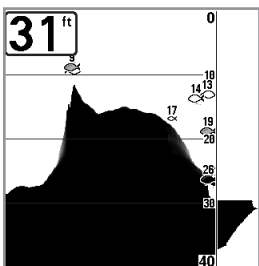
Inverse is a method where weak returns are shown with dark pixels and strong returns with lighter pixels. This has the benefit of ensuring that weak signals will be clearly visible on the display.



Structure ID® represents weak returns as light pixels and strong returns as dark pixels. This has the benefit of ensuring that strong returns will be clearly visible on the display.



WhiteLine™ highlights the strongest sonar returns in white resulting in a distinctive outline. This has the benefit of clearly defining the bottom on the display.



Black (Bottom Black) displays all pixels below the bottom contour as black, regardless of signal strength. This has the benefit of providing a high contrast between the bottom and other sonar returns on the display.



Views

The sonar information from your Fishing System is displayed on the screen in a variety of easy-to-read views.

- **Default View:** When you first power up the control head, 2D Sonar View will be the default view.
- **Cycle:** When you press the VIEW key repeatedly, the display cycles through the available views on your screen. When you press the EXIT key repeatedly, the display cycles through the available views in reverse order.
- **Customize:** You can display or hide any view to suit your fishing preferences. See the following pages for more information about each View.

To customize your view rotation:

1. Press the MENU key twice to access the tabbed Main Menu, then press the RIGHT Cursor key until the Views tab is selected.
2. Press the UP or DOWN Cursor keys to select a View.
3. Press the RIGHT or LEFT Cursor keys to change the status of the view from Hidden to Visible or vice versa.

To change the Digital Readouts:

Each view displays digital readout information (such as speed or time), which varies with the view selected and the accessory attached. The digital readouts on the Sonar View can be customized. See **Setup Menu Tab: Select Readouts** for more information.

1. Press the MENU key twice to access the tabbed Main Menu, then press the RIGHT Cursor key until the Setup tab is selected.
2. Press the DOWN Cursor key to highlight Select Readouts, and press the RIGHT Cursor key to access the Select Readouts submenu.

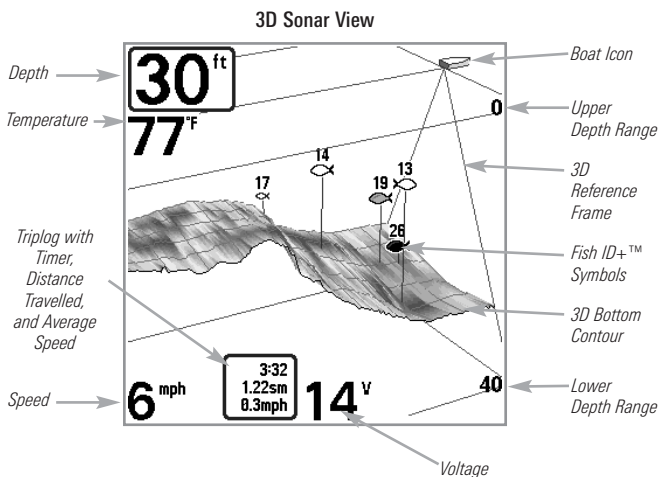
NOTE: If the Select Readouts option does not appear under the Setup tab, change the User Mode to Advanced.

3. Press the UP or DOWN Cursor keys to select a Readout position, then press the RIGHT or LEFT Cursor keys to choose what will be displayed in that position. To hide the data window, select Off.

3D Sonar View

3D Sonar View displays a 3-dimensional representation of the bottom. The sonar returns from each of the six elements are combined to create this 3-dimensional, wire-frame image. This graphic depiction of the bottom provides you with an effective tool for understanding the terrain beneath the boat.

- **Digital Readouts:** Depth is always displayed in the upper left hand corner. Temperature and speed are displayed if the temp/speed paddle wheel is connected or if a GPS receiver is connected.
- **Location:** The location of your boat in relation to the on-screen information is represented by the boat icon.
- **Sonar Returns:** The most recent sonar returns are charted on the upper right side of the screen and move to the lower left as new information is received. The width of coverage is approximately equal to the depth.
- **Fish ID+:** If a return meets certain criteria, one of 18 kinds of fish symbols will be assigned. There are three different size fish symbols to indicate the intensity of the return and each of the six beams has a unique set of fish symbols (see *Sonar Menu Tab: Fish ID+™* for more information).



To change the selected perspective:

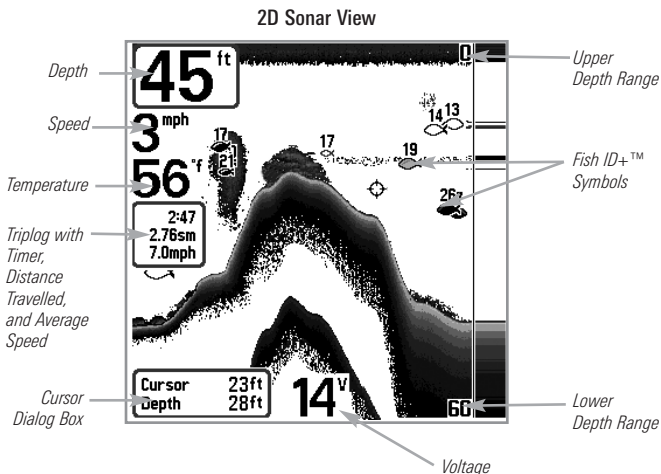
In some situations, the 3D Sonar View and the 2D/3D Sonar View may not display certain information due to the slope of the terrain. An option is available to change the perspective, or viewpoint, so you can see the information that would otherwise be hidden by the terrain.

1. While in the selected view, use the 4-WAY Cursor Control key to change the perspective.
 - Press the LEFT Cursor key to shift the viewpoint left, and press the RIGHT Cursor key to shift it right.
 - Press the Up or Down Cursor keys to shift the point of view up or down.
2. **Reset Perspective:** Press the MENU key once and select Reset View from the X-Press™ Menu.

2D Sonar View

Sonar View presents a 2-dimensional historical log of sonar returns. The most recent sonar returns are charted on the right side of the display. As new information is received, the historical information scrolls left across the display.

- **Upper and Lower Depth Range numbers** indicate the distance from the surface of the water to a depth range sufficient to show the bottom.
- **Depth** is automatically selected to keep the bottom visible on the display, although you can adjust it manually as well (see *Sonar X-Press™ Menu*).
- **Digital Readouts** shown on the display will change based on the Select Readouts settings or the optional-purchase accessories attached (see *Setup Menu Tab: Select Readouts*).
- **Freeze Frame:** Use the 4-WAY Cursor Control key to freeze the display and move the cursor over a sonar return. The depth of the sonar return will be displayed in the cursor dialog box.

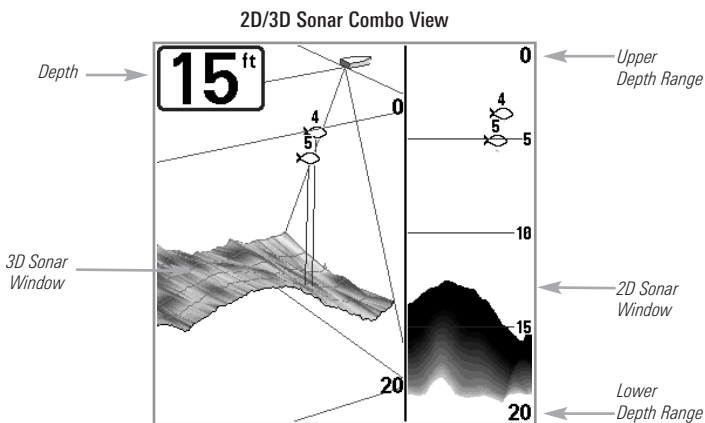


NOTE: If the Depth number is flashing, it means that the unit is having trouble locating the bottom. This usually happens if the water is too deep, the transducer is out of the water, the boat is moving too fast, or for any other reason that the unit can't accurately receive continuous data.

2D/3D Sonar Combo View

2D/3D Sonar Combo View displays a 3-dimensional representation of the bottom next to the traditional 2-dimensional sonar representation. The 2D/3D Sonar Combo View is especially useful for evaluating the bottom terrain from the 3D window while simultaneously viewing the 2D window for structure and bottom hardness.

- **Depth** is always displayed in the upper left hand corner.
- **Digital Readouts** in the 2D/3D Sonar Combo View cannot be customized, which makes information such as water temperature and voltage unavailable in this view.

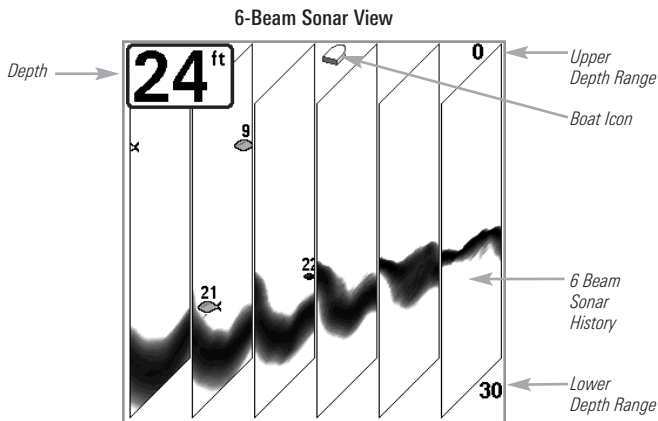


NOTE: Refer to the 3D Sonar View and the 2D Sonar View sections for more information on these views.

6-Beam Sonar View

6-Beam Sonar View displays information from each of the six 455 kHz beams in a traditional 2D representation. This view displays the raw sonar returns from each of the beams that are used to create the 3-dimensional wire frame representation of the bottom in the 3D Sonar View. This view can be used for identifying structure on the bottom and sonar returns in the water column.

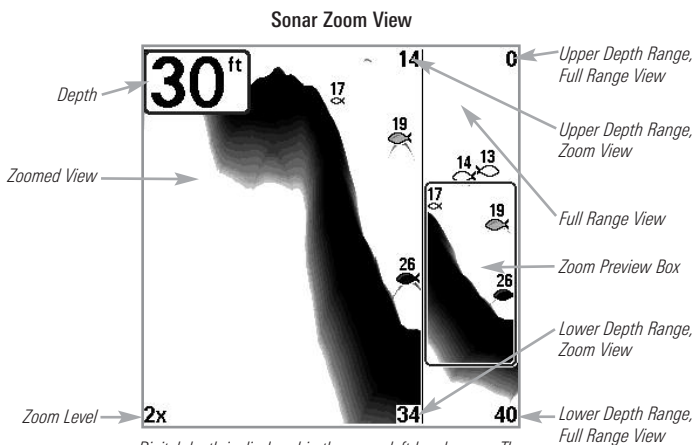
- **Sonar Targets:** The 6-Beam Sonar View also provides information on sonar targets relative to the boat. The far right window displays sonar targets which are to the far right of the boat and the far left window displays sonar targets which are to the far left of the boat. The remaining windows display sonar targets which are successively closer to the boat. The width of coverage is approximately equal to the current depth.
- **Digital Readouts** in the 6-Beam Sonar View cannot be customized, making information such as water temperature and voltage unavailable in this view.



2D Zoom View

2D Zoom View provides a magnified view of the bottom and structure. The Sonar Zoom View makes it easier to see separate sonar returns that would usually be displayed close together, such as those caused by fish suspended close to the bottom or within structure.

- The **Zoom Level**, or magnification, is displayed in the lower left corner of the display. Press the MENU key once to access the Sonar X-Press™ Menu and use Zoom Level to adjust the zoom settings.
- The **Zoomed View** is displayed on the left side of the screen. As the depth changes, the zoomed view updates automatically.
- The **Full Range View** is displayed on the right side of the screen. The Full Range View includes the Zoom Preview Box, which shows where the zoomed view is in relation to the full range view.
- The **Upper and Lower Depth Range numbers** indicate the high and low range of the water which is being viewed.



Digital depth is displayed in the upper left hand corner. The digital readouts in the Sonar Zoom View cannot be customized; therefore, information such as water temperature and voltage are unavailable in the Sonar Zoom View.

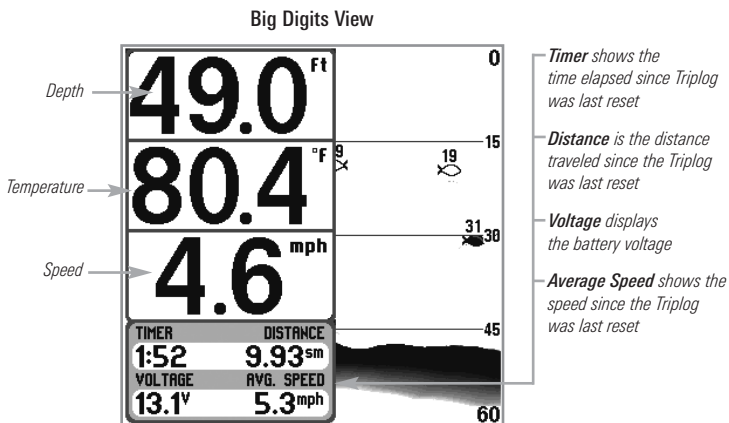
2D Big Digits View

Big Digits View provides digital data in a large, easy-to-see format.

- **Digital Readouts:** Depth is always displayed. Readouts for temperature, speed, and Triplog information are displayed automatically if the appropriate accessory is connected to the Fishing System.

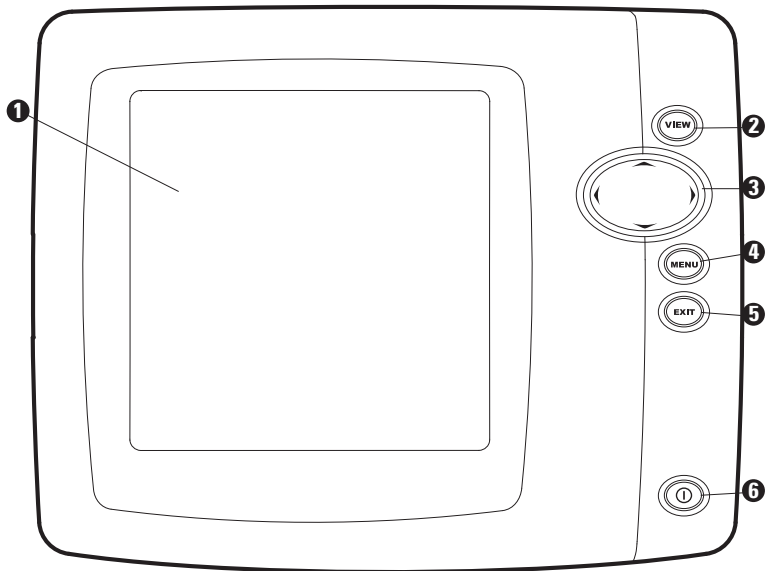
NOTE: The digital readouts in the Big Digits View cannot be customized.

- The **Triplog** shows distance traveled, average speed, and time elapsed since the Triplog was last reset.



What's on the 700 Series™ Control Head

Your 700 Series™ Fishing System interface is easy to use. A combination of keys and special features allows you to control what you see on the display. Refer to the following illustration, and see *Key Functions* for more information.



- 1 Screen
- 2 VIEW key
- 3 4-WAY Cursor Control key
(LEFT, RIGHT, UP, or DOWN Cursor keys)

- MENU key 4
- EXIT key 5
- POWER/LIGHT key 6

Key Functions

Your Fishing System user interface consists of a set of easy-to-use keys that work with various on-screen views and menus to give you flexibility and control over your fishing experience.

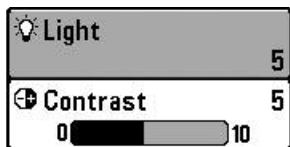


POWER/LIGHT Key

The POWER/LIGHT key is used to power the Fishing System on and off. You can also use the POWER/LIGHT key to adjust the backlight and contrast of the display.

Power On: Press the POWER/LIGHT key to power on the unit. When the Title screen is displayed, press the MENU key to access the Start-Up Options Menu.

Power Off: Press and hold the POWER/LIGHT key for 3 seconds. A message will appear to indicate how many seconds there are until shutdown occurs. To ensure that shutdown occurs properly and any menu settings will be saved, your Fishing System should always be turned off using the POWER/LIGHT key.



Adjust the Backlight or the Display Contrast:

Press the POWER/LIGHT key to access the Light and Contrast submenu. Use the 4-WAY Cursor Control key to select Light or Contrast, and then press the LEFT or RIGHT Cursor key to change the settings. Press EXIT to exit the Light and Contrast submenu.

***NOTE:** Your 700 Series™ Fishing System will start up with the backlight on and will automatically turn it off to conserve power.*



VIEW Key

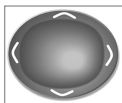
The VIEW key is used to cycle through all available views. Press the VIEW key to advance to the next view. Repeatedly pressing VIEW cycles through all views available. Views can be hidden to optimize the system to your fishing requirements (see *Views* and *Views Menu Tab*).



MENU Key

The MENU key is used to access the menu system. See *The Menu System* for more information.

- **Start-Up Options Menu:** Press the MENU key during the power up sequence to view the Start-Up Options menu.
- **X-Press™ Menu:** Press the MENU key once in any view to access the X-Press™ Menu, which provides frequently-used menu settings that correspond to the current view.
- **Main Menu:** Press the MENU key twice in any view to access the Main Menu, which is organized under tabbed headings to help you find a specific menu item quickly.



4-WAY Cursor Control Key

(LEFT, RIGHT, UP, or DOWN Cursor keys)

The 4-WAY Cursor Control key has multiple functions, which depend on the situation as follows:

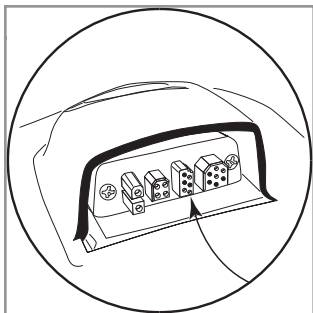
- **Menu Selection:** Press the UP or DOWN Cursor keys to highlight a menu option, then press the RIGHT or LEFT Cursor keys to change a menu setting. The changes will be activated and saved immediately.
- **Freeze Frame:** In 2D Sonar Views, press any arrow on the 4-WAY Cursor Control key to freeze the display and move the active cursor to a location on the screen. A cursor dialog box will display to show the depth of the location you choose.
- **Active Cursor:** Press any arrow on the 4-WAY Cursor Control key, and the active cursor will appear on the screen (2D Sonar View only).



EXIT Key

The EXIT key has multiple functions, which depend on the situation:

- **If an alarm is sounding**, press the EXIT key to cancel the alarm.
- **If a menu tab is selected**, press the EXIT key to exit the menu mode and return to the view.
- **If a menu is active**, press the EXIT key to return to the previous level in the menu system.
- **From any view**, press the EXIT key to cycle through the available views in reverse order.
- **If Freeze Frame is active**, press the EXIT key to return to a scrolling display.
- **If the Cursor is active**, press the EXIT key to remove the cursor from the display.



Accessory Bus

Use the Accessory Bus to expand the functionality of the 748 3D Fishing System. Accessories plug directly into the Fishing System, enabling advanced features such as WeatherSense®, SmartCast® Wireless Sonar Link, and GPS Functionality.

Additional menu tabs and menu choices will be added to the menu system automatically when an accessory is plugged into the unit. In addition, multiple accessories can be attached simultaneously. See *Accessories Menu Tab* and *700 Series™ Fishing System Accessories* in this manual, as well as your accessory's operations manual for additional details.

NOTE: Accessories to enable WeatherSense®, SmartCast® Wireless Sonar Link, and GPS functionality require separate purchases. Visit our Web site at humminbird.com or contact our Customer Resource Center at **1-800-633-1468** for details.

The Menu System

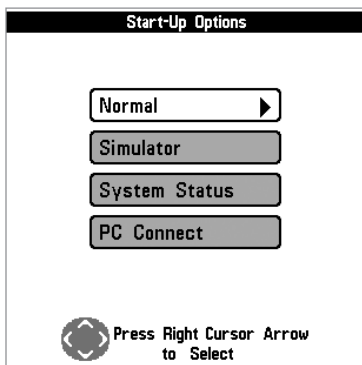
The Menu System is divided into easy-to-use menu modules as follows:

- **Start-Up Options Menu:** Press the MENU key during the power on sequence to view the Start-Up Options Menu. From the Start-Up Options Menu, you can choose the following Fishing System Modes: Normal, Simulator, System Status, and PC Connect.
- **X-Press™ Menu:** The X-Press™ Menu provides a shortcut to the most frequently-used settings, and the options on the X-Press™ Menu correspond with the current view.
- **Main Menu:** The Main Menu is a standard set of menu settings which are organized under the following tabbed headings: Alarms, Sonar, Setup, Views, and Accessories.

***NOTE:** The X-Press™ Menu(s) and the Main Menu options can also be expanded or simplified by setting the User Mode to Advanced or Normal (see **Main Menu: User Mode**).*

Start-Up Options Menu

Press the MENU key during the power on sequence to view the Start-Up Options Menu, and select one of the modes described on the following pages. Also, see *Power On* for additional information.



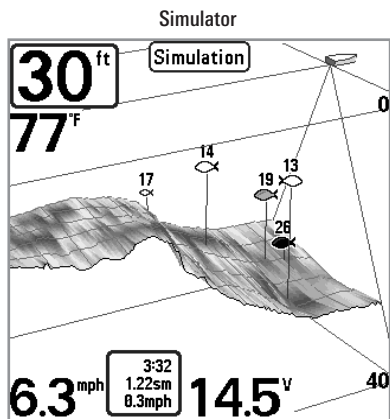
Normal

Use **Normal** for on-the-water operation with a transducer connected. If a functioning transducer is connected, Normal operation will be selected automatically at power up, and your Fishing System can be used on the water.

To exit Normal operation, power off your Fishing System.

Simulator

Use **Simulator** to learn how to use your Fishing System before taking your boat on the water. The Simulator is a very powerful tool that provides a randomly-updated display which simulates on the water operation.



We recommend going through this manual while using the Simulator, since all of the menu functions and affect the display in the same way as they would in Normal operation. Any menu changes you make will be saved for later use.

***NOTE:** It is important to select Simulator manually from the Start-Up Options Menu as opposed to letting the Fishing System enter Simulator automatically (as it will if a transducer is not connected and you do nothing during power up).*

A message will appear often on the display to indicate Simulator mode.

To **exit Simulator**, power off your Fishing System.

System Status

Use **System Status** to view system connections and to conduct a unit self-test.

After you select System Status from the Start-Up Options Menu, press the VIEW key to display the following options:

- Self Test
- Accessory Test

To exit System Status, power off your Fishing System.

Self Test displays results from the internal diagnostic self test, including unit serial number, Printed Circuit Board (PCB) serial number, software revision, total hours of operation, and the input voltage.

Self Test Screen

SYSTEM STATUS	
Self Test	
PASSED	
S/N	MODEL
-1-1-001	748
SOFTWARE VERSION	
4.141	
VOLTAGE	TOTAL TIME
14.1 ^V	74 ^{hrs}
PCB S/N	
-1-0001-001	
Press VIEW for Next Screen	

Accessory Test lists the accessories connected to the system.

System Status Accessory Test Screen

SYSTEM STATUS	
ACCESSORY TEST	
CannonLink	UNCONNECTED
GPS	CONNECTED
InterLink	UNCONNECTED
SmartCast WSL	UNCONNECTED
Speed	UNCONNECTED
Temperature	CONNECTED
WeatherSense	UNCONNECTED

NOTE: The speed accessory will be detected only if the paddlewheel has moved since your Fishing System was powered up.

PC Connect

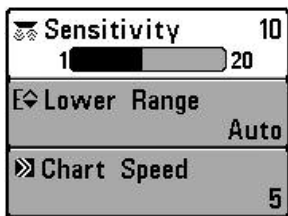
Software updates can be added to your Fishing System. For further information and computer requirements, go to the Humminbird® Web site at humminbird.com or call **1-800-633-1468**.

Supplies: In addition to your Fishing System and personal computer with Internet access, you will need a PC Connect Cable (AS PC2).

***NOTE:** The PC Connect cable requires a separate purchase. For more information, visit our Web site at humminbird.com or contact our Customer Resource Center at 1-800-633-1468.*

Updating Software requires the following top-level steps:

1. Log on to humminbird.com.
 - Register your Fishing System.
 - Download HumminbirdPC™ to your computer.
2. From your Humminbird® online account, download the latest control head software to your computer.
3. Follow the instructions included with the PC Connect cable to connect your Fishing System to your computer.
4. Open HumminbirdPC™ on your computer.
5. Click on the control head tab.
6. Click the Update Firmware button at the top, left of the screen. Follow the on-screen instructions to locate the software file and update the control head.



X-Press™ Menu

X-Press™ Menu

The X-Press™ Menu provides a shortcut to your most frequently-used settings. The options provided on the X-Press™ Menu correspond with the current view. For example, if you are in a Sonar View and press the MENU key once, the Sonar X-Press™ Menu will display.

To use an X-Press™ Menu:

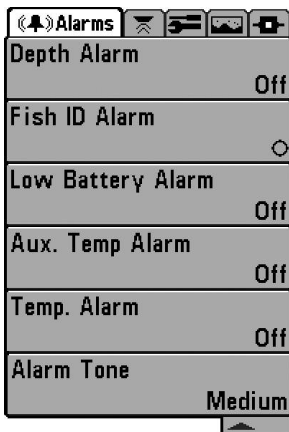
1. In any view, press the MENU key once.
2. Press the UP or DOWN Cursor keys to highlight an X-Press™ Menu option, then use the RIGHT or LEFT Cursor keys to change the menu setting.

NOTE: The X-Press™ Menu will collapse temporarily and the screen will update if it is affected by your menu setting change, which allows you to see the effects of your change immediately.

3. Reactivate the X-Press™ Menu by pressing the UP or DOWN Cursor keys.

Total Screen Update - When you change any menu settings that affect the current view, the view will update immediately (i.e. you don't have to exit the menu to apply the change to the screen).

Menu options can be simplified or expanded by setting the User Mode to Normal or Advanced. See **Main Menu: User Mode** for details.



Main Menu

The Main Menu provides the standard set of menu options, including the settings that are changed less frequently. The Main Menu is organized under the following tabs to help you find a specific menu item quickly: Alarms, Sonar, Setup, Views, and Accessories.

*NOTE: Menu options can be expanded or simplified by setting the User Mode to Advanced or Normal. See **Main Menu: User Mode** for details.*

Main Menu (Normal User Mode)

To use the Main Menu:

1. In any view, press the MENU key twice.
2. Press the RIGHT or LEFT Cursor keys to highlight a menu tab.
3. Press the UP or DOWN Cursor keys to select a specific menu option under that tab.
4. Press the RIGHT or LEFT Cursor keys again to change a menu setting.
 - A down arrow at the bottom of a menu means that you can scroll to additional menu options using the DOWN Cursor key.
 - A right or left arrow on a menu option means that you can use the RIGHT or LEFT Cursor keys to make changes or to see more information.
 - Press the EXIT key to move quickly to the top of the tab.

Total Screen Update - When you change any menu settings that affect the current view, the view will update immediately (i.e. you don't have to exit the menu to apply the change to the screen).

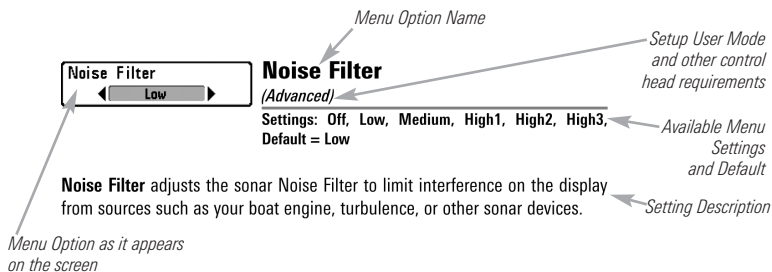
Quick Tips for the Main Menu

- **From any menu option on a menu tab**, press the EXIT key to jump directly to the top of the tab.
- **From the bottom of a menu tab**, press the DOWN Cursor key to jump directly to the top of the tab.
- **From the top of a menu tab**, press the RIGHT or LEFT Cursor keys to scroll to the next tab. You can also jump to the beginning or end of the tab rotation by repeatedly pressing the RIGHT or LEFT Cursor keys.
- If there is a **down arrow at the bottom of a menu tab**, press the DOWN Cursor key to scroll to additional menu options.
- If there is a **right or left arrow on a menu option**, press the RIGHT or LEFT Cursor keys to make setting changes or see more information.
- If you press MENU or EXIT to leave the Main Menu and then **return to the Main Menu at a later time**, the menu will open to the same tab as the last time the Main Menu was displayed.

Note for all Menu Settings

The settings in all menus are adjusted in the same way. Simply use the 4-WAY Cursor Control key to highlight a menu option, and then change the settings or activate the option (see *Main Menu* or *X-Press™ Menu*).

Below is an example of how the menu options are described in this manual. Each description shows the menu option appearance, the available settings, and the specific control head settings required (i.e. advanced user mode, international only, view, navigation, or accessory).



User Mode

(Normal or Advanced)

Menu options can be simplified or expanded by setting your Fishing System User Mode to Normal or Advanced.

Normal Mode is the default setting when you first power on your 700 Series™ Fishing System. Normal mode is provided for users who want greater simplicity and fewer menu choices.

Advanced Mode is provided for users who want the highest level of control over the Fishing System. Several menu settings are added to the Main Menu when the User Mode is changed to Advanced.

To change the User Mode setting:

1. Press the MENU key twice to access the Main Menu.
2. Press the RIGHT Cursor key until the Setup tab is selected.
3. Press the DOWN Cursor key to highlight User Mode on the Setup main menu.
4. Press the RIGHT or LEFT Cursor keys to change the User Mode setting. (Normal, Advanced, Default = Normal)

NOTE: *Any changes made while in Advanced Mode will remain in effect after you switch back to Normal Mode.*

For example, the Select Readouts menu option is available when the User Mode is set to Advanced. If you change the Select Readouts settings while operating in Advanced User mode, the Select Readouts you choose will continue to display on the screen even if you switch back to Normal User Mode.

Sonar	
3D Bottom Style	Shaded with Grid
3D Frame Style	3
2D Beam Select	83kHz
6-Beam Sonar Style	83kHz
Surface Clutter	5
Switchfire	Clear Mode
Fish ID+	Symbol+Depth
Fish Sensitivity	5
Fish ID 3D Reference	Bottom
RTS Window	Wide
Zoom Width	Wide

Sonar Tab, Normal Mode

Sonar	
3D Bottom Style	Shaded with Grid
3D Frame Style	3
2D Beam Select	83kHz
6-Beam Sonar Style	83kHz
Surface Clutter	5
Switchfire	Clear Mode
Fish ID+	Symbol+Depth
Fish Sensitivity	5
Fish ID 3D Reference	Bottom
RTS Window	Wide
Zoom Width	Wide
83kHz Sensitivity	10
Depth Lines	On
Noise Filter	Low
Max Depth	Auto
Water Type	Fresh

Sonar Tab, Advanced Mode

🔍 3D Bottom Zoom	Off
↕ 3D Lower Range	Auto
➤ 3D History	6
🖼️ 2D Sonar Window	Medium
↻ Reset View	
📶 6-Beam Sensitivity	10
📶 Sensitivity	10
↕ Upper Range	0ft
↕ Lower Range	Auto
➤ Chart Speed	8
🖼️ Bottom View	Structure ID
🔍 Zoom Level	2x

Sonar X-Press™ Menu

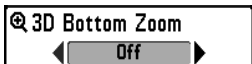
Sonar X-Press™ Menu

(Sonar Views only)

The **Sonar X-Press™ Menu** provides a shortcut to your most frequently-used settings. Press the MENU key once while in any of the Sonar Views to access the Sonar X-Press™ Menu.

NOTE: Menu options will vary with the view (2D, 3D, 6-Beam, 2D Zoom View, or Combo View). See Views for more information.

*NOTE: Menu options can be expanded or simplified by setting the Fishing System User Mode to Advanced or Normal. See **Main Menu: User Mode** for details.*



3D Bottom Zoom

(3D Sonar, 3D/2D Sonar Combo Views only)

Settings: Off, 1.5x, 2x, 2.5x, 3x; Default = Off

3D Bottom Zoom provides a magnified image of the bottom. Use 3D Bottom Zoom to increase the detail of the bottom on the display.



3D Lower Range

(3D Sonar, 3D/2D Sonar Combo, 6-Beam Sonar Views only)

Settings: AUTO, 10 to 240 feet, 3 to 75 meters [International Models Only]; Default = AUTO

3D Lower Range sets the deepest depth range that will be displayed. Automatic is the default setting. When in automatic mode, the lower range will be adjusted by the unit to follow the bottom. Selecting a specific setting locks the depth range into Manual mode.

For example, if you are fishing in 60 feet of water but are only interested in the first 30 feet (surface to a depth of 30 feet) you should set the Lower Depth Range limit to 30. The display will show the 0 to 30 foot range, allowing you to see a more detailed view than you would see if the display went all the way to the bottom.



3D History

(3D Sonar, 3D/2D Sonar Combo Views only)

Settings: Most, 2 - 9, Least; Default = 6

3D History determines the speed at which the sonar information moves across the 3D display, and consequently the amount of history shown.

A faster speed shows less history and is preferred by most anglers; however, the sonar information moves across the display quickly.

A slower speed keeps the information on the display longer, but the bottom becomes compressed and may be difficult to interpret.



2D Sonar Window

(3D/2D Sonar Combo View only)

Settings: Wide, Medium, Narrow, Default = Medium

2D Sonar Window sets the width of the 2-dimensional Sonar Window in the 3D/2D Combo View. See *Views* for more information.



Reset View

(3D Sonar, 3D/2D Sonar Combo Views only)

Settings: Press the RIGHT Cursor key to activate.

Reset View resets the view orientation, 3D Bottom Zoom, and 3D Lower Range. This is helpful when you've changed the perspective on a view and want to return to the original view settings. See *Views* for more information.



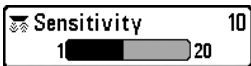
6-Beam Sensitivity

(6-Beam Sonar View only)

Settings: Low = 1, High = 20, Default = 10

6-Beam Sensitivity controls how much detail is shown on the display. Increasing the sensitivity shows more sonar returns from small baitfish and suspended debris in the water; however, the display may become too cluttered.

When operating in very clear water or greater depths, increased sensitivity shows weaker returns that may be of interest. Decreasing the sensitivity eliminates the clutter from the display that is sometimes present in murky or muddy water. If Sensitivity is adjusted too low, the display may not show many sonar returns that could be fish.



Sensitivity

(2D Sonar, 2D Sonar Zoom, 2D Big Digits Views only)

Settings: Low = 1, High = 20, Default = 10

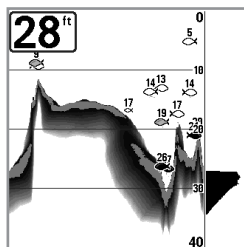
Sensitivity controls how much detail is shown on the display and will adjust the sensitivity of all sonar frequencies.

When operating in very clear water or greater depths, increase the sensitivity to see weaker returns that may be of interest. If the sensitivity is adjusted too high, the display may become too cluttered.

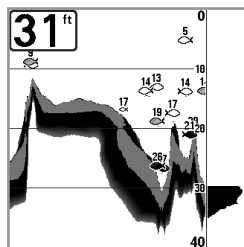
Decrease the sensitivity to eliminate the clutter from the display that is sometimes present in murky or muddy water. If Sensitivity is adjusted too low, the display may not show many sonar returns that could be fish.

NOTE: The Sensitivity setting is a global setting and will adjust the sensitivity of all sonar frequencies.

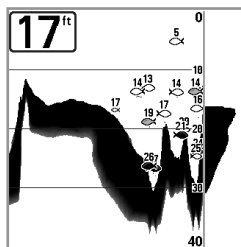
Sensitivity at Low



Sensitivity at Medium



Sensitivity at High





Upper Range

(Advanced: 2D Sonar, 2D Big Digits Views only)

Settings: 0 to 990 ft or 0 to 327 m [International Models only], Default = 0 ft

Upper Range sets the shallowest depth range that will be displayed on the Sonar and Big Digits Views. Upper Range is often used with Lower Range.

For example, if you are only interested in the area between 20 and 50 feet deep, you should set the Upper Depth Range to 20 and the Lower Depth Range to 50. The Sonar View will then show the 30 foot area between 20 and 50 and will not show the surface or the bottom (assuming the bottom is deeper than 50 feet). Greater detail will be shown for the area between 20 and 50 feet.

NOTE: A minimum distance of 10 feet will be maintained between the Upper and Lower Range regardless of the manual settings entered.



Lower Range

(2D Sonar, 2D Sonar Zoom, 2D Big Digits Views only)

Settings: Auto, 10 to 1000 ft, 3 to 330 m [International Models only], Default = Auto

Lower Range sets the deepest depth range that will be displayed by the unit.

Auto: The Lower Range will be adjusted by the unit to follow the bottom automatically. Auto is the default setting.

Manual: You can adjust the Lower Range to lock the unit on a particular depth. "M" will be displayed in the lower right corner of the screen to indicate the unit is in Manual mode. Adjust the Upper and Lower Range together to view a specific depth range, especially when looking for fish or bottom structure.

For example, if you are fishing in 60 feet of water but are only interested in the first 30 feet (surface to a depth of 30 feet), you should set the Lower Depth Range limit to 30. The display will show the 0 to 30 foot range, which allows you to see a more detailed view than you would see if the display went all the way to the bottom.

NOTE: A minimum distance of 10 feet will be maintained between the Upper and Lower Range regardless of the manual settings entered.



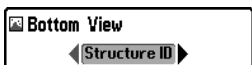
Chart Speed

(2D Sonar, 2D Sonar Zoom, 2D Big Digits Views Only)

Settings: 1-9, Ultra, where 1 = Slow, 9 = Fast, Ultra = Fastest, Default = 5

Chart Speed determines the speed at which the sonar information moves across the display, and consequently the amount of detail shown.

A **faster speed** shows more information and is preferred by most anglers; however, the sonar information moves across the display quickly. A **slower speed** keeps the information on the display longer, but the bottom and fish details become compressed and may be difficult to interpret. Regardless of the Chart Speed setting, the RTS Window™ will update at the maximum rate possible for the depth conditions.

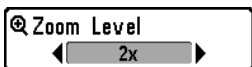


Bottom View

(2D Sonar, 2D Sonar Zoom, 2D Big Digits Views Only)

Settings: Inverse, Structure ID®, WhiteLine™, Bottom Black, Default = Structure ID®

Bottom View selects the method used to represent bottom and structure on the display. See *What's on the Sonar Display: Bottom Presentation* for more information.



Zoom Level

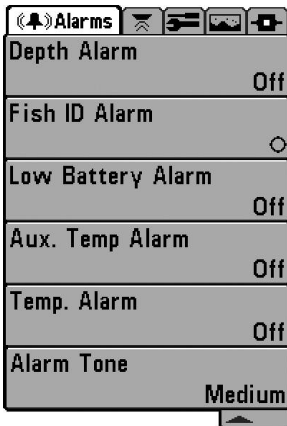
(2D Zoom View only)

Settings: 2x, 4x, 6x, 8x, Default = 2x

Zoom Level sets the magnification level for the Sonar Zoom View. Use Zoom to see more detail in the bottom sonar returns that might be displayed close together, such as those caused by fish suspended close to the bottom or within structure.

Zoom Level is only available on the X-Press™ Menu from the Sonar Zoom View. The Zoom Preview Box shows the section of the bottom that will be magnified.

NOTE: The Zoom Preview Box tracks the bottom and cannot be moved.

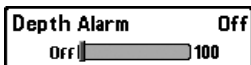


Alarms Menu

Alarms Menu Tab

From any view, press the MENU key twice to access the Main Menu. The Alarms tab will be the default selection.

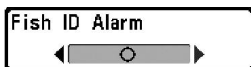
NOTE: When an alarm is triggered, you can silence it by pressing any key. The alarm will be silenced, and will not be triggered again until a new instance of the alarm condition is detected.



Depth Alarm

Settings: Off, 1 to 100 ft, or 0.5 to 30 m [International Models only], Default = Off

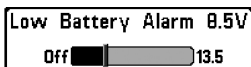
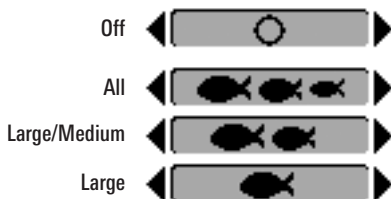
Depth Alarm sounds when the depth becomes equal to or less than the menu setting.



Fish ID Alarm

Settings: Off, All, Large/Medium, Large, Default = Off

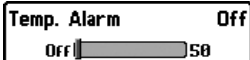
Fish ID Alarm sounds when the Fishing System detects fish that correspond to the alarm setting. Fish ID Alarm will only sound if Fish ID+™ is on. For example, if you've set the Fish ID Alarm to sound for Large fish only, the Fish ID alarm will sound when a large-sized fish is detected.



Low Battery Alarm

Settings: Off, 8.5V - 13.5V, Default = Off

Low Battery Alarm sounds when the input battery voltage is equal to or less than the menu setting. The battery alarm will only sound for the battery that is connected to the Fishing System. The Low Battery Alarm should be set to warn you when the battery voltage drops below the safety margin that you have determined.



Temp. Alarm

Settings: Off, 33-120 Fahrenheit, 0-50 Celsius
[International Models only]; Default = Off

Temp. Alarm sounds when the water temperature detected by the Fishing System reaches the Temp. Alarm setting, which is either set in degrees Fahrenheit or Celsius [*International Models only*].

For example, if the Temp. Alarm is set to 58 degrees Fahrenheit, and the water temperature falls from 60 degrees to 58 degrees, the Temp. Alarm will sound. Similarly, if the water temperature rises from 56 degrees to 58 degrees, the Temp. Alarm will also sound.



Alarm Tone

Settings: High, Medium, Low, Default = Medium

Alarm Tone selects the pitch of the alarm sound. A brief tone will be produced as you adjust the Alarm Tone so that you can select the tone that you can hear best.



Sonar Menu Tab

3D Bottom Style Shaded with Grid	
3D Frame Style	3
2D Beam Select	83kHz
6-Beam Sonar Style	83kHz
Surface Clutter	5
Switchfire	Clear Mode
Fish ID+	Symbol+Depth
Fish Sensitivity	5
Fish ID 3D Reference	Bottom
RTS Window	Wide
Zoom Width	Wide
83kHz Sensitivity	10
Depth Lines	On
Noise Filter	Low
Max Depth	Auto
Water Type	Fresh

Press the MENU key twice to access the Main Menu and then press the RIGHT Cursor key until the Sonar tab is selected.

NOTE: Menu options can be expanded or simplified by setting the User Mode to Advanced or Normal. See Main Menu: User Mode for details.

Sonar Menu, Advanced



3D Bottom Style

(3D Sonar Views only)

Settings: Grid Only, Shaded with Grid, Shaded, Default = Shaded with Grid

3D Bottom Style selects the bottom style used in the 3D Sonar View.

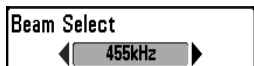


3D Frame Style

(3D Sonar Views only)

Settings: Simple, 2, 3, 4, Complex, Default = 3

3D Frame Style selects the frame style used in the 3D Sonar View.



2D Beam Select

Settings: 455 kHz, 83 kHz; Default = 455 kHz

Beam Select or 2D Beam Select sets which sonar returns from the transducer will be displayed on the screen.

When Beam Select is set to 455 kHz, the returns from the 455 kHz narrow beams will be displayed in all views, and the maximum depth capability of your unit will be 240 ft (75 m).

When the depth is greater than 240 ft (75 m), Beam Select should be set to 83 kHz. The unit will continue to acquire sonar returns below 240 ft and will be displayed in the 2D Sonar View.

NOTE: *It is important to re-set Beam Select to 455 kHz when returning to water shallower than 240 ft (75 m) for maximum performance in the 3D views.*

Surface Clutter

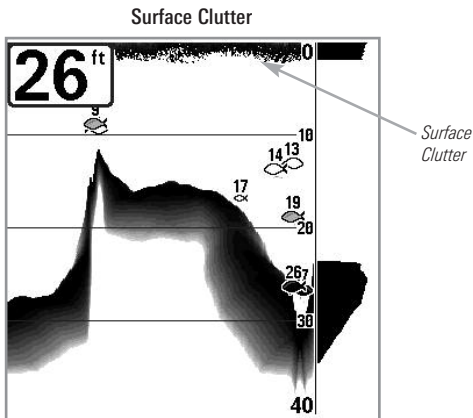
5

Surface Clutter

1 10

Settings: Low = 1 to High = 10, Default = 5

Surface Clutter adjusts the filter that removes surface clutter noise caused by algae and aeration. The lower the setting, the less surface clutter will be displayed.



SwitchFire

Clear Mode

SwitchFire™

Settings: Max Mode, Clear Mode; Default = Clear Mode

SwitchFire™ controls how the sonar returns are displayed in the Sonar Views.

Choose **Max Mode** to see only raw sonar returns on the display. When Max Mode is selected, you will see the maximum sonar information available within the transducer beam, so more fish arches and better jig tracking are shown.

Choose **Clear Mode** to see less clutter and more fish size accuracy on the display. When Clear Mode is selected, the clutter is filtered, and sonar returns are interpreted to provide more details about the objects within the transducer beam, regardless of their location. In other words, a large arch on the display means a large fish has been detected.

Fish ID+

On

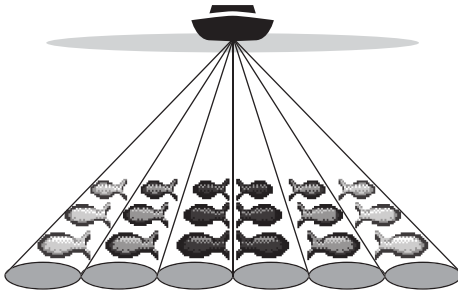
Fish ID+™

Settings: Off, 3D Markers, Symbol Only, Symbol + Depth,
Default = Symbol + Depth

Fish ID+™ uses advanced signal processing to interpret sonar returns and will display a Fish Symbol when very selective requirements are met. When a fish is detected, a fish icon and its depth are displayed above the return that has been classified as being a fish.

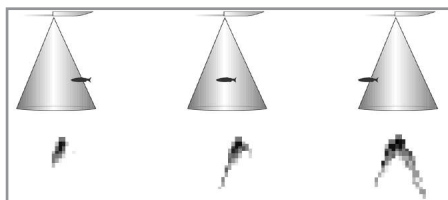
Three different fish size icons represent the intensity of the sonar return and provide an indicator of relative fish size. There is also a unique symbol set associated with each of the six beams, for a total of 18 possible fish symbols which can be displayed.

The following graphic illustrates the different Fish ID+™ symbols and shows the beams with which they are associated. For instance, a hollow fish facing left indicates it was detected in the far left beam and a hollow fish facing right indicates it was detected in the far right beam.



When **Fish ID+™** is turned off, the Fishing System shows only the raw sonar returns on the display. These returns will often result in “arches” forming on the display, indicating potential targets. Due to the transducer beam angle, the distance to a fish decreases as the fish moves into the beam, and then increases as it moves out again, creating a Fish Arch when this distance change is shown on the display. Boat speed, chart speed, and the position of the fish within the sonar beam greatly affect the shape of the arch.

Transducer Cone and Fish Arches



Fish ID Sensitivity

Settings: Low = 1, High = 10, Default = 5

Fish ID Sensitivity adjusts the threshold of the Fish ID+™ detection algorithms. Selecting a higher setting allows weaker returns to be displayed as fish. This is useful for identifying smaller fish species or baitfish. Selecting a lower setting displays fewer fish from weak sonar returns. This is helpful when seeking larger species of fish.

Fish ID Sensitivity is used in conjunction with Fish ID+™. **Fish ID+™ must be On** for Fish ID Sensitivity to affect the ability of the Fishing System to identify sonar returns as fish.

Fish ID 3D Reference
 Bottom
Fish ID 3D Reference*(3D Sonar Views only)*

Settings: Surface, Both, Bottom, Default = Bottom

Fish ID 3D Reference selects the reference line style used in the 3D Sonar View. Selecting Surface draws a line from the fish icon to the surface plane. Bottom draws a line from the fish icon to the bottom contour; and selecting Both draws both lines.

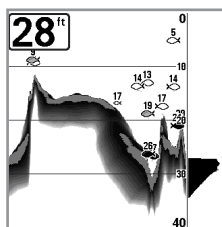
RTS Window
 Narrow
Real Time Sonar (RTS™) Window*(2D Sonar View only)*

Settings: Wide, Narrow, Off, Default = Wide

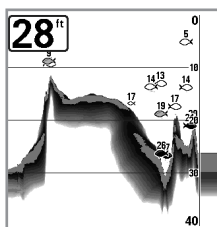
RTS Window™ sets the RTS Window™ to either Wide or Narrow, or turns it off in the 2D Sonar View. The RTS Window™ always updates at the fastest rate possible and only displays returns that are within the transducer beam. See *What's on the 2D Sonar Display* for more information.

NOTE: The Wide RTS Window™ does not use grayscale.

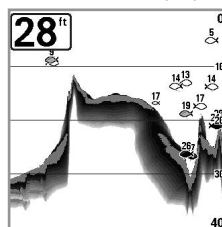
RTS Window™ (Wide)



RTS Window™ (Narrow)

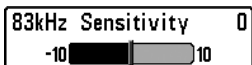


RTS Window™ (Off)

**Zoom Width**
 Wide
Zoom Width*(2D Zoom View only)*

Settings: Narrow, Medium, Wide, Default = Wide

Zoom Width adjusts the width of the zoomed view on the 2D Zoom View, which is on the left side of the display. See *Views: Sonar Zoom View* for more information.

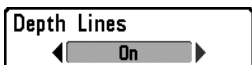


83 kHz Sensitivity

(Advanced, 2D Sonar Views only)

Settings: -10 to +10, Default = 0

83 kHz Sensitivity changes the sensitivity of the 83 kHz beam. Increasing the 83 kHz Sensitivity will display additional weak returns, and decreasing the 83 kHz Sensitivity will display fewer weak returns.

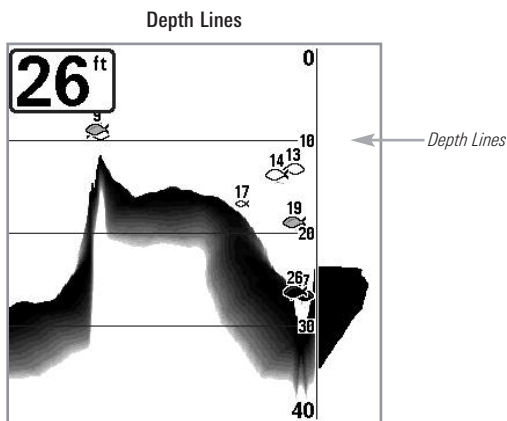


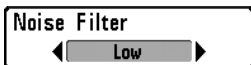
Depth Lines

(Advanced, 2D Sonar Views only)

Settings: Off, On, Default = On

Depth Lines divide the display into four equal sections which are separated by three horizontal depth lines. The depth of each line is displayed along the depth scale. You can turn Depth Lines On or Off.





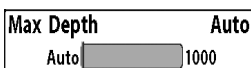
Noise Filter

(Advanced)

Settings: Off, Low, Medium, High 1, High 2, High 3,
Default = Low

Noise Filter adjusts the sonar Noise Filter to limit interference on the display from sources such as your boat engine, turbulence, or other sonar devices.

The Off setting removes all filtering. Low, Medium, High 1, High 2, and High 3 settings add progressive filtering of the sonar returns. High 1, High 2, and High 3 are useful when there is excessive trolling motor noise, but in some deep water situations, the High settings may actually hinder your unit's ability to find the bottom.



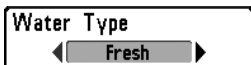
Max Depth

(Advanced, 2D Sonar Views only)

Settings: Auto, 10 to 1000 ft, 3 to 330 m [International Models only], Default = Auto

Max Depth controls the maximum depth of operation. When Max Depth is set to Auto, the Fishing System will acquire bottom readings as needed (within the capacity of the unit). When Max Depth is set to match your fishing maximum depth, your Fishing System will not attempt to acquire sonar data below that depth, so more detail will be shown on the screen.

NOTE: If the bottom is deeper than the Max Depth setting, the digital depth readout will flash, indicating that the Fishing System cannot locate the bottom.








Water Type

(Advanced)

Settings: Fresh, Salt (shallow), Salt (deep), Default = Fresh

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. In salt water, what would be considered a large fish might be 2 to 10 times bigger than a large fish in fresh water (depending on the type of fish you are seeking). The salt water setting allows for a greater range in fish size adjustment to account for this difference.

    	
Units - Depth	Feet
Units - Temp	°F
User Mode	Advanced
Language	English
Restore Defaults	
Select Readouts	
Depth Offset	0.0ft
Temp. Offset	0.0°
Digits Format	Small tenths
NMEA Output	Off
Demonstration	Visible
Sound Control	All Sounds

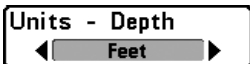
Setup Menu Tab

Setup Menu Tab

From any view, press the MENU key twice to access the tabbed Main Menu, then press the RIGHT Cursor key until the Setup tab is selected.

NOTE: Menu options will vary depending on which accessories are attached to the unit.

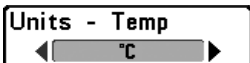
*NOTE: Menu options can be expanded or simplified by setting the User Mode to Advanced or Normal. See **Main Menu: User Mode** for details.*



Units - Depth

Settings: Domestic Models: Feet, Fathoms; International Models: Meters; Default = Feet/Meters

Units - Depth selects the units of measure for all depth-related readouts.



Units - Temp

(International only)

Settings: Celsius, Fahrenheit; Default = Celsius

Units - Temp selects the units of measure for all temperature-related readouts. *[International Models only].*

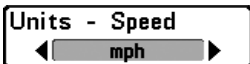


Units - Distance

(with Temp/Speed or GPS Receiver)

Settings: Domestic Models: Statute Miles, Nautical Miles, Default = Statute Miles; International Models: Meters/Kilometers, Meters/Nautical Miles, Feet/Statute Miles, Feet/Nautical Miles, Default = Meters/Kilometers

Units - Distance selects the units of measure for all distance-related readouts, and will appear in the menu if a Temp/Speed Accessory is connected and the paddlewheel has moved at least once or if a GPS Receiver is connected.

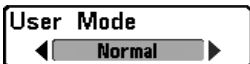


Units - Speed

(with Temp/Speed or GPS Receiver)

Settings: Domestic Models: mph, kts; International Models: kph; Default = mph/kph

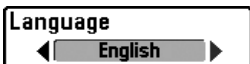
Units - Speed selects the units of measure for all speed-related readouts, and will appear in the menu if a Temp/Speed Accessory is connected and the paddlewheel has moved at least once or if a GPS Receiver is connected.



User Mode

Settings: Normal, Advanced, Default = Normal

User Mode sets the menu system to Normal or Advanced. When set to Normal (default setting), the basic set of menu options are shown in the menu system. When set to Advanced, additional menu options are added to the menu system. See *Main Menu: User Mode* for details.

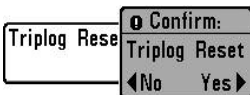


Language

(*International only*)

Settings: Various, Default = English

Language selects the display language for menus. [*International Models only*].



Triplog Reset

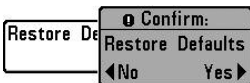
(*with Temp/Speed or GPS Receiver*)

Settings: Follow screen instructions to activate.

Triplog Reset resets the Triplog to zero, and will appear in the menu if a Temp/Speed Accessory is connected and the paddwheel has moved at least once or if a GPS Receiver is connected.

The Triplog provides the following information: timer for elapsed time, distance traveled since last reset, and average speed.

NOTE: See Setup Menu Tab: Select Readouts and Views to find out how to display Triplog information on the screen.



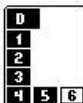
Restore Defaults

Settings: Follow screen instructions to activate.

Use this menu choice with caution!

Restore Defaults resets ALL menu settings to their factory defaults.

Select Readouts	
Readout 1	Temperature
Readout 2	Off
Readout 3	Off
Readout 4	Temperature
Readout 5	Off
Readout 6	Off



The readout position on the screen is shown in the Select Readouts Window.

Select Readouts

Select Readouts

(Advanced, 2D Sonar and 3D Sonar Views only)

Settings: Various, Default = Off

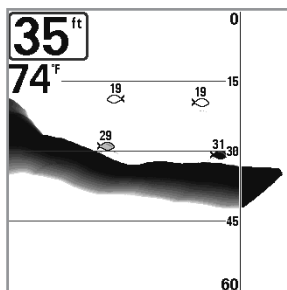
Select Readouts sets the information to display in each of the 6 fixed-position data windows arranged around the left and bottom edges of the 2D or 3D Sonar Views. To leave the data window blank, select Off. See *Views* to change the Select Readouts.

Data windows can display readouts from supported accessories such as Temp/Speed. Each data window can be empty or contain one of the following information categories:

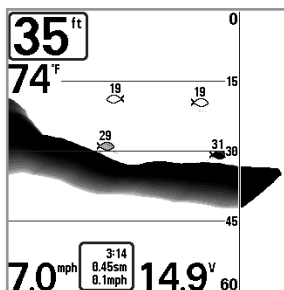
- Speed
- Temperature
- Triplog
- Voltage

NOTE: The availability of the digital readout information corresponds with the selected view and attached accessory.

Default Sonar View



Sonar View with Select Readouts





Depth Offset

(Advanced)

Settings: -10.0 to +10.0 ft or -3.0 to 3.0 m [International Models only], Default = 0.0 ft

Depth Offset will adjust the digital depth readout to indicate depth from the waterline or boat's keel. Enter a positive vertical measurement from the transducer to the waterline to read the depth from the waterline. Enter a negative vertical measurement from the transducer to keel to read the depth from the keel.

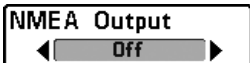


Digits Format

(Advanced)

Settings: Small tenths, Large tenths, No tenths, Default = Small tenths

Digits Format adds a tenth decimal place to readouts such as Temperature and Depth. The format can be changed to small format, large format or no format.



NMEA Output

(Advanced)

Settings: Off, On; Default = Off

NMEA Output turns the NMEA* output on or off. NMEA Output should be turned On if you connect the NMEA Output wires of the GPS Receiver cable to another NMEA-compatible device, such as an autopilot.

**NMEA 0183 is a National Marine Electronics Association standard for data communication.*

The following NMEA sentences are output:

- DPT - Depth
- MTW - Water Temperature
- GLL - Lat/Lon Position
- GGA - GPS Fix Data
- RMC - Recommended Minimum Specific GNSS Data
- VTG - Course Over Ground and Ground Speed
- ZDA - Time and Date

When navigating, the following NMEA sentences are also output:

- APB - Autopilot Sentence B
- BWR - Bearing and Distance to Waypoint
- RMB - Recommended Minimum Navigation Info

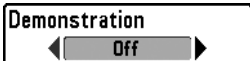


Speed Calibration

(Advanced, with Temp/Speed only)

Settings: -20% to +20%, Default = 0%

Speed Calibration will adjust the speed readout by the percentage entered, and will appear in the menu if a Temp/Speed Accessory is connected and the paddlewheel has moved at least once.



Demonstration

Settings: Off, Visible, Default = Visible

Demonstration controls whether the Demonstration Mode is visible or off. The Demonstration Mode appears on the screen if you don't press any keys during the warning screen at power up. Menu settings cannot be saved in Demonstration (see *Power On* and *Start-Up Options Menu*).



Sound Control

Settings: No Sounds, Alarms Only, All Sounds, Default = All Sounds

Sound Control allows you to set when the control head will beep or sound because of key presses and/or alarms.



Views Menu Tab

2D Sonar View	Visible
2D Zoom View	Visible
2D Big Digits View	Visible
3D/2D Combo View	Visible
3D Sonar View	Visible
6-Beam Sonar View	Visible
Self Test	Hidden
Accessory Test	Hidden

Views Menu

From any view, press the MENU key twice to access the tabbed Main Menu, then press the RIGHT Cursor key until the Views tab is selected.

This menu tab allows you to set the available views to either hidden or visible in the view rotation. The view will be removed from the view rotation if it is set to Hidden and will be displayed in the view rotation if it is set to Visible.

NOTE: See Views for more information.

Accessories Menu Tab

From any view, press the MENU key twice to access the tabbed Main Menu, then press the RIGHT cursor key until the Accessories tab is selected.

If an accessory is attached, additional menu choices that support the accessory will be added automatically. See your accessory's operations manual for detailed information.



Accessories Menu Tab
(no accessories attached)



Accessories Menu Tab
(with accessories attached)

NOTE: Accessories to enable WeatherSense® and the SmartCast® Wireless Sonar Link require separate purchases. You can visit our Web site at humminbird.com or contact our Customer Resource Center at **1-800-633-1468** for additional details.

Troubleshooting

Before contacting the Humminbird® Customer Resource Center, please read the following section. Taking the time to review these troubleshooting guidelines may allow you to solve a performance problem yourself, and therefore avoid sending your unit back for repair.

Fishing System Doesn't Power Up

If your Fishing System doesn't power up, use the Installation Guide that also comes with it for specific confirmation details, making sure that:

- The power cable is properly connected to the Fishing System control head.
- The power cable is wired correctly, with red to positive battery terminal and black to negative terminal or ground.
- The fuse is operational.
- The battery voltage of the power connector is at least 10 Volts.

Correct any known problems, including removing corrosion from the battery terminals or wiring, or actually replacing the battery if necessary.

Fishing System Defaults to Simulator with a Transducer Attached

A connected and functioning transducer will cause the newly-started Fishing System to go into Normal operating mode automatically. If, when you power up the Fishing System, it goes into Simulator mode automatically, even though a transducer is already connected, this means that the control head is not detecting the transducer. Perform the following troubleshooting tasks:

- Using the Installation Guide that also comes with your Fishing System, check to make sure that the transducer cable is securely connected to the Fishing System. Reconnect if necessary, and power up the Fishing System again to see if this fixes the problem.
- Replace the non-functioning transducer with a known good transducer if available and power up the control head again.
- Check the transducer cable. Replace the transducer if the cable is damaged or corroded.

Display Problems

There are several main conditions or sources of possible interference that may cause problems with the quality of the information displayed on the control head. Look in the following table for some symptoms of display problems and possible solutions:

Problem	Possible Cause
The control head loses power at high speeds.	If the power output of your boat's engine is unregulated, the control head may be protecting itself using its over-voltage protection feature. Make sure the input voltage does not exceed 20 Volts.
When the boat moves at higher speeds, the bottom disappears or suddenly weakens, or the display contains gaps.	<p>The transducer position may need to be adjusted. A mix of air and water flowing around the transducer (cavitation) may be interfering with the interpretation of sonar data. See your Installation Guide for suggestions on adjusting the transducer position.</p> <p>Electrical noise from the boat's engine may be interfering with sonar reception. See <i>Finding the Cause of Noise</i> for more information.</p>
There are no fish detected, even when you know they are in the water under the boat, or sonar readings seem weak or faulty.	<p>Sonar readings may be affected if the transducer is not positioned correctly (i.e. mounted at an angle, not straight down), or there is some kind of mechanical interference, either because it is mounted inside a hull that is too thick for proper sonar transmission, the bond between the transducer and the hull is not airtight, or because the transducer is dirty. Check with your Installation Guide for guidance on repositioning the transducer, and make sure the transducer is clean.</p> <p>Low battery voltage may be affecting the power of signal transmission.</p> <p>Electrical noise from the boat's engine may be interfering with sonar reception. See <i>Finding the Cause of Noise</i> for more information.</p>

Finding the Cause of Noise

Electrical noise usually affects the display with many black dots at high speeds, and high sensitivity readings. One or more of the following sources can cause noise or interference:

Possible Source of Noise	Isolation
Other electronic devices	Turn off any nearby electronic devices to see if the problem goes away, then turn them on one at a time to see if the noise re-appears.
The boat's engine	To determine whether the boat's engine is the source of the noise, increase the RPMs while the boat is in neutral and stationary to see if the noise increases proportionately; if noise appears when you rev the engine, the problem could be the spark plugs, alternator, or tachometer wiring. Replace the spark plugs with resistor plugs, install an alternator filter, or route the control head power and transducer cables away from the engine wiring.
Cavitation from the boat's propeller	Turbulence created by the propeller can cause noise; make sure the transducer is mounted at least 15" (38 cm) from the propeller, and that the water flows smoothly over the face of the transducer at all times.

700 Series™ Fishing System Accessories

Accessories customize the Humminbird® Fishing System to your needs and enable you to stay on the edge of new technology. When an accessory is connected to the Humminbird® Fishing System, additional menus and readouts are added automatically to the Main Menu System. Accessories available today that are supported by your Humminbird® include:

Temperature/Speed: Simply plugs into the Humminbird® control head and provides real time speed and temperature readouts, as well as a valuable Triplog function.

***NOTE:** If an external Temperature/Speed (TS-W) or Temperature (TG-W) accessory is connected AND a transducer with temperature built in is connected at the same time, the TS-W or TG-W accessory will override the temperature built into the transducer.*

GPS Receivers: Purchase and connect the GPS Receiver to your Fishing System to access advanced FishingGPS®, trackplotter and navigation capabilities built-in to your Fishing System.

GPS Connection Cable: Purchase the GPS Connection Cable in order to connect a handheld or other NMEA* GPS-compatible device that you may already own to your Fishing System.

Wireless Sonar Link (WSL): Purchase the Wireless Sonar Link (WSL) accessory to receive remote sonar signals from a SmartCast® Remote Sonar Sensor (RSS). Radio signals from the RSS are received by the WSL and transmitted over the Accessory Bus to the Fishing System.

PC Connect Cable: Purchase the PC Connect Cable to connect the Fishing System to a PC in order to upload product software updates and new features obtained from humminbird.com. This accessory requires the MSWindows-compatible HumminbirdPC™ software downloaded from our website to your PC in order to communicate with the Fishing System.

***NOTE:** Each accessory requires a separate purchase. Visit our Web site at humminbird.com or contact our Customer Resource Center at 1-800-633-1468 for additional details.*

Specifications

Depth Capability	2D: 1000 ft (330 m) 3D: 240 ft (75 m)
Power Output	1000 Watts (RMS), 8000 Watts (Peak to Peak)
Operating Frequency	2D: 455 kHz, 83 kHz 3D: 455 kHz
Area of Coverage	3D: 53° @ -10 dB in 455 kHz 2D: 60° @ -10 dB in 83 kHz 16° @ -10 dB in 455 kHz
Target Separation	2 1/2 Inches (63.5 mm)
Power Requirement	10-20 VDC
LCD	640 V x 320 H
Transducer	SHS 7W
Transducer Cable Length	20 ft (6 m)
Current Draw	615 mA
IPX Rating	IP67 Waterproof/Submersible @ 1 m for 30 minutes and dust tight

NOTE: Humminbird® verifies maximum stated depth in saltwater conditions, but actual depth performance may vary due to transducer installation, water type, thermal layers, bottom composition and slope.

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

Glossary

Sonar Terms:

Beam (Sonar Beam) The wide, cone-shaped projection of sound waves formed as sound travels underwater. See *Cone Angle*.

Bottom Contour The profile of the bottom graphed to the display as the depth changes.

Bottom Hardness The density (or composition) of the bottom. Varying levels of hardness can be determined by interpreting the “thickness” of the main sonar return. Hard returns appear thin and black, softer returns appear thicker and less black. It is important to note that a sonar return from a sloping bottom can have the appearance of a softer bottom.

Cavitation The effect of air bubbles created as the propeller rotates and the boat moves through the water.

Cone Angle The angular measurement of the sonar beam at a specific dB down point (i.e. -10 dB). See *dB Down Point*.

Dead Zone The area of the sonar beam that receives the sonar signal after the main bottom return. Fish and other objects close to the bottom that fall within the dead zone will probably not be visible in the sonar beam. Precision sonar beams, such as the Humminbird® 20° beam, have a smaller dead zone than wider sonar beams.

Decibel The measurement for sound pressure level, or “intensity” of the sonar return. See *dB Down Point*.

dB Down Point The standard decibel level at which the sonar cone angle is measured, and is written as “@ -10 dB” or “@ -3 dB”. Measurements at smaller down points (bigger negative numbers) indicate that the less intensive sonar signals are being used for the measurement.

Display, FSTN (Film Super-Twist Nematic) FSTN is a monochrome display technology characterized by black, high-contrast pixels. All monochrome fixed mount Humminbird® products use FSTN technology.

Frequency A measure of the number of sound wave cycles per second of a sound impulse transmitted underwater. A typical frequency for fishfinders is 200 kHz, which offers a good balance of performance under many conditions. Lower frequencies, such as 50 kHz, are capable of penetrating to greater depths, but with less resolution. Higher frequencies, such as 455 kHz, offer greater resolution, but are limited in depth performance. Humminbird® uses a variety of frequencies that are optimized for specific applications.

Grayscale The use of varying shades of gray to represent the strength of the sonar signal on the display. Traditionally, the strongest sonar signals are represented in black, and progressively weaker signals are represented in progressively lighter shades of gray.

Noise The unintentional, external sound waves that interfere with the optimal operation of sonar. Noise appears as random “dots” on the display and is caused by a variety of sources. Many Humminbird® products have a Noise Filter menu setting that allows the user to clear the screen of noise that is difficult to eliminate (also, see *Troubleshooting*).

Pixels The “picture elements”, or small square blocks, that make up the image on the LCD. Measured as a vertical by horizontal number (i.e. 640V x 320H), this key specification typically indicates the quality of resolution. In fishfinders, the total resolution (vertical multiplied by horizontal) is often less important than the “Vertical Pixel” resolution because a greater number of vertical pixels provide finer resolution of targets detected by sonar. Sonar information on the horizontal axis can vary greatly, depending on boat speed and the Chart Speed setting.

Power Output The amount of sound energy emitted into the water by the transducer’s transmitter. Power output is measured using either RMS (Root Mean Square) or P-T-P (Peak-to-Peak) measurement systems. Either method is acceptable, but it is important when comparing power outputs, to make sure that the same measurement system is being used for both outputs, because P-T-P numbers are 8 times higher than RMS numbers. Greater power output allows the sonar signal to penetrate through weeds and thermoclines, reach deeper depths and operate more effectively in noisy environments, such as when the boat is running at high speed.

Pulse Width (Pulse Length) The length of time that a sonar sound burst is transmitted into the water. Shorter pulse widths provide better target separation, but cannot travel to great depths. Longer pulse widths provide better depth penetration, but result in poorer target separation. Humminbird® varies pulse width based on depth to optimize both target separation and depth performance. See *Target Separation*.

Second Return Describes the appearance of a second sonar return below the primary sonar return (bottom contour) at exactly twice the true depth. The second return is caused by the same sonar energy bouncing off the bottom once, rebounding to the water surface and then traveling back down to the bottom to be reflected again. Second returns are more common in shallow water and over hard bottoms; it is possible to see a third sonar return under some circumstances. The second return provides useful information to help determine bottom hardness, as areas with harder bottoms will generally create a second return. The second return can be used as a guide to set Sensitivity when in shallower water.

SONAR (SOUND and NAVIGATION RANGING) Sonar technology uses precision sound bursts transmitted underwater to determine the distance and other attributes of objects in the water. Distance can be determined because the speed of sound in water is constant, and the time for the signal to return is measured. Sound also travels very quickly underwater, making sonar a responsive, cost-effective tool. Sonar is the basic technology behind all recreational and commercial fishfinding and depthfinding devices.

Sonar Update Rate The number of times per second that the transducer's transmitter/receiver sends and receives sonar signals. A very fast sonar update rate collects more information and provides a more detailed image of the bottom, fish, and structure. Many Humminbird® units operate at up to 40 times per second when in single frequency operation. Due to the limitation of the speed of sound in water, the update rate begins to slow as depth increases to deeper than 50 feet. In very shallow water (less than 10 feet), however, update rates as much as 60 times per second can be achieved.

Speed The rate at which the boat moves through the water. Boat speed can be measured as Speed Over Ground or Speed Through Water. Speed Over Ground is provided by GPS, and is the measurement of the boat's progress across a given distance. Speed Through Water is provided by a speed paddlewheel, and is the measurement of the flow past the boat, which may vary depending on current speed and direction. Speed Through Water is most critical for anglers using downriggers, as it impacts the running depth of the down riggers. Speed Over Ground is optimal for navigation, as accurate destination times can be derived from this measurement. Humminbird® products allow for input and display of both sources.

Structure A general term for objects on the bottom that present a discontinuity and are a likely attractor for fish. This includes bottom contour features (drop-offs, humps, and holes), standing structure (stumps, timbers, brush piles), and a wide range of other potential objects (sunken boats, reefs).

Surface Clutter A phenomenon where sonar returns are reflected off of tiny objects near the surface of the water, including algae and even air bubbles. Typically, saltwater environments have significantly greater surface clutter than freshwater due to continuous wind and wave action that causes aeration at the surface.

Target Separation The measurement of minimum distance that a fishfinder needs to be able to recognize two very close objects as two distinct targets (i.e. two fish hanging very close, or a fish hanging very close to structure). Humminbird® fishfinders provide a very good 2 1/2 inches of target separation in shallower than 100 feet of depth. Target separation decreases as depth increases due to the need for longer Pulse Width to achieve greater depth. See *Pulse Width*.

Thermoclines Water layer(s) of distinctly different temperatures that create a sonar reflection due to the density of the differing water temperatures. Typically a thermocline will appear as a continuous band across the display at some distance above the bottom contour. Thermoclines are of interest to anglers because fish will suspend above or below the thermocline as they seek the optimum temperature and oxygen levels.

Time Variable Gain (TVG) A processing step applied to the sonar return to “normalize” the data so that objects of equal size (i.e. fish) appear to be the same size, even if they are separated by a good distance.

Transducer The transducer is part of the sonar system, which mounts on the boat and is in contact with the water, that converts the electrical energy from the transmitter into sound energy, and that forms the sonar beam in turn. Internally, the transducer consists of one or more piezo electric disks that expand by very minute amounts to create the sound wave. This element also works in reverse, converting the returned sound energy back into an electrical signal that the receiver interprets. See *SONAR*.

Zoom A feature that focuses on a smaller area of the bottom to provide enhanced resolution. With enhanced resolution, the angler can more easily see fish hanging in structure or multiple fish hanging close together.

Zoom, Bottom Lock Bottom Lock Zoom is a feature that focuses on a smaller area just above the bottom to provide enhanced resolution. Unlike regular zoom, it continuously graphs the bottom at a constant point on the display regardless of changes in depth. This “flattens” out the bottom contour, but is effective at showing fish on or near the bottom, and is preferred by many saltwater anglers.

Contact Humminbird®

Contact the Humminbird® Customer Resource Center
in any of the following ways:

By Telephone:

(Monday - Friday 8:00 a.m. to 4:30 p.m. Central Standard Time):

1-800-633-1468

By e-mail:

(typically we respond to your e-mail within three business days):

service@humminbird.com

For direct shipping, our address is:

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