778c HD and 778c HD XD
Operations Manual

HUMMINBIRD®

700 series™

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 full benefit from all the features and applications of your Humminbird® product.

Contact our Customer Resource Center at **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.*

WARNING! *Humminbird® is not responsible for the loss of data files (waypoints, routes, tracks, etc.) that may occur due to direct or indirect damage to the unit's hardware or software. It is important to back up your control head's data files periodically. Data files should also be saved to your PC before restoring the unit's defaults or updating the software. See the following sections of your Humminbird® manual: PC Connect. Also, contact our Customer Resource Center with any questions.*

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.

ATTENTION INTERNATIONAL CUSTOMERS: Products sold in the U.S. are not intended for use in the international market. Humminbird® international units provide international features and are designed to meet country and regional regulations. Languages, maps, time zones, units of measurement, and warranty are examples of features that are customized for Humminbird® international units purchased through our authorized international distributors.

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

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.

*NOTE: To purchase accessories for your fishfinder, visit our Web site at **humminbird.com** or contact our Customer Resource Center at **1-800-633-1468**.*

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*NOTE: Entries in this Table of Contents which list (International only) are only available on products sold outside of the U.S. by our authorized international distributors. To obtain a list of authorized international distributors, please visit our Web site at **humminbird.com** or contact our Customer Resource Center at **(334) 687-6613**.*

*NOTE: Entries in this Table of Contents which list (with Temp/Speed only) or (with GPS Receiver 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: Contact our Customer Resource Center to determine which accessory transducers are compatible with your Humminbird® Fishing System, or visit our Web site at **humminbird.com**.*

Power On

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

778c HD Title Screen

Press MENU for Startup Options
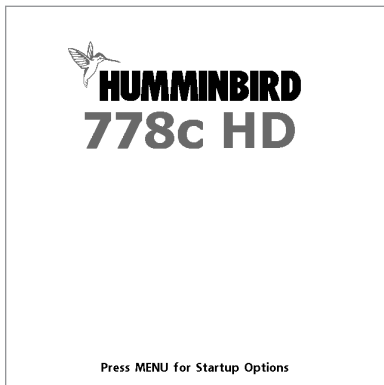
1. Press the ⓪ POWER/LIGHT key.

2. When the Title screen is displayed, press the MENU key to access the Start-Up Options Menu.

3. If a functioning transducer is connected, Normal operation will be selected automatically, and your Fishing System can be used on the water. See *Start-Up Options Menu* for more information.

   • 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.

   • You can also select **Simulator** to learn how to use your control head and save settings in advance for later use.

4. **Quick Setup:** If this is the first time the unit has been powered on (after installation or after restoring defaults), the Quick Setup dialog box will display on the screen. Use the 4-WAY Cursor Control key to set the Language, Water Type, and Max Depth. Press the EXIT key to close the dialog box.

   *NOTE: The Quick Setup settings can be changed at any time. See each menu option in **The Menu System** for details.*

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.

Real Time Sonar

Instant Display
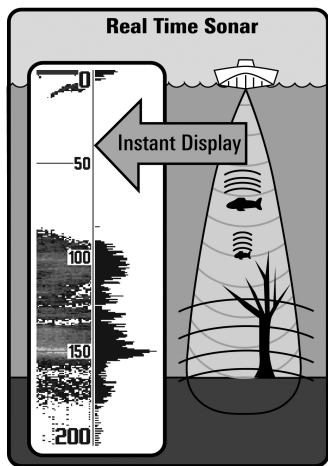
SONAR is an acronym for SOund and NAvigation Ranging. Sonar utilizes precision sound pulses or "pings" which are emitted into the water in a teardrop-shaped beam.

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.
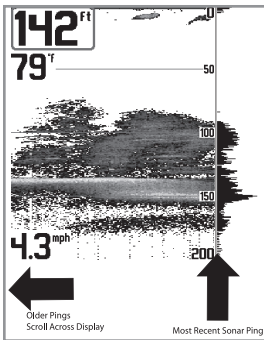
When all the echoes are viewed side by side, an easy to interpret "graph" of the bottom, fish, and structure appears.
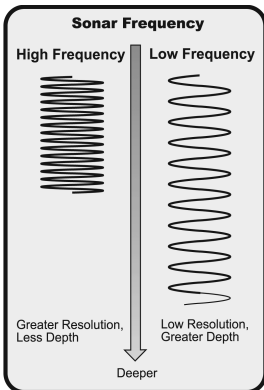
The sound pulses are transmitted at various frequencies depending on the application. Very high frequencies (455 kHz) are used for greatest definition but the operating depth is limited. High frequencies (200 kHz) are commonly used on consumer sonar and provide a good balance between depth performance and resolution. Low frequencies (83 kHz) are typically used to achieve greater depth capability.
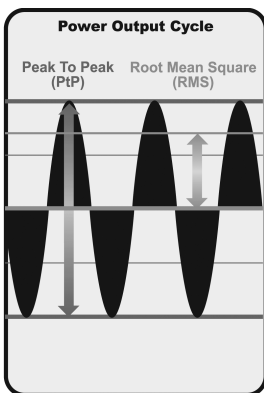
The power output is the amount of energy generated by the sonar transmitter. It is commonly measured using two methods:

- Root Mean Square (RMS) measures power output over the entire transmit cycle.

- Peak to Peak 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.
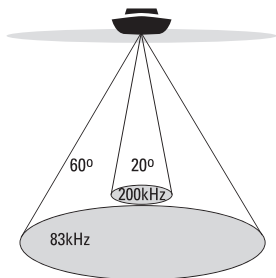
⁂ 60 Degree Total Coverage

⁖ Bottom Coverage = 1 x Depth
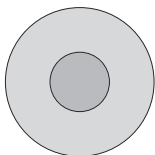
DualBeam PLUS™ Sonar

(DualBeam PLUS™ models only [778c HD])

Your **778c HD Fishing System** uses a 200/83 kHz DualBeam PLUS™ sonar system with a wide (60°) area of coverage. DualBeam PLUS™ sonar has a narrowly focused 20° center beam, surrounded by a second beam of 60°, expanding your coverage to an area equal to your depth. In 20 feet of water, the wider beam covers an area 20 feet wide.

DualBeam PLUS™ sonar returns can be blended together, viewed separately, or compared side-by-side. DualBeam PLUS™ is ideal for a wide range of conditions - from shallow to very deep water in both fresh and salt water. Depth capability is affected by such factors as boat speed, wave action, bottom hardness, water conditions, and transducer installation.

74 Degree Total Coverage

Xtreme Depth Sonar

(Xtreme Depth Series™ models only [778c HD XD])

Your **778c HD XD Fishing System** uses the XD transducer to provide extreme depth coverage with DualBeam PLUS™ technology.

The Xtreme Depth sonar beams can be operated at two frequencies: 50 kHz (74°) and 200 kHz (20°). The wide, 50 kHz beam transmits at a low frequency to provide greater depth coverage, up to 2500 ft (762 m). The narrow, 200 kHz center beam transmits at a high frequency to provide maximum detail at shallower depths.

The DualBeam PLUS™ technology allows you to view the sonar returns blended together, separately, or side-by-side (see *Sonar Menu Tab: Beam Select* and *Views* for more information).

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

QuadraBeam PLUS™ Sonar

(with optional-purchase QuadraBeam PLUS™ transducer)
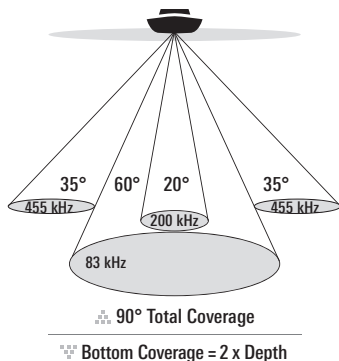
QuadraBeam PLUS™ sonar provides an extremely wide 90° area of coverage. QuadraBeam PLUS™ starts with two fan-shaped 35° 455 kHz Side Structure locating sonar beams to spot fish, bait, and structure to the left and right of the boat, over an area of the bottom that's always equal to twice your depth.

For a detailed view below the boat, QuadraBeam PLUS™ uses DualBeam PLUS™ technology, with precision 20° and wide 60° beams. QuadraBeam PLUS™ finds more fish faster and can even tell you where to put your bait by showing if fish are to the left, right, or directly beneath your boat.

*NOTE: Contact our Customer Resource Center to determine which accessory transducers are compatible with your Humminbird® Fishing System, or visit our Web site at **humminbird.com**.*

35° 60° 20° 35°
455 kHz 455 kHz
200 kHz
83 kHz

⚠ 90° Total Coverage

☲ Bottom Coverage = 2 x Depth

16° 455kHz   16° 455kHz

24° 200kHz
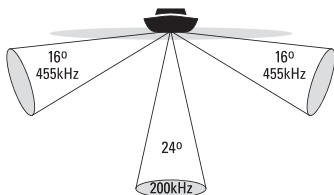
⊹ 150 Degree Coverage

⊽ Bottom Coverage = 1/3 x Depth

WideSide® Sonar

(with optional-purchase WideSide® transducer)

The WideSide® transducer is a specialized "side-looking" transducer that is extremely useful for bank fishing or looking for bait fish in open water. The WideSide® transducer uses three different sonar elements that transmit signals to the left, right, and straight down from your boat. The downward beam is 200 kHz with a 24° area of coverage. This beam maintains a continuous digital depth readout from the bottom directly beneath your boat. The side beams are 455 kHz with a 16° area of coverage. The side-looking elements can be used independently or together to locate targets near the surface of the water on either side of your boat.

*NOTE: Contact our Customer Resource Center to determine which accessory transducers are compatible with your Humminbird® Fishing System, or visit our Web site at **humminbird.com**.*

Universal Sonar 2

(compatible w/ optional-purchase Minnkota trolling motors)

Your 700 Series™ Fishing System supports Universal Sonar 2, a state-of-the-art, integrated and protected transducer that is built into the lower unit of Minnkota trolling motors. With Universal Sonar 2, all wiring is concealed inside the indestructible composite shaft—out of sight and out of harm's way, with no clamps, ties, or exposed wires. Universal Sonar 2 features new temperature sensing and the performance of DualBeam PLUS™ technology (available with all Humminbird® DualBeam PLUS™ models). An expanded view and greater bottom detail gives you a totally new perspective of the water below, along with optimal sonar performance to help you find fish.

DUAL BEAM
Ice transducer

20°
200kHz
60°
83kHz
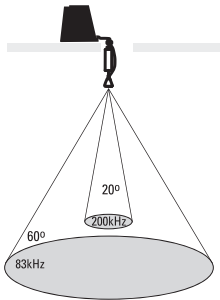
⚏ 60 Degree Total Coverage

⚏ Bottom Coverage = 1 x Depth
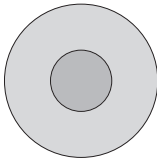
Dual Beam Ice Transducer

(with optional-purchase XI 9 20 Ice Transducer)

The XI 9 20 Ice Transducer provides selectable dual-frequency sonar with a wide area of coverage. Selectable dual-frequency gives you the option of two beams, and both beams will cover the bottom and provide high definition. The 20 degree center beam provides the highest definition, while the 60 degree beam provides wider coverage. Depth capability is affected by such factors as bottom hardness and water conditions. Whether fishing in shallow to very deep water, selectable dual-frequency is ideal for a variety of conditions.

*NOTE: Contact our Customer Resource Center to determine which accessory transducers are compatible with your Humminbird® Fishing System, or visit our Web site at **humminbird.com**.*

What's on the Sonar Display

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

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

Temperature - Water surface temperature.

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.

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 - Indicates cursor depth on the display and the depth of the bottom directly below the cursor. The Latitude and Longitude of the cursor position, the distance to travel to the cursor position, and the bearing to the cursor position is shown with a GPS receiver. A waypoint can be marked at the cursor position for later retrieval and use with a GPS receiver.

270^ft

758°F

35:25
3.15sm
5.3mph

20 mph

Cursor	27.4ft	Depth
Distance	255ft	N 34°
Bearing	010°t	W 084
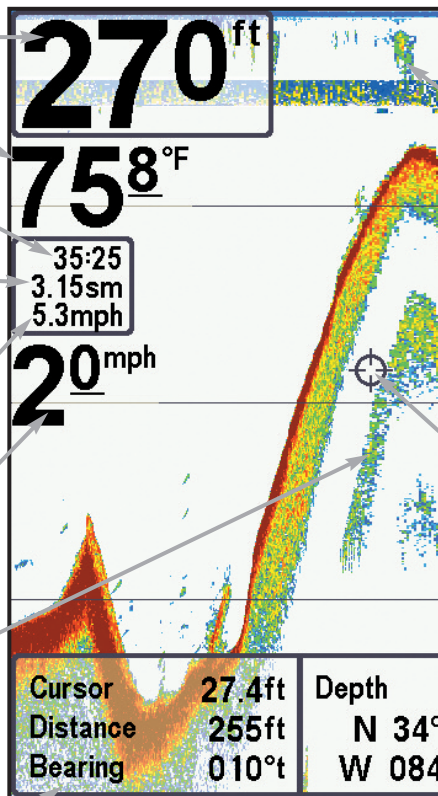
NOTE: Entries in this view that list (with Temp/Speed or GPS Receiver) are available if either device information from the GPS receiver will be displayed on the view.

the area under and adjacent to your boat, including the following items:
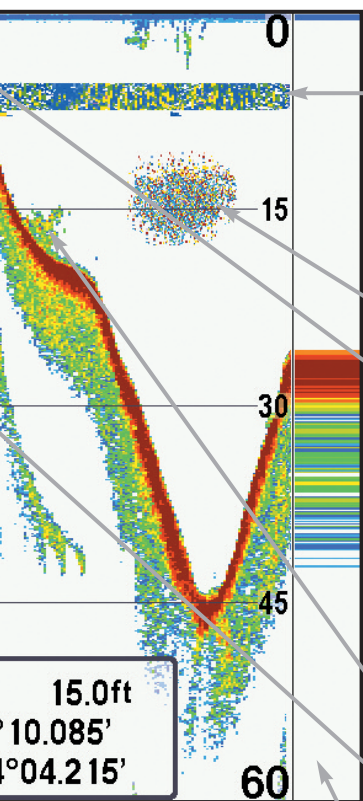
High Sonar Intensity Return

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 many colors moving across the display at the same depth.

Bait Ball

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.

Structure - Where fish may be hiding.

Cursor - Available in Freeze Frame and can be positioned in the Sonar View to provide depth of a sonar return and bottom depth below the cursor.

RTS (Real Time Sonar) Window™

Low Sonar Intensity Return

is connected to the 700 Series™ Fishing System. If both devices are connected, then only the
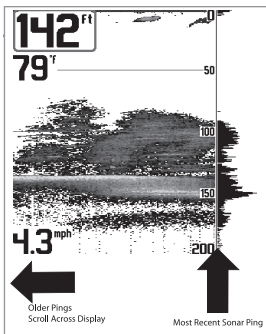
Understanding the Sonar Display

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 across the screen.

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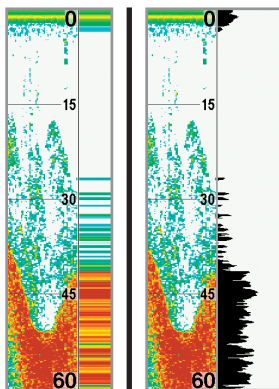
The **Wide RTS Window™** indicates the sonar intensity through the use of a bar graph. The length of the plotted return indicates whether the return is weak or strong. The depth of the sonar return is indicated by the vertical placement of the return on the display depth scale. The Wide RTS Window™ does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

Sonar Colors and Bottom View

As the boat moves, the unit charts the changes in depth on the display to create a profile of the **Bottom Contour**. The Sonar View displays the sonar return intensity with different colors.

Strong returns often result from rocky or hard bottoms (compacted sediment, rocks, fallen trees), while **weaker returns** often result from soft bottoms (sand, mud), vegetation, and small fish.

The colors used to represent high, medium, to low intensity returns are determined by the palette you choose in the **Sonar Colors** menu option. See *Sonar Menu Tab* to set the Sonar Colors.

Sonar Colors: Original Palette

HIGH
Intensity Return

MEDIUM
Intensity Return

LOW
Intensity Return

Sonar View: Original Palette

Sonar History: Historical Returns scroll left across the view.

Strong Returns (possibly rocks, tree limbs, or other structure)

Weak Returns (possibly vegetation or small fish)

Strong Return (possibly compacted sediment or rocks)

RTS Window™
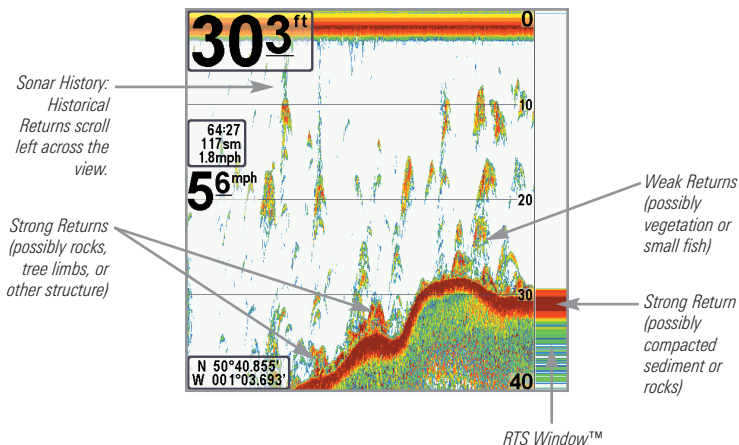
Use **Bottom View** to select the method used to represent bottom and structure on the display. See *Sonar Menu Tab* to set the Bottom View.

Structure ID® represents weak returns in blue and strong returns in red when Sonar Colors is set to Original. If the Sonar Colors palette is changed, the Structure ID® will display the strongest return as specified by the palette. See *Sonar Menu Tab: Sonar Colors* for more information.
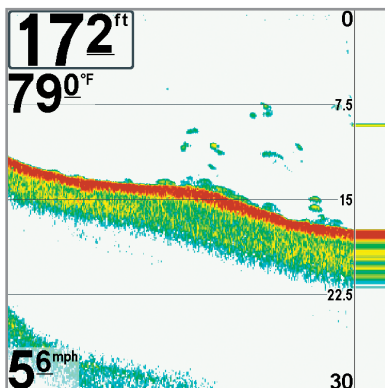
WhiteLine™ highlights the strongest sonar returns in white, resulting in a distinctive outline. This has the benefit of clearly defining the bottom on the display.
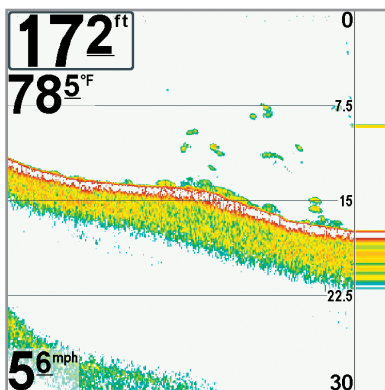
SwitchFire™

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

Freeze Frame & 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 at the bottom of the screen in the cursor dialog box.

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, Split 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.

Views

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

- **Default View:** When you first power up the control head, 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, 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.

<u>To customize your views rotation</u>:

You can choose which views are hidden or visible in 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 LEFT or RIGHT Cursor keys to change the status of the view from Hidden to Visible or vice versa.

<u>To program each PRESET key</u>:

Another way to access your favorite views quickly is to store them on the VIEW PRESET keys. Instead of using the VIEW key to cycle through every view to find the one you want, you can program the VIEW PRESET keys to display a specific view immediately.

1. Press the VIEW key to cycle to the view you want to store.

2. Press and hold one of the VIEW PRESET keys for several seconds. A chime will indicate that the view has been saved. You can store up to three views, one on each key.

<u>To change the Digital Readouts</u>:

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 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.

Sonar View

Sonar View presents a historical log of sonar returns. The most recent sonar returns are charted on the right side of the window. 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 at the bottom of the screen in the cursor information box.

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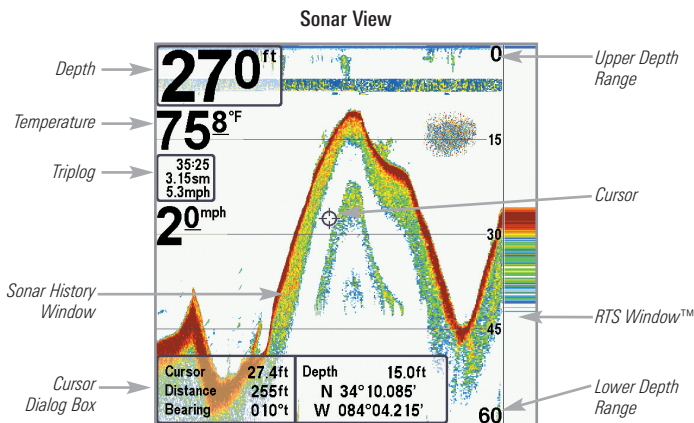
NOTE: If the Depth number is flashing, it means that the unit is having trouble locating the bottom. This usually happens if the water is too deep, the transducer is out of the water, the boat is moving too fast, or for any other reason that the unit can't accurately receive continuous data.

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Sonar Zoom View

Sonar 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. Highlight Zoom Level, and press the LEFT or RIGHT Cursor keys to adjust the Zoom Level.

- 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.
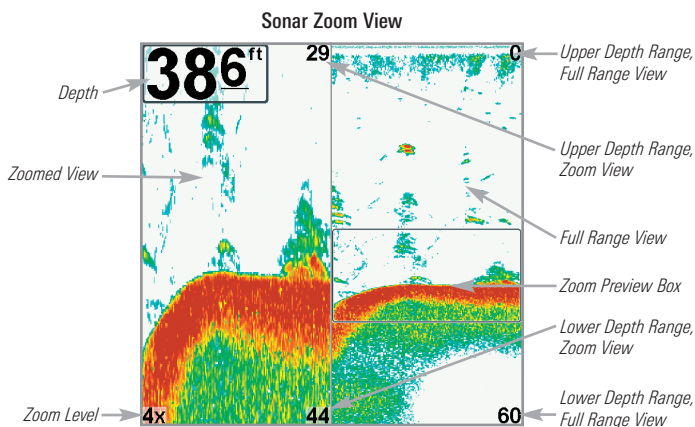
Sonar Zoom View

NOTE: 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.

Split Sonar View

Split Sonar View displays sonar returns from each down beam frequency on separate sides of the screen. You can use the Split Sonar View to make side by side comparisons between the sonar returns from both beams.

- The **778c HD** displays sonar returns from the 83 kHz wide beam on the left side of the screen and sonar returns from the 200 kHz narrow beam on the right side of the screen.

- The **778c HD XD** displays sonar returns from the 50 kHz wide beam on the left side of the screen and sonar returns from the 200 kHz narrow beam on the right side of the screen.

- **Depth** is displayed in the upper left hand corner.

- The **Digital Readouts** in the Split Sonar View cannot be customized; therefore, information such as water temperature and voltage are unavailable in the Split Sonar View.

778c HD: 200/83 kHz Split Sonar View

 20
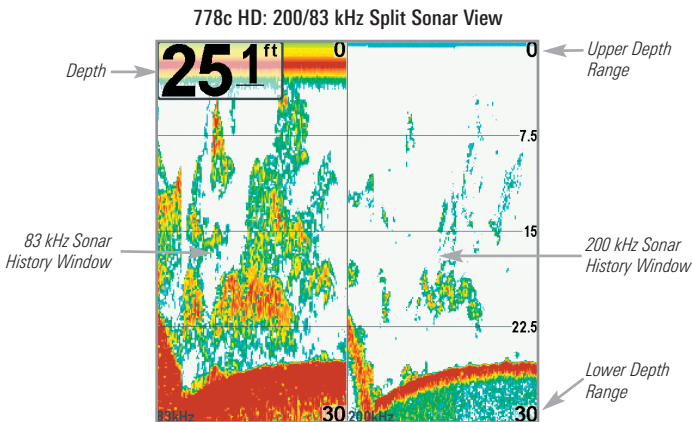
Big Digits View

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 Fishfinder.

  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.

Big Digits View

Depth

Temperature

Speed

TIMER   DISTANCE
3:56   21.4 sm
VOLTAGE AVG. SPEED
13.7 V   5.4 mph

Timer shows the time elapsed since Triplog was last reset

Distance is the distance traveled since the Triplog was last reset

Voltage displays the battery voltage

Average Speed shows the speed since the Triplog was last reset
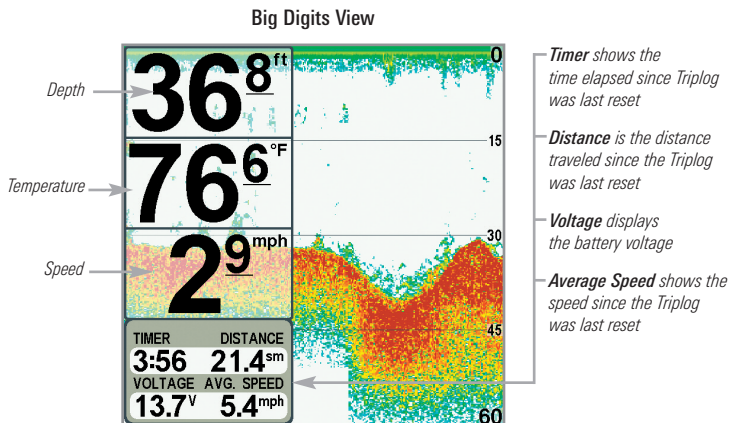
Circular Flasher View

Circular Flasher View provides two ways to view sonar data in traditional flasher format. The view is controlled by the Ice Fishing Mode menu option in the Sonar Menu Tab.

- **When Ice Fishing Mode is off**, the Circular Flasher View displays Real Time Sonar (RTS™) data in a traditional flasher format.

- **When Ice Fishing Mode is on**, the Circular Flasher View displays the sonar data in traditional flasher format with additional features including Zoom and Depth Cursor.

Set the Circular Flasher View Mode

1. Press the MENU key twice.

2. Press the RIGHT Cursor key until the Sonar Menu Tab is selected.

3. Press the DOWN Cursor Key to select Ice Fishing Mode. Press the RIGHT or LEFT Cursor key to select On or Off (Default = Off). See *Sonar Menu Tab* for more information.

22

When Ice Fishing Mode is off, the Circular Flasher View displays Real Time Sonar (RTS™) data in a traditional flasher format.

- **Flasher X-Press™ Menu:** Press the MENU key once in the Circular Flasher View. Use the X-Press™ Menu to set the Sensitivity, Upper Range, and Lower Range.

- **Depth** and **temperature** are always displayed.

- The **Digital Readouts** cannot be customized.

Circular Flasher View
(Ice Fishing Mode: Off)

Flasher Dial ←

12.7
Feet

→ *Depth*

3.6 mph
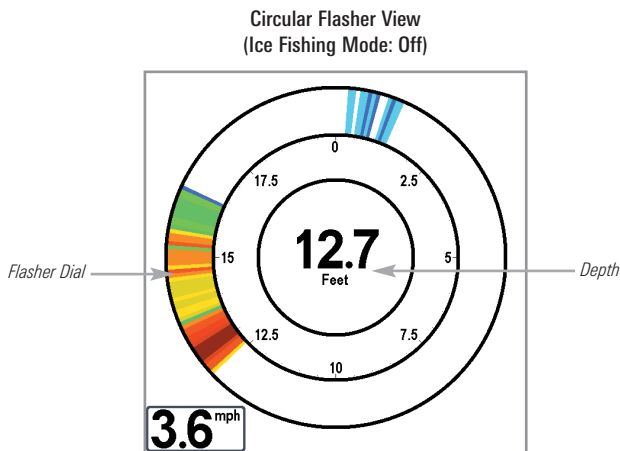
Ice Fishing Mode: On

When Ice Fishing Mode is on, the Circular Flasher View displays the sonar data in traditional flasher format with additional features including Zoom and Depth Cursor.

- **Sensitivity:** When you turn on Ice Fishing Mode, the fishfinder's sensitivity settings are adjusted automatically to accommodate ice fishing conditions. These settings will apply to the other Sonar Views until you turn off Ice Fishing Mode (see *Set the Circular Flasher View Mode* in this section).

- **Flasher X-Press™ Menu:** Press the MENU key once in the Circular Flasher View. Use the X-Press™ Menu to set the Sensitivity, Upper Range, Lower Range, and Color Palette.

- **Color Palettes:** The color preview bar in the center of the display indicates the current palette, and the weak to strong sonar return range is displayed from left to right. To change the color palette, see *Flasher X-Press™ Menu: Color Palette*.

- The **Digital Readouts** cannot be customized.

Circular Flasher View
(Ice Fishing Mode: On)

Battery Icon indicates the percentage of battery power

Zoom 2x
⊕ 4.2ft

Flasher Dial

12.7
Feet

Depth

Current Color Palette

Units of Measurement

Sensitivity (see Flasher X-Press™ Menu)

Sensitivity: 10
Noise Filter: Low

200/83kHz

Noise Filter (see Sonar Main Menu)

Beam Select (see Sonar Main Menu)
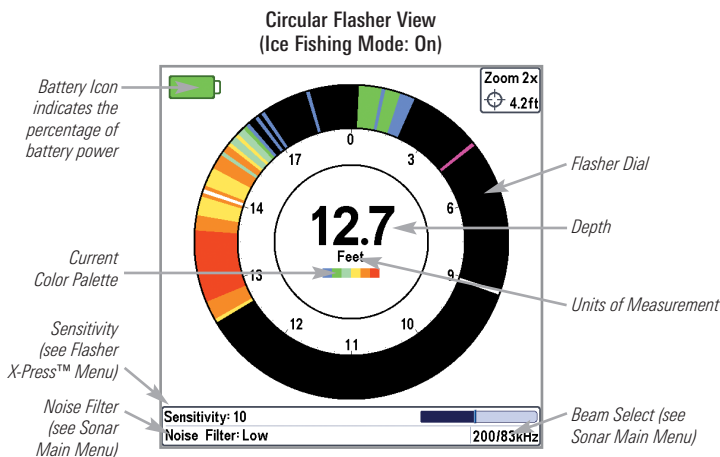
To activate the Depth Cursor:

Use the Depth Cursor to identify depth on the flasher display.

1. **Set up:** Press the VIEW key repeatedly until the Circular Flasher View is displayed on the screen. Turn on the Ice Fishing Mode (see *Sonar Menu Tab*).

2. **Activate:** Press the DOWN Cursor key, and the purple cursor line will appear on the display.

3. **Adjust the Cursor:** Press the UP or DOWN Cursor keys repeatedly until you reach the chosen depth reading. The depth reading of the cursor is displayed in the top, right corner of the view.

4. **Close the Cursor:** Press the EXIT key.

Circular Flasher View
with the Depth Cursor
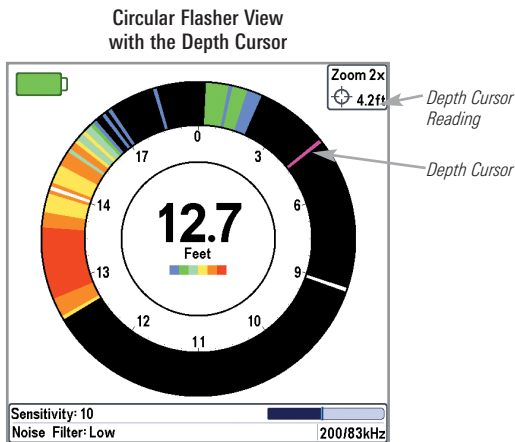
To activate Flasher Zoom:

The Zoom feature displays a 2x magnified view of the area you choose on the flasher display.

1. **Set up:** Press the VIEW key repeatedly until the Circular Flasher View is displayed on the screen. Turn on the Ice Fishing Mode (see *Sonar Menu Tab*).

2. **Activate:** Press the MENU key. Select Zoom Level from the X-Press™ Menu, and press the RIGHT Cursor key to select 2X. Zoom upper limit and lower limit lines will appear on the display.

3. **Close the X-Press™ Menu:** Press the EXIT key.

4. **Adjust the Zoom Range:** Press the RIGHT or LEFT Cursor keys repeatedly to adjust the zoom range and select the area you want to magnify. The zoomed view is shown on the right side of the flasher dial between two lines. The normal view is shown on the left side of the flasher dial.

5. **Close Zoom:** Press the MENU key. Select Zoom Level from the X-Press™ Menu, and press the LEFT Cursor key to select 1X.

Circular Flasher Zoom

Normal View (reading the full depth of the water column)

Zoom Line (upper limit)

0
25.5   **4.5**
21   **21.2**   **9**
16.5   Feet   **10.5**
15   **12**
13.5

Zoom Line (lower limit)

Zoom View (2X magnification)

Press the RIGHT or LEFT Cursor key to change the Zoom Range.
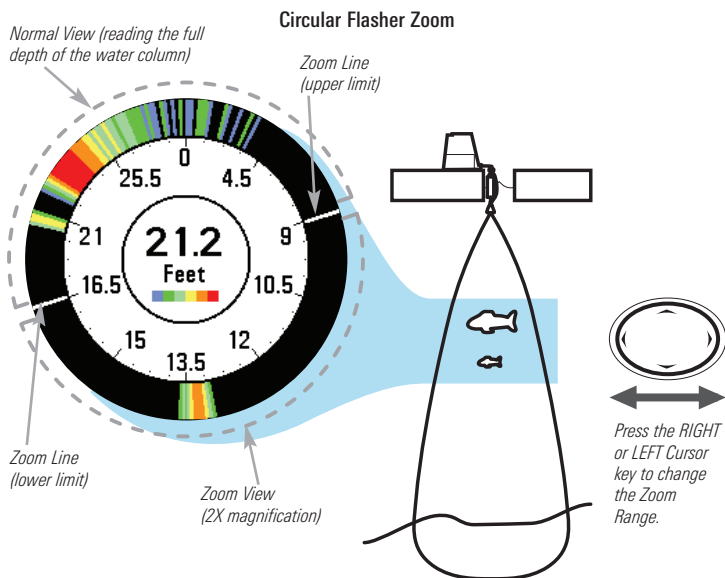
Side Beam View

(with optional-purchase QuadraBeam PLUS™ transducer)

Side Beam View displays sonar data from the left and right 455 kHz beams and the 200 kHz down-looking beam in one view. Side Beam View is only available if you have connected an optional-purchase QuadraBeam PLUS™ transducer accessory and set Transducer Select to QuadraBeam (see *Sonar Menu Tab: Transducer Select*).

> *NOTE*: *The QuadraBeam PLUS™ transducer requires a separate purchase.*

- **Bottom View:** The sonar information from the side-looking beams reveals bottom contour, structure, and fish similar to the down-looking beam, but the area covered is to the left and right, which gives you a wider view of the bottom.

- **Distance**: The distance covered by the right and left side-looking beams is controlled by the Depth Range setting for the down-looking beam, up to a maximum of 160 feet, (see *Sonar Menu Tab: Depth Range*).

- **Settings:** The Side Beam View can be arranged in any of the following layouts: Default, Classic, and Slanted. To select a layout, press the Menu key once to access the Sonar X-Press™ Menu. Scroll down using the DOWN Cursor key until Quad Layout is highlighted. Then press the LEFT or RIGHT Cursor keys to select a layout setting.

Default Layout

- **Top:** The top portion of the display presents a historical log of sonar returns from the 200 kHz down-looking sonar beam. New information in the down beam panel scrolls from right to left.

- **Bottom:** The bottom portion of the display presents a historical log of sonar returns from the 455 kHz right- and left-looking sonar beams. New information in the side beam panels scrolls from the center out.

Side Beam View, Default Layout

Depth

Temperature

200 kHz Sonar History Window

Water Surface Line for 455 kHz Sonar History Windows

Left Side 455 kHz Sonar History Window

Right Side 455 kHz Sonar History Window

- **Top:** The top portion of the display presents a historical log of sonar returns from the 200 kHz down-looking sonar beam. New information in the down beam panel scrolls from right to left.

- **Bottom:** The bottom portion of the display presents a historical log of sonar returns from the 455 kHz right- and left-looking sonar beams. New information appears at the top, and scrolls down the display.

Side Beam View, Classic Layout

Depth

Temperature

200 kHz Sonar History Window

Water Surface Line for 455 kHz Sonar History Windows

Left Side 455 kHz Sonar History Window

Right Side 455 kHz Sonar History Window
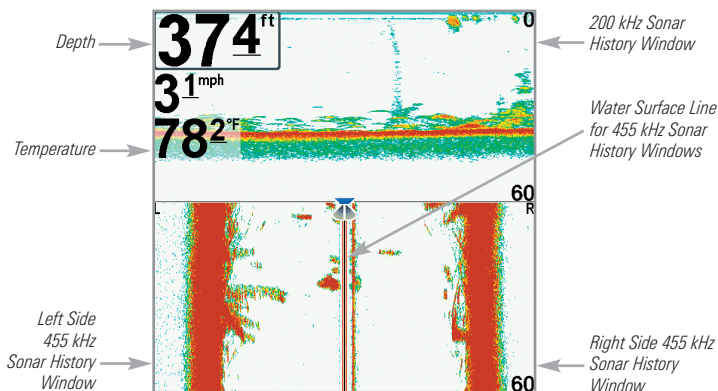
Slanted Layout

This layout is presented as three slanted panels representing the two 455 kHz side sonar beams and the 200 kHz down-looking sonar beam. New information appears on the right and scrolls to the left.

Side Beam View, Slanted Layout

Depth

Speed

Left Side 455 kHz Sonar History Window

200 kHz Sonar History Window

Right Side 455 kHz Sonar History Window
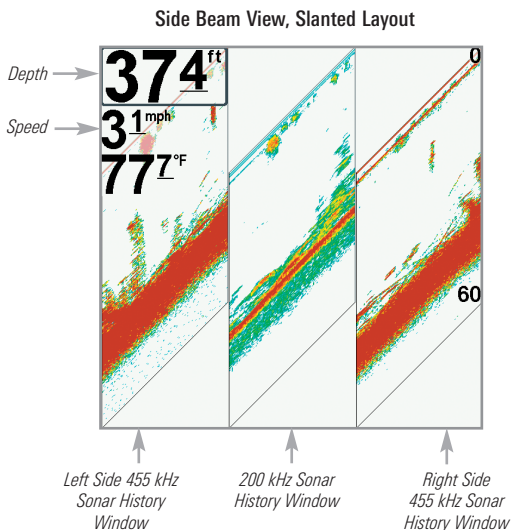
WideSide® View

(with optional-purchase WideSide® transducer)

The **WideSide® View** displays information from the 455 kHz WideSide® transducer. WideSide® View is only available if you have connected a WideSide® transducer accessory and the Transducer Select setting is set to WideSide® (see *Sonar Menu Tab: Transducer Select*).

NOTE: The WideSide® transducer requires a separate purchase.

- **Settings**: Left, Right, and Both (Default = Both).

- **Beam Information**: Information from the left and right beams are displayed simultaneously.

NOTE: A bottom contour may be present while bank fishing or fishing river channels. When fishing in the open water, a bottom contour will not be present, and only sonar returns from either debris or fish will be displayed.

WideSide® View

Left Side View → 160 Left   Right 160 ← Right Side View

Bank Contour →

Open Water *(no bottom contour visible on-screen)*

Water Surface Line

Depth → 5.4ᵐᵖʰ **21.3**ᶠᵗ 70.2°F ← Temperature
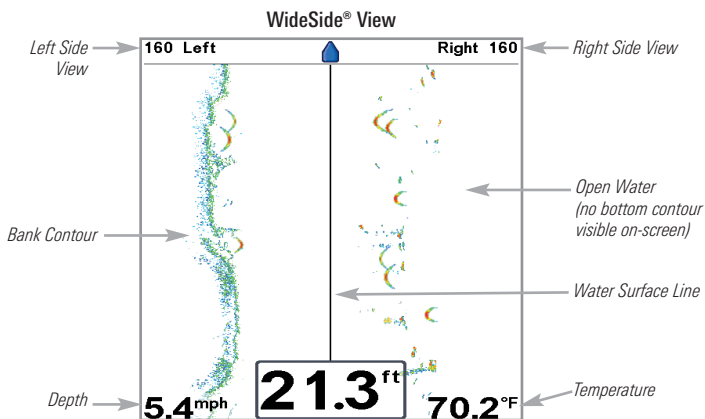
What's on the 700 Series™ Control Head

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.
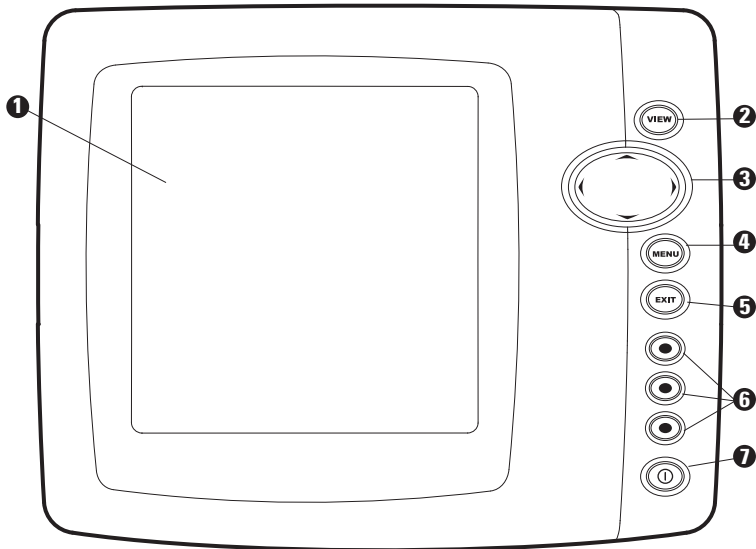
❶ *Screen*

❷ *VIEW key*

❸ *4-WAY Cursor Control key*
(LEFT, RIGHT, UP, or DOWN Cursor keys)

MENU key **❹**

EXIT key **❺**

VIEW PRESET keys **❻**

POWER/LIGHT key **❼**

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 the unit on. 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.
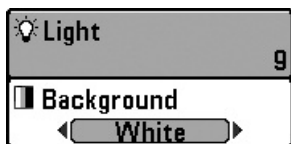
Adjust the Backlight or the Display Background Color: Press the POWER/LIGHT key to access the Light and Background submenu. Use the 4-WAY Cursor Control key to select Light or Background, and then use the LEFT or RIGHT Cursor key to change the settings. Press EXIT to exit the Light and Background submenu.

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* or *Views Menu Tab*).

NOTE: Press the EXIT key to cycle through the views in reverse order.

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 with 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.
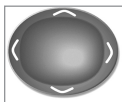
4-WAY Cursor Control Key

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

The 4-WAY Cursor Control key has multiple functions, depending on the view, menu, or situation.

- **Menu Selection:** Press the DOWN or UP Cursor keys to highlight a menu option, then press the RIGHT or LEFT Cursor keys to change a menu setting.

NOTE: Menu settings are implemented and saved immediately - no further action is required.

- **Freeze Frame:** In Sonar View, 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.

NOTE: In either Freeze Frame or Active Cursor mode, you can also make the cursor move diagonally by pressing in between two of the arrows on the 4-WAY Cursor Control key.

- **Circular Flasher View (Ice Fishing Mode: On):** Press the UP or DOWN Cursor keys to move the Depth Cursor. Press the RIGHT or LEFT Cursor keys to adjust the Zoom Range (see *Views: Circular Flasher View*).

VIEW PRESET Keys

The VIEW PRESET keys are used to save your three favorite views for quick retrieval. Instead of using the VIEW key to cycle through all the views to find the one you want, you can program the VIEW PRESET keys to display a specific view immediately. See *Views* for more information.

EXIT Key

The EXIT key has multiple functions, depending 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 your Fishing System. Accessories plug directly into the Fishing System, enabling Advanced features such as WeatherSense® and the SmartCast® Wireless Sonar Link. Additional tabs and menu options 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* in this manual, as well as your accessory's Operations Manual for additional details.

*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.*
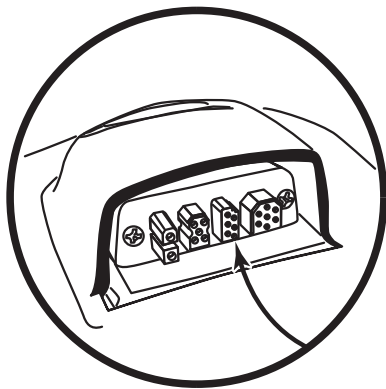
The Menu System

The Menu System is divided into easy-to-use menu modules. The main components of the menu system are 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.

```
┌─────────────────────────────────┐
│        Start-Up Options         │
│                                 │
│                                 │
│      ┌───────────────────┐      │
│      │ Normal            │      │
│      ├───────────────────┤      │
│      │ Simulator       ▶ │      │
│      ├───────────────────┤      │
│      │ System Status     │      │
│      ├───────────────────┤      │
│      │ PC Connect        │      │
│      └───────────────────┘      │
│                                 │
│                                 │
│        Press Right Cursor Arrow │
│              to  Select         │
└─────────────────────────────────┘
```
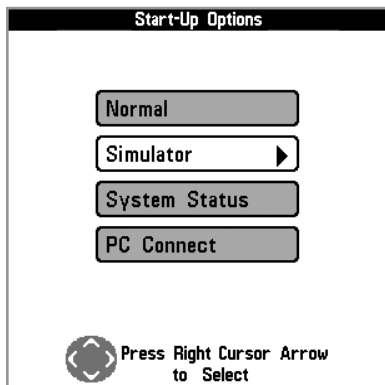
Normal

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.
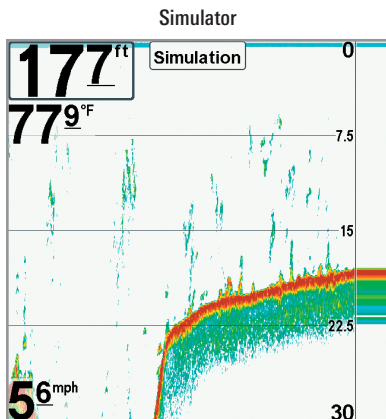
Simulator

We recommend going through this manual while using the Simulator, since all of the menus function 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 Screen

SYSTEM STATUS

Self Test
PASSED

S/N
-1-1-001

SOFTWARE VERSION
4.141

VOLTAGE	TOTAL TIME
14.1^V	74^{hrs}

PCB S/N
-1-0001-001

Press VIEW for Next Screen

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.

Accessory Test

SYSTEM STATUS

ACCESSORY TEST

CannonLink	UNCONNECTED
GPS	CONNECTED
InterLink	UNCONNECTED
SmartCast WSL	UNCONNECTED
Speed	CONNECTED
Temperature	CONNECTED
WeatherSense	UNCONNECTED

Accessory Test lists the accessories connected to the system.

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

PC Connect and Software Updates
(with optional-purchase PC Connect cable only)

Use **PC Connect** to update the software of the Fishing System control head. See the Humminbird® Web site for information and computer requirements 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 the 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**.*

NOTE: If you connect an optional-purchase GPS Receiver to your control head, it is important to back up your data files (waypoints, routes, tracks) periodically. Data files should also be saved to your PC before restoring the unit's defaults or updating the software. See your HumminbirdPC™ online help guide and contact our Customer Resource Center with any questions.

Updating software requires the following top-level steps:

1. Log on to **humminbird.com.**

   • Register your Fishing System.

   • Download HumminbirdPC™ to your computer.

   • Download the latest software update (unit name [version #]) for your control head.

2. **PC Connect Cable:** Follow the instructions included with the PC Connect Cable to connect your Fishing System to your computer.

3. Press and Hold the POWER/LIGHT key to power on your Fishing System.

4. Open HumminbirdPC™ on your computer. Click on the Control Head tab.

5. Click the Update Firmware [icon] button at the top, left of the screen. Follow the on-screen instructions to locate the software file and update the control head. The Fishing System will recognize the new software and run through a series of prompts to confirm software installation.
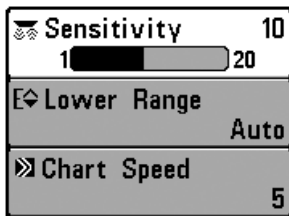
X-Press™ Menu

🔊 Sensitivity   10
1 ▮▮▮▮▮▯▯▯ 20
↨ Lower Range
Auto
⋙ Chart Speed
5

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 to open the X-Press™ Menu.

2. Press the UP or DOWN Cursor keys to highlight an X-Press™ Menu option, then press 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.

| (♠)Alarms | 🐟 | 🖅 | 🖼 | 🔋 |

Main Menu

Depth Alarm	
	Off
Fish ID Alarm	
	○
Low Battery Alarm	
	Off
Temp. Alarm	
	Off
Alarm Tone	
	Medium

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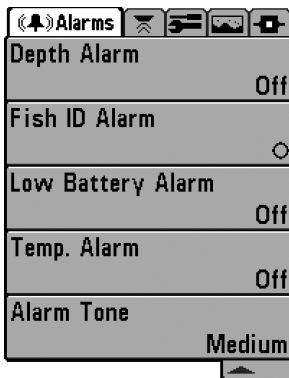
The Main Menu provides the standard set of menu options, including the settings that are changed less frequently. The Main Menu is organized under the following tabs to help you find a specific menu item quickly: Alarms, Sonar, Setup, Views, and Accessories.

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

To use the Main Menu:

1. In any view, press the MENU key twice to open the Main Menu.

2. Press the RIGHT or LEFT Cursor keys to highlight a menu tab.

3. Press the DOWN or UP Cursor keys to select a specific menu option under that tab.

4. Press the RIGHT or LEFT Cursor keys 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 need to exit the menu to apply the change to the screen).

- **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 key to jump directly to the top of the tab.

- **From the top of a menu tab**, press the LEFT or RIGHT 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 the MENU key or EXIT key 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).

Menu Option Name

Setup User Mode and other control head requirements

| Noise Filter | **Noise Filter** |
| ◄ Low ► | *(Advanced)* |

Settings: Off, Low, Medium, High1, High2, High3, Default = Low

Available Menu Settings and Default

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.

Setting Description

Menu Option as it appears on the screen

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 LEFT or RIGHT 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	⟳	▱

Beam Select
200kHz

Surface Clutter
5

SwitchFire
Clear Mode

Fish ID +
On

Fish ID Sensitivity
5

RTS Window
Narrow

Sonar Colors
Original Palette

Bottom View
Structure ID

Zoom Width
Narrow

Transducer Select
Dual Beam

Ice Fishing Mode
Off

778c HD
Sonar Tab, Normal Mode

(◊)	☒ Sonar	⟳	▱

Beam Select
200kHz

Surface Clutter
5

SwitchFire
Clear Mode

Fish ID +
On

Fish ID Sensitivity
5

RTS Window
Narrow

Sonar Colors
Original Palette

Bottom View
Structure ID

Zoom Width
Narrow

83kHz Sensitivity
0

455kHz Sensitivity
0

Depth Lines
On

Noise Filter
Low

Max Depth
Auto

Water Type
Fresh

Transducer Select
Dual Beam

Ice Fishing Mode
Off

778c HD
Sonar Tab, Advanced Mode

Side	
◀ **Both** ▶	
�rays Sensitivity	
	16
E↔ Upper Range	
	0ft
E↔ Lower Range	
	48ft
E↕ Side Beam Range	
	33ft
≫ Chart Speed	
	7
⊞ Quad Layout	
	Default
E↔ Bottom Range	
	15ft
▥ Bottom Lock	
	On
⊕ Zoom Level	
	2x

778c HD, Sonar X-Press™ Menu
(shown with optional-purchase transducer menu options)

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

*NOTE: The selected transducer also influences the menu options. See **Sonar Menu Tab: Transducer Select** for more information.*

NOTE: Menu options are determined by your Humminbird® model. See the following pages for full menu descriptions.
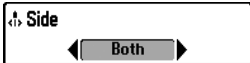
⟨⟩ Side	
◀ **Both** ▶	

Side

(WideSide® transducer: WideSide® View only)

Settings: Left, Both, Right; Default = Both

Side sets which transducer beam from the WideSide® Transducer will be shown in the WideSide® View.

The Side menu option is available when a WideSide® transducer is connected to the Fishing System and Transducer Select is set to WideSide® (see *Sonar Menu Tab: Transducer Select*). This option can only be accessed from the Sonar X-Press™ menu in the WideSide® view.

*NOTE: The Side setting requires the purchase of the WideSide® transducer. Visit our Web site at **humminbird.com** to order this accessory online or contact our Customer Resource Center at **1-800-633-1468**.*

⟨⟩ Sensitivity	10
1 ▮▮▮▮▭▭▭▭ 20	

Sensitivity

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.
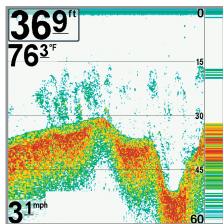
Sensitivity at Low   Sensitivity at Medium   Sensitivity at High

E◇ Upper Range	0ft
0	1490

Upper Range

(Advanced: Sonar, Split Sonar, Circular Flasher, and Big Digits Views only)

Settings: Various, see below.

Upper Range sets the shallowest depth range that will be displayed on the Sonar, Split Sonar, Circular Flasher, 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.

The available Upper Range settings are determined by your Humminbird® model as follows:

- **778c HD:** 0 to 1490 ft, 0 to 497 m (International Models only); Default = 0

- **778c HD XD:** 0 to 3190 ft, 0 to 972 m (International Models only); Default = 0

E◇ Lower Range	Auto
Auto	1500

Lower Range

Settings: Various, see below.

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.

The available Lower Range settings are determined by your Humminbird® model as follows:

- **778c HD:** Auto to 1500 ft, Auto to 500 m (International Models only); Default = Auto

- **778c HD XD:** Auto to 3200 ft, Auto to 975 m (International Models only); Default = Auto

⟨⟩ Side Beam Range	160ft
6 ▬▬▬▬▬ ‖ 160	

Side Beam Range

(with optional-purchase WideSide® transducer, WideSide® View only)

Settings: 6 to 160 ft, 2 to 50 m [International Models only]; Default = 160 ft

Side Beam Range sets the deepest range that will be displayed in the WideSide® View. The range must be set manually to keep the bottom visible on the display. If the Side Beam Range is set too deep for current depth conditions, the sonar information will become compressed on the display and valuable detail will be lost.

The Side Beam Range option is available when a WideSide® transducer is connected to the Fishing System and Transducer Select is set to WideSide® (see *Sonar Menu Tab: Transducer Select*). This option can only be accessed from the Sonar X-Press™ Menu in the WideSide® View.

*NOTE: The Side Beam Range requires the purchase of the WideSide® transducer. You can visit our Web site at **humminbird.com** to order this accessory online or contact our Customer Resource Center at **1-800-633-1468**.*
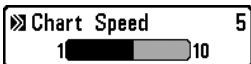
▶ Chart Speed   5
1 ▮▬▬▮   10

Chart Speed

Settings: 1 to 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.

⊞ Quad Layout
◀ Default ▶
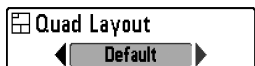
Quad Layout

(with optional-purchase QuadraBeam PLUS™ transducer, Side Beam View only)

Settings: Default, Classic, Slanted; Default = Default

Quad Layout allows you to choose how sonar information is displayed in the Side Beam View. The Side Beam View displays sonar data from the left and right 455 kHz beams, as well as the 200 kHz down-looking beam. The sonar data can be displayed in any of the three layouts by changing the Quad Layout setting (see *Views: Side Beam View)*.

*NOTE: Quad Layout is only available when an optional-purchase QuadraBeam PLUS™ transducer is attached and the Side Beam View is active (see **Sonar Menu Tab: Transducer Select).**

$\Leftrightarrow$ Bottom Range 15ft
10 ▮ ▭▭▭▭ 60

Bottom Range

(Sonar Zoom View only when Bottom Lock is On)

Settings: 10 to 60 feet, 2 to 10 fathoms, or 3 to 20 meters [International Models only]; Default = 15 ft

Bottom Range allows you to control how much of the water column, measured up from the bottom, is shown in the Sonar Zoom View. Choose a small value to see low-lying bottom structure or details of the bottom return. Choose a larger value to see large structure in deeper water.

NOTE: It is possible to set the Bottom Range to be greater than the depth. In this case, you may see surface clutter in a wavy band that mirrors changes in the depth.

▦ Bottom Lock
◀ Off ▶

Bottom Lock

(Sonar Zoom View only)

Settings: Off, On; Default = Off

Bottom Lock changes the mode of the zoomed view in the Sonar Zoom View. Bottom Lock 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.
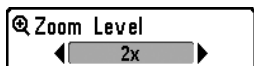
⊕ Zoom Level
◀ 2x ▶

Zoom Level

(Sonar 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.

⛆ Sensitivity	10
1 ▮▭▭▭ 20	
⎡⇕ Upper Range	
	0ft
⎸⇕ Lower Range	
	Auto
⊕ Zoom Level	
	1x
▨ Color Palette	
	Palette 1

Flasher X-Press™ Menu

Flasher X-Press™ Menu

(Circular Flasher View only)

The **Flasher X-Press™ Menu** provides a shortcut to your most frequently-used settings. Press the MENU key once while in the Circular Flasher View to access the Flasher X-Press™ Menu.

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

NOTE: To activate Ice Fishing Mode, see Sonar Menu Tab. Also, see Views: Circular Flasher View for more information.

☰ Sensitivity	10
1 ▮▮▮▮▮▯▯▯▯	20

Sensitivity

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.

E◈ Upper Range	0ft
0 ▮	1490

Upper Range

(Advanced: Sonar, Split Sonar, Circular Flasher, and Big Digits Views only)

Settings: Various, see below.

Upper Range sets the shallowest depth range that will be displayed on the Sonar, Split Sonar, Circular Flasher, 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.

The available Upper Range settings are determined by your Humminbird® model as follows:

- **778c HD:** 0 to 1490 ft, 0 to 497 m (International Models only); Default = 0

- **778c HD XD:** 0 to 3190 ft, 0 to 972 m (International Models only); Default = 0

E◇ Lower Range	Auto
Auto▮[ ]	1500

Lower Range

Settings: Various, see below.

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. 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.

The available Lower Range settings are determined by your Humminbird® model as follows:

- **778c HD:** Auto to 1500 ft, Auto to 500 m (International Models only); Default = Auto

- **778c HD XD:** Auto to 3200 ft, Auto to 975 m (International Models only); Default = Auto

| @ Zoom Level |
| ◀ 2x ▶ |

Zoom Level
(Circular Flasher View, Ice Fishing Mode only)

Settings: 1x, 2x; Default = 1x

Zoom Level sets the magnification level for the Circular Flasher View when Ice Fishing Mode is turned on. When the Zoom Level is set to 1x, the Zoom feature is turned off.

When the Zoom Level is set to 2x, the Circular Flasher View displays a 2x magnified view of the area you choose. The zoomed view is shown on the right side of the flasher dial between two lines. The normal view is shown on the left side of the flasher dial. The Zoom Range can be adjusted with the RIGHT and LEFT Cursor key. See *Views: Circular Flasher View* for more information.

| ▩ Color Palette |
| ◀ Palette 1 ▶ |

Color Palette
(Circular Flasher View, Ice Fishing Mode only)

Settings: Palette 1, Palette 2, Palette 3; Default = Palette 3

Color Palette sets the colors used to display sonar returns in the Circular Flasher View when Ice Fishing Mode is turned on. The active color palette is shown in the center of the circular flasher display. The color palettes range from weak to strong sonar return signals, which are displayed left to right on the color preview bar. See *Views: Circular Flasher View* for more information.

Choose from the following color palettes:

Palette 1: Green (weak), Yellow (medium), Red (strong)

Palette 2: Yellow (weak), Green (medium), Red (strong)

Palette 3: Blue (weakest), Green (weak), Light Green (weak to medium), Yellow (medium), Orange (fairly strong), Red (strong)

Alarms Menu Tab

(♠) Alarms	🔽	🔌	🖼	🔳

Depth Alarm
Off

Fish ID Alarm
○

Low Battery Alarm
Off

Temp. Alarm
Off

Alarm Tone
Medium

Timer Setup

Start Timer

Stop Timer
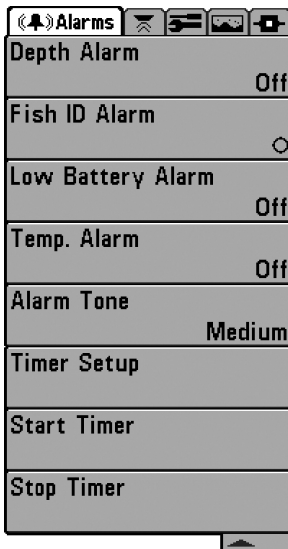
Alarms Menu

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.

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

Depth Alarm	Off
Off	100
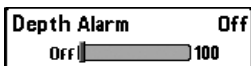
Depth Alarm

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.
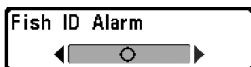
Fish ID Alarm	
◄	○	►

Fish ID Alarm

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

Fish ID Alarm sounds when the Fishfinder 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.

Off ◄ | ○ | ►

All ◄ | 🐟🐟🐟 | ►

Large/Medium ◄ | 🐟🐟 | ►

Large ◄ | 🐟 | ►

Low Battery Alarm	Off
Off	13.5
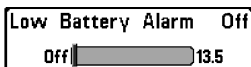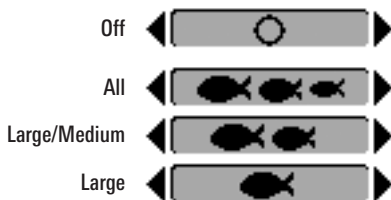
Low Battery Alarm

Settings: Off, 8.5V to 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 Fishfinder. The Low Battery Alarm should be set to warn you when the battery voltage drops below the safety margin that you have determined.

> For instance, if you are running a trolling motor (battery operated), you would want to set the Low Battery Alarm to sound before the battery voltage drops too low for it to be used to start your main, gasoline-powered engine.

 Alarms Menu Tab

| Temp. Alarm | Off |
| Off ▮▮▮▮▮▮▮▮ | 58 |
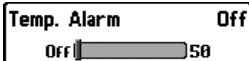
Temp. Alarm

Settings: Off, 33 to 120 Fahrenheit, 0 to 50 Celsius (International Models only); Default = Off

Temp. Alarm sounds when the water temperature detected by the Fishfinder 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.
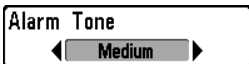
| Alarm Tone | |
| ◀ **Medium** ▶ | |

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.

| Timer Setup | |
| | ▶ |

Timer Setup

Settings: Press the RIGHT Cursor key to open the dialog box.

Timer Setup allows you to open a dialog box to create settings for the Timer. You can also start the countdown from this dialog box. When the Timer is started, the clock counts down from the amount of time set in the dialog box.

Timer		
Hours	**Minutes**	**Seconds**
Time ▶ |02| : |15| : |23|
Save and Start ▶		
Save and Close ▶		
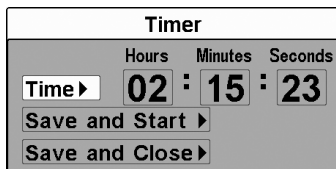
- **Time:** Use the 4-WAY Cursor Control key to set the hours, minutes, and seconds.

- **Save and Start:** To start the Timer immediately, select Save and Start, and press the RIGHT Cursor key.

- **Save and Close:** To save your settings and start the Timer at a later time, select Save and Close, and press the RIGHT Cursor key. Also, see *Start Timer*.

- **Digital Readout:** To display the Timer on-screen as it counts down, see *Views: To Change the Digital Readouts*.

Start Timer	▶	**Start Timer**
		Settings: Press the RIGHT Cursor key to start the Timer.

Start Timer allows you to start the Timer using the saved countdown settings in the Timer Setup dialog box. To create the Timer settings, see *Timer Setup*.

Stop Timer	▶	**Stop Timer**
		(with the Timer running)
		Settings: Press the RIGHT Cursor key to stop the Timer.

Stop Timer allows you to stop the Timer while it is counting down.

| (♦) | ⊼Sonar | ⇄ | ▨ |

Beam Select
200kHz

Surface Clutter
5

SwitchFire
Clear Mode

Fish ID +
On

Fish ID Sensitivity
5

RTS Window
Narrow

Sonar Colors
Original Palette

Bottom View
Structure ID

Zoom Width
Narrow

83kHz Sensitivity
0

455kHz Sensitivity
0

Depth Lines
On

Noise Filter
Low

Max Depth
Auto

Water Type
Fresh

Transducer Select
Dual Beam

Ice Fishing Mode
Off

778c HD
Sonar Menu, Advanced
(shown with optional-purchase transducer menu options)

Sonar Menu Tab

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.

NOTE: The selected transducer also influences the menu options. See Sonar Menu Tab: Transducer Select for more information.

NOTE: Menu options are determined by your Humminbird® model. See the following pages for full menu descriptions.

Beam Select
◀ **200kHz** ▶

Beam Select

Settings: Various, see below.

Beam Select sets which sonar returns from the transducer will be displayed on the screen. The available beam frequencies are determined by your Humminbird® model.

The **778c HD** allows you to choose 200/83 kHz, 200 kHz, or 83 kHz (Default = 200/83 kHz).

- When set to **200/83 kHz**, the returns from both beams are blended by starting with the 83 kHz wide beam return, dimming it, and then overlaying it with the 200 kHz narrow beam return. The darker 200 kHz narrow beam sonar returns will stand out from the paler 83 kHz wide beam sonar returns. The Split Sonar View continues to display the sonar returns from each beam in their respective windows. The blended information is shown in the Sonar View, Sonar Zoom View, and the Big Digits View. The RTS Window™ in the Sonar View and the Circular Flasher View will only show the returns from the 200 kHz narrow beam.

- When set to **200 kHz**, only the returns from the 200 kHz narrow beam will be displayed in the Sonar View, the Sonar Zoom View, the Big Digits View, and the Circular Flasher View. The Split Sonar View will continue to display returns from both beams in their respective windows. The RTS Window™ in the Sonar View will display the returns from the 200 kHz narrow beam.

- When set to **83 kHz**, the returns from the 83 kHz wide beam will be displayed in the Sonar View, the Sonar Zoom View, the Big Digits View, and the Circular Flasher View. The Split Sonar View will continue to display returns from both beams in their respective windows. The RTS Window™ will display the returns from the 83 kHz wide beam.

The **778c HD XD** allows you to choose 200/50 kHz, 200 kHz, or 50 kHz (Default = 200/50 kHz).

- When set to **200/50 kHz**, the returns from both beams are blended by starting with the 50 kHz wide beam return, dimming it, and then overlaying it with the 200 kHz narrow beam return. The darker 200 kHz narrow beam sonar returns will stand out from the paler 50 kHz wide beam sonar returns. The Split Sonar View continues to display the sonar returns from each beam in their respective windows. The blended information is shown in the Sonar View, Sonar Zoom View, and the Big Digits View. The RTS Window™ in the Sonar View and the Circular Flasher View will only show the returns from the 200 kHz narrow beam.

- When set to **200 kHz**, only the returns from the 200 kHz narrow beam will be displayed in the Sonar View, the Sonar Zoom View, the Big Digits View, and the Circular Flasher View. The Split Sonar View will continue to display returns from both beams in their respective windows. The RTS Window™ in the Sonar View will display the returns from the 200 kHz narrow beam.

- When set to **50 kHz**, the returns from the 50 kHz wide beam will be displayed in the Sonar View, the Sonar Zoom View, the Big Digits View, and the Circular Flasher View. The Split Sonar View will continue to display returns from both beams in their respective windows. The RTS Window™ will display the returns from the 50 kHz wide beam.

 64

| Surface Clutter | 5 |
| 1 ▮▮▮▮▭▭▭ | 10 |

Surface Clutter

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.

Surface Clutter

Surface Clutter

| SwitchFire | |
| ◀ Clear Mode ▶ | |
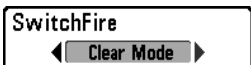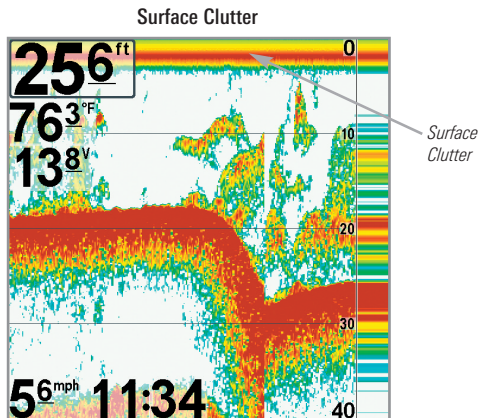
SwitchFire™

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, On; Default = Off

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.

In the **778c HD**, targets detected in the 200 kHz narrow beam are represented as orange fish symbols, and targets detected in the 83 kHz wide beam are represented as blue fish symbols.

Narrow Beam
Orange Fish Symbols

Wide Beam
Blue Fish Symbols

In the **778c HD XD**, targets detected in the 200 kHz narrow beam are represented as orange fish symbols, and targets detected in the 50 kHz wide beam are represented as blue fish symbols.

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
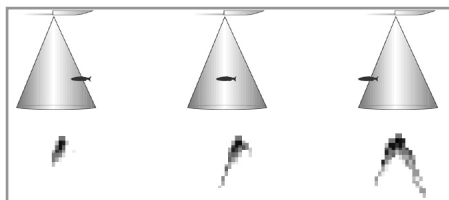
Fish ID Sensitivity	5
1 ■■■□□ 10	

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.

RTS Window
◄ Narrow ►

Real Time Sonar (RTS™) Window

Settings: Wide, Narrow, Off; Default = Narrow

RTS Window™ sets the RTS Window™ to either Wide or Narrow, or turns it off in the 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 Sonar Display* for more information.
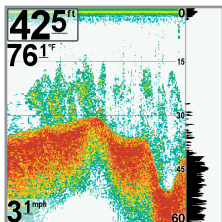
RTS Window™ (Wide)   RTS Window™ (Narrow)   RTS Window™ (Off)
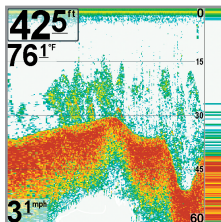
Sonar Colors
◀ **Original Palette** ▶
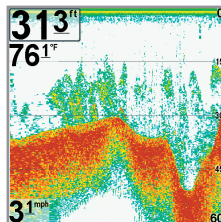
Sonar Colors

(Sonar View, Sonar Zoom View, Circular Flasher View, and Big Digits View)

Settings: Gray, Green, Inverse, Original Palette, Palette 1, Palette 2, Palette 3; Default = Original Palette

Sonar Colors allows you to select which color palette you would like to use for the display. The palette you choose will be applied to the Sonar View, Sonar Zoom View, Circular Flasher View (Ice Fishing Mode: Off), and Big Digits View.

- **Gray:** Light Gray (weak) to Black (strong)
- **Green:** Dark Green (weak) to Light Green (strong)
- **Inverse:** Black (weak) to White (strong)
- **Original Palette:** Cyan (weak) to Red (strong)
- **Palette 1:** Navy Blue (weak), Purple (medium), Yellow (strong)
- **Palette 2:** Navy Blue (weak), Green (medium), Yellow (strong)
- **Palette 3:** Navy Blue (weak) to Red (strong)

*NOTE: To change the color palette for the Circular Flasher View, see **Flasher X-Press™ Menu: Color Palette**.*

🖼 Bottom View
◀ **Structure ID** ▶

Bottom View

Settings: Structure ID, WhiteLine; Default = Structure ID

Bottom View selects the method used to represent bottom and structure on the display.

- **Structure ID®** represents weak returns in blue and strong returns in red. If the Sonar Colors palette is changed, the Structure ID® will display the strongest return as specified by the palette.
- **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.

See *What's on the Sonar Display: Sonar Colors and Bottom View* for more information.

Zoom Width
◀ **Wide** ▶

Zoom Width

Settings: Narrow, Medium, Wide; Default = Narrow

Zoom Width adjusts the width of the Zoom window on the Sonar Zoom View.

50kHz Sensitivity	5
0 ▮▮▮▮▮ ▯▯▯▯▯	10

50 kHz Sensitivity

(Advanced, XD Sonar only [778c HD XD])

Settings: -10 to +10; Default = 0

50 kHz Sensitivity changes the sensitivity of the 50 kHz beam. Increasing the 50 kHz Sensitivity will display additional weak returns, and decreasing the 50 kHz Sensitivity will display fewer weak returns.

NOTE: 50 kHz Sensitivity is particularly useful for adjusting the sensitivity of the 50 kHz sonar returns in the 200/50 kHz Split Sonar View. The 50 kHz sensitivity can be adjusted without affecting the sensitivity of the 200 kHz returns shown in the 200 kHz sonar window.

83kHz Sensitivity	0
-10 ▮▮▮▮▮ ▯▯▯▯▯	10

83 kHz Sensitivity

(Advanced, DualBeam PLUS™ Sonar only [778c HD])

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.

NOTE: 83 kHz Sensitivity is particularly useful for adjusting the sensitivity of the 83 kHz sonar returns in the 200/83 kHz Split Sonar View. The 83 kHz sensitivity can be adjusted without affecting the sensitivity of the 200 kHz returns shown in the 200 kHz sonar window.

455kH Sensitivity	0
-10 ▮▮▮▮▮ ▯▯▯▯▯	10

455 kHz Sensitivity

(Advanced, with optional-purchase QuadraBeam PLUS™ transducer)

Settings: -10 to +10; Default = 0

455 kHz Sensitivity adjusts the sensitivity of the 455 kHz beam. Increase the sensitivity to display additional weak returns and decrease the sensitivity to display fewer weak returns.

NOTE: 455 kHz Sensitivity is particularly useful for adjusting the sensitivity of the 455 kHz sonar returns in the Side Beam View. The 455 kHz sensitivity can be adjusted without affecting the sensitivity of the 200 kHz returns shown in the 200 kHz sonar window.

The 455 kHz Sensitivity menu option is available when a QuadraBeam PLUS™ transducer is attached to the Fishing System, User Mode is set to Advanced (see *Setup Menu Tab: User Mode*), and Transducer Select is set to QuadraBeam (see *Sonar Menu Tab: Transducer Select*).

*NOTE: Visit our Web site at **humminbird.com** to order this accessory online or contact our Customer Resource Center at **1-800-633-1468**.*

WideSide Sensitivity 0
-10 ▮▮▮▮ ▮ 10

WideSide® Sensitivity
(Advanced: with optional-purchase WideSide® transducer)

Settings: -10 to +10; Default = 0

WideSide® Sensitivity adjusts the sensitivity of the WideSide® beam. Increasing the sensitivity will display additional weak returns, and decreasing the sensitivity will display fewer weak returns.

A WideSide® transducer must be attached to the Fishing System. The WideSide® Sensitivity menu choice is available when Transducer Select is set to WideSide® (see *Sonar Menu Tab: Transducer Select*) and User Mode is set to Advanced (see *Setup Menu Tab: User Mode*).

*NOTE: The WideSide® Sensitivity requires the purchase of the WideSide® transducer. Visit our Web site at **humminbird.com** to order this accessory online or contact our Customer Resource Center at **1-800-633-1468**.*

WideSide® Sensitivity is particularly useful for adjusting the sensitivity of the 455 kHz sonar returns in the WideSide® View. The 455 kHz sensitivity can be adjusted without affecting the sensitivity of the other sonar frequencies.
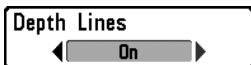
Depth Lines
◀ **On** ▶

Depth Lines

(Advanced)

Settings: Off, On; Default = On

Depth Lines divide the display into four equal sections that 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.

Depth Lines

Depth Lines
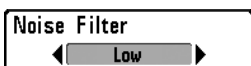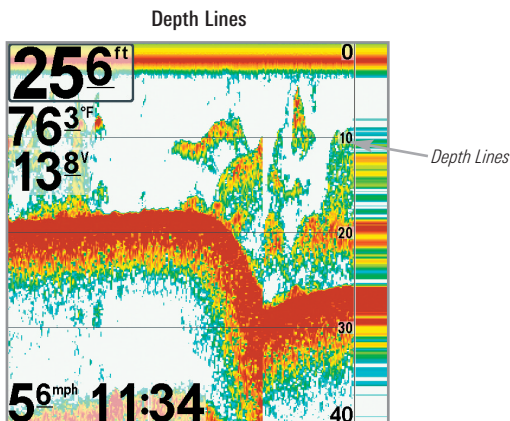
Noise Filter
◀ **Low** ▶

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	Auto
Auto ▮▮▮▮▮▮▮	1500
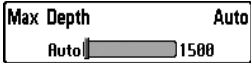
Max Depth

(Advanced)

Settings: Various, see below.

Max Depth controls the maximum depth of operation. When Max Depth is set to Auto, the Fishfinder will acquire bottom readings as needed (within the capacity of the unit). When Max Depth is set to match your fishing maximum depth, your Fishfinder 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 Fishfinder cannot locate the bottom.

The available Max Depth settings are determined by your Humminbird® model as follows:

- **778c HD:** Auto to 1500 ft, Auto to 500 m (International Models only); Default = Auto

- **778c HD XD:** Auto to 3200 ft, Auto to 975 m (International Models only); Default = Auto
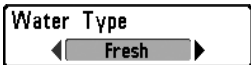
Water Type
◀ Fresh ▶

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. The Water Type menu option is available when User Mode is set to Advanced (see *Main Menu: User Mode*).

NOTE: Make sure that the Water Type is set accurately, especially in salt water, as this 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.

Transducer Select	
◀ **Dual Beam** ▶	

Transducer Select

Settings: Various, see below.

Transducer Select allows you to select which transducer you want to use. The transducer setting must correspond to the transducer type connected to your control head.

- **778c HD:** Your Fishing System will default to the DualBeam PLUS™ technology. Your Fishing System also supports the optional-purchase QuadraBeam PLUS™ transducer, optional-purchase WideSide® transducer, and optional-purchase Universal Sonar 2.

- **778c HD XD:** Your Fishing System will default to Dual 200/50. Your Fishing System also supports the optional-purchase DualBeam PLUS™ transducer (XNT 9 20) and optional-purchase Universal Sonar 2.

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

Ice Fishing Mode	
◀ Off ▶	

Ice Fishing Mode

Settings: Off, On; Default = Off

Ice Fishing Mode controls how information is displayed in the Circular Flasher View. When Ice Fishing Mode is off, the Circular Flasher View displays Real Time Sonar (RTS™) data in a traditional flasher format.

When Ice Fishing Mode is on, the Circular Flasher View displays the data in flasher format with additional features including Zoom and Depth Cursor. Also, the fishfinder's sensitivity settings are adjusted automatically to accommodate ice fishing conditions. These settings will apply to the other Sonar Views until you turn off the Ice Fishing Mode. See *Views: Circular Flasher View* for more information.

Units - Depth	Feet
Units - Temp	°F
Units - Distance	Statute Miles
Units - Speed	mph
User Mode	Advanced
Language	English
Triplog Reset	
Restore Defaults	
Select Readouts	
Depth Offset	0.0ft
Temp. Offset	0.0°
Speed Calibration	0%
Local Time Zone	EST (UTC-5)
Daylight Saving Time	Off
Position Format	dd°mm.mmm'
Time Format	12-Hour
Date Format	mm/dd/yy
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.*
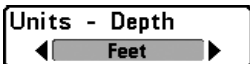
Units - Depth
◀ Feet ▶

Units - Depth

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

Units - Depth selects the units of measure for all depth-related readouts.
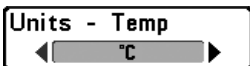
Units - Temp
◀ °C ▶

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
◀ Statute Miles ▶

Units - Distance

(Advanced, with optional Temp/Speed or GPS only)

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. This menu option is available if a Temp/Speed accessory is connected and the paddlewheel has moved at least once, or if a GPS Receiver is connected.
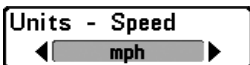
Units - Speed
◀ mph ▶

Units - Speed

(Advanced, with optional Temp/Speed or GPS only)

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

Units - Speed selects the units of measure for speed-related readouts. This menu option is available if a Temp/Speed accessory is connected and the paddlewheel has moved at least once, or if a GPS Receiver is connected.
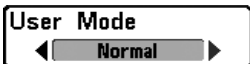
User Mode
◀ **Normal** ▶

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.
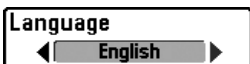
Language
◀ **English** ▶

Language

(International only)

Settings: Various, Default = English

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

	o Confirm:
Triplog Rese	Triplog Reset
	◀ No Yes ▶
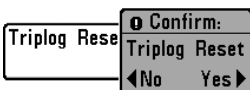
Triplog Reset

(with optional Temp/Speed or GPS only)

Settings: Press the RIGHT Cursor key and follow screen instructions to activate.

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

	o Confirm:
Restore De	Restore Defaults
	◀ No Yes ▶
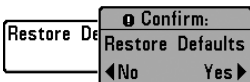
Restore Defaults

Settings: Press the RIGHT Cursor key and 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   Speed
Readout 5   Time+Date
Readout 6   ◀ Off ▶
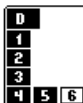
Select Readouts

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

Select Readouts

(Advanced, Sonar View 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 Sonar View screen. To leave the data window blank, select Off. See *Views* to change the Select Readouts.

Data windows can display readouts from connected equipment such as a GPS Receiver or the Temp/Speed accessory (optional-purchase required). Each data window can be empty or contain one of the following information categories: **Course, Navigation, Position, Speed, Temperature, Time + Date, Triplog, Voltage, Time, and Timer**.

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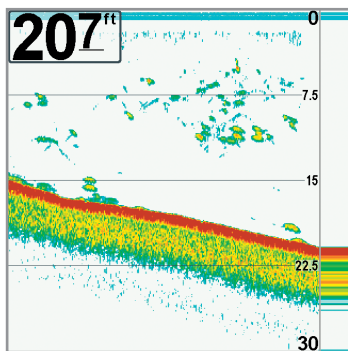
Customized Sonar View
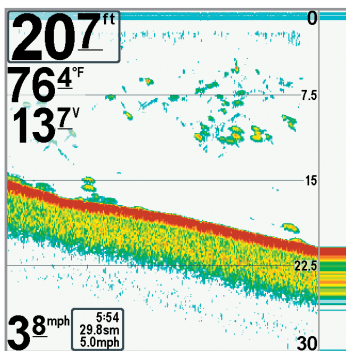
NOTE: The availability of the digital readout information corresponds with the view selected and the accessory attached.

Depth Offset 0.0ft
-10.0 [▮▮▮▮] 10.0

Depth Offset

(Advanced)

Settings: -10.0 to +10.0 ft, or -3 to 3 m [International Models only]; Default = 0

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.

Temp. Offset 0.0°
-10.0 [▮▮▮▮] 10.0

Temp. Offset

(Advanced, with optional Temp/Speed only)

Settings: -10.0 to +10.0 degrees; Default = 0

Temp. Offset will adjust the temperature readout by the amount entered. This menu option is available if a Temp/Speed Accessory is connected and the paddlewheel has moved at least once.

Speed Calibration 0%
-20 [▮▮▮▮] 20

Speed Calibration

(Advanced, with optional Temp/Speed only)

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

Speed Calibration will adjust the speed readout by the amount entered. This menu option is available if a Temp/Speed Accessory is connected and the paddlewheel has moved at least once.

Local Time Zone
◀ EST ⟨UTC-5⟩ ▶

Local Time Zone

(Advanced, with optional GPS only)

Settings: Various, Default = EST [UTC-5] - Eastern Standard Time

Local Time Zone selects your time zone in reference to the time reported by the GPS receiver when Time+Date is selected as a Digital Readout on the Sonar View (see *Setup Menu Tab: Select Readouts*).

Daylight Saving Time
◀ **Off** ▶

Daylight Saving Time

(Advanced, with optional GPS only)

Settings: Off, On; Default = Off

Daylight Saving Time adjusts the time display to account for local Daylight Saving Time when Time+Date is selected as a Digital Readout on the Sonar View (see *Setup Menu Tab: Select Readouts*).

Selecting On adds one hour to the time display adjusted for your local time zone. Selecting Off leaves the time display as adjusted for your local time zone.

Position Format
◀ **dd°mm.mmm'** ▶

Position Format

(Advanced, with optional GPS only)

Settings: dd.ddddd°, dd°mm.mmm', or dd°mm'ss"; Default = dd°mm.mmm'

Position Format selects the format of the latitude and longitude position display.

Time Format
◀ **12-Hour** ▶

Time Format

(Advanced, International only)

Settings: 12 hour, 24 hour; Default = 12 hour

Time Format changes the time format used by the unit. Time Format selects a 12 hour or 24 hour format for the time of day displayed when Time+Date is selected as a Digital Readout on the Sonar View (see *Setup Menu Tab: Select Readouts*).

Date Format
◀ **mm/dd/yy** ▶

Date Format

(Advanced, International only)

Settings: mm/dd/yy, dd.mm.yy, yy.mm.dd; Default = mm/dd/yy

Date Format changes the date format used by the unit. Date Format selects the format for the date display when Time+Date is selected as a Digital Readout on the Sonar View (see *Setup Menu Tab: Select Readouts*).

Digits Format
◀ Small tenths ▶

Digits Format

(Advanced)

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

Digits Format adds a tenth decimal place to the readouts such as Temperature and Depth. Use the settings to change the display of the decimal place or remove it from the digital readouts. Examples of the different settings are displayed below. Also, see *Select Readouts* and *Views*.

21.7ft
Small tenths

21.7ft
Large tenths

21ft
No tenths

NMEA Output
◀ Off ▶

NMEA Output

(Advanced)

Settings: Off, On; Default = Off

NMEA Output turns the NMEA* output on or off. A GPS receiver must be connected to the control head to enable trackplotter functions.

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.

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

The following NMEA sentences are output when NMEA Output is turned On:

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

APB - Autopilot Sentence B

BWR - Bearing and Distance to Waypoint

RMB - Recommended Minimum Navigation Info
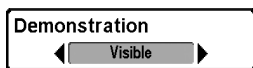
Demonstration		## Demonstration
◀	Visible ▶	**Settings: Off, Visible; Default = Visible**

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		## Sound Control
◀	All Sounds ▶	**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

((•))	⩘	⬛	🖼 Views	▫

Side Beam View	
	Visible
WideSide View	
	Visible
Sonar View	
	Visible
Sonar Zoom View	
	Visible
Split Sonar View	
	Visible
Big Digits View	
	Visible
Circular Flasher View	
	Visible
Self Test	
	Hidden
Accessory Test	
	Hidden

778c HD
Views Menu
Shown with optional Accessory Views

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 the operations manual that comes with your accessory for detailed information.

Accessories Menu Tab
(no accessories attached)
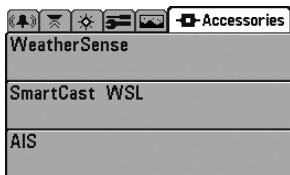
Accessories Menu Tab
(with accessories attached)

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

AIS

(with optional-purchase GPS Receiver and AIS equipment only)

Settings: Press the RIGHT Cursor key to activate.

Your Fishing System is compatible with AIS technology. This equipment must be purchased separately and connected properly to the control head for AIS to be activated in your Fishing System.

When an AIS is connected to the Fishing System, AIS will appear as a menu option in the Accessories Menu Tab. AIS allows you to locate and monitor other vessels, or Targets, within range of the VHF signal. The AIS then exchanges information with those targets, including vessel identification, position, course, and speed.

Vessel Icons

	Cargo Boat		Unidentified Boat
	Dredge Boat		Sail Boat
	Law Boat		Tow Boat
	Passenger Boat		Tug Boat
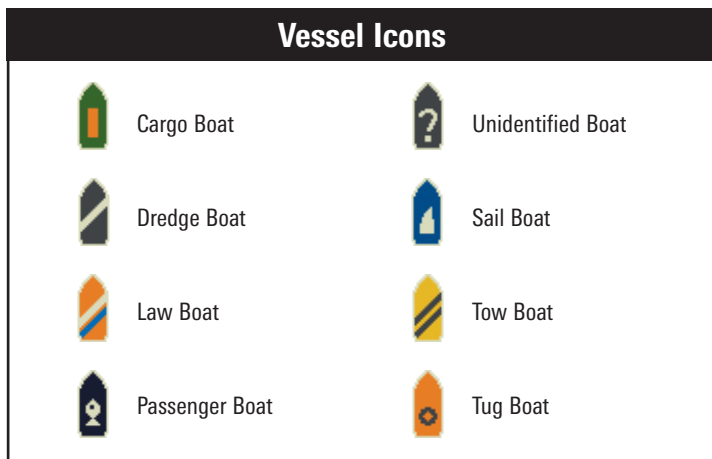
As target information is received, the information is displayed in the Track View. In Bird's Eye View, only the target position is displayed.

- **Vessel Icons** identify the type of target.

- **Alarm & Red Vessel Icon** identify a target that has exceeded the CPA (Closest Point of Approach) setting. The alarm sound and banner will display on the screen. Press any key to stop the alarm, but the vessel icon will continue to display as red until it is out of the CPA alarm zone.

- **Available Targets:** If the AIS has not received information from a target within 10 minutes, the target will turn gray. If information is not received after 15 minutes, the target will disappear from the view. Also, if there are several targets on the view, and a new target message is received, the oldest target will disappear from the view.

- **MMSI Tag (Maritime Mobile Service Identity)** will be displayed if it is available for each target.

- **Target Course Lines** point in the direction of a vessel's course. The length of the line can be adjusted in the Target Course Line setting in the AIS Submenu.

- **Target Details:** Information about each target can be found in the Target List in the AIS submenu. You can also use the 4-WAY Cursor Control key to move the active cursor onto a vessel icon. Press the CHECK/INFO key to view available information, including target name, speed, course, latitude/longitude position, registration, call sign, and more.

- **AIS Submenu** allows you to control and view AIS information.

Track View with AIS

Your Boat Icon

Target Course Line

Target (Vessel in the area)

Gray Target (information unavailable)
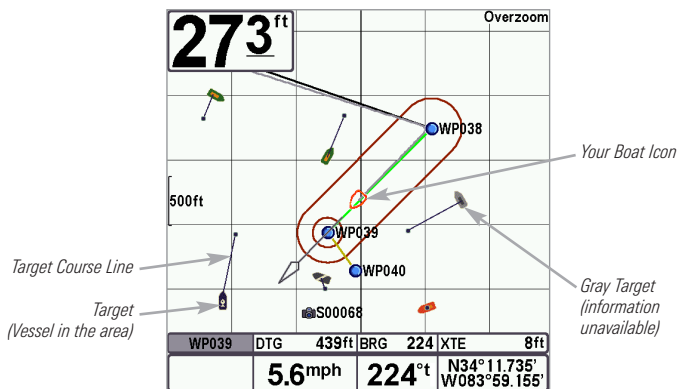
```
      AIS
Tracking Target
                On
CPA Limits

Target List

Target Course Line
             60:00
MMSI Label
           Visible
```

AIS Submenu: The AIS submenu allows you to track targets, receive alerts when targets are within the distance you set, and display targets in Track View. In Bird's Eye View, only the position will be displayed.

To change settings in the AIS Submenu:

Highlight AIS in the Accessories Menu tab, and press the RIGHT Cursor key to access the AIS Submenu.

Tracking Target sets targets and related information to be visible (On) or hidden (Off) in the Track View. In Bird's Eye View, only target position will be displayed. (Settings: On, Off; Default = On)

CPA (Closest Point of Approach) Limits sets how close a vessel can approach. The amount can be set in nautical miles or time. When the vessel has traveled past the set limit, the Vessel Icon will turn red in the view and an alarm will sound. Press any key to turn off the alarm. Press the RIGHT Cursor key to open the dialog box.

CPA sets the closest point of approach, measured in nautical miles.

TCPA sets the closest point of approach, measured in time.

Target List shows active targets and related information that is available with each AIS update. Press the RIGHT Cursor key to open the Target List.

Sort: The list is sorted by MMSI number (if available). Targets without an MMSI will be shown at the bottom of the list.

Scroll: Use the UP or DOWN Cursor keys to scroll through the list and highlight targets. Press and hold the DOWN Cursor key to scroll through all the targets on the list quickly.

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Target Highlight: Highlight a target on the Target List, and press the RIGHT Cursor key. The Target List will close and the active cursor will go to the target you highlighted. Press the EXIT key to remove the active cursor from the screen.

Target Course Line turns course lines off or sets the amount of time represented on the target course line. The length of the course line indicates the last known ship speed, while the direction of the arrow shows heading. (Settings: Off, 00:00 - 59:59; Default = 5:00)

MMSI Label (Maritime Mobile Service Identity) sets the MMSI label information to be Visible or Hidden. (Settings: Visible, Hidden; Default = Visible)

AIS Target List

Name	MMSI	IMO	Speed	TCPA
SANDY HO- OK	101	91628226	3.00	
HURTIGRU- TEN	102	77660349	0.00	
TANKER	103	77658844	3.30	1:58
AIS VESS- EL 4	104	10004	5.70	
				▼

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.	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.
	Electrical noise from the boat's engine may be interfering with sonar reception. See *Finding the Cause of Noise* for more information.
There are no fish detected, even when you know they are in the water under the boat, or sonar readings seem weak or faulty.	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 re-positioning the transducer, and make sure the transducer is clean.
	Low battery voltage may be affecting the power of signal transmission.
	Electrical noise from the boat's engine may be interfering with sonar reception. See *Finding the Cause of Noise* for more information.

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.

778c HD Specifications

Depth Capability . . . . 1500 ft (500 m)

Power Output . . . . 500 Watts (RMS)
4000 Watts (Peak to Peak)

Operating Frequency . . . . 200 kHz and 83 kHz

Area of Coverage . . . . DualBeam PLUS™: 60° @ -10 dB in 83 kHz
20° @ -10 dB in 200 kHz

Target Separation . . . . 2 1/2 Inches (63.5 mm)

Power Requirement . . . . 10-20 VDC

Current Draw . . . . 650 mA

LCD Matrix. . . . . 640 V x 640 H

Transducer . . . . XNT 9 20 T

Transducer Cable Length . . . . 20 ft (6 m)

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.

778c HD XD Specifications

Depth Capability. . . . . 2500 ft (762 m)

Power Output. . . . . 500 W (RMS)
4000 W (Peak to Peak)

Operating Frequency . . . . 50 kHz and 200 kHz

Area of Coverage. . . . . 74° @ -10 dB in 50 kHz,
20° @ -10 dB in 200 kHz

Target Separation . . . . 2 1/2 Inches (63.5 mm)

Power Requirement. . . . . 10-20 VDC

Current Draw. . . . . 650 mA

LCD Matrix . . . . 640 V x 640 H

Transducer . . . . XNT 9 DB 74 T

Transducer Cable Length. . . . . 20 ft (6 m)

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.

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

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

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

This symbol (WEEE wheelie bin) on product indicates the product must not be disposed of with other household refuse. It must be disposed of and collected for recycling and recovery of waste EEE. Johnson Outdoors Marine Electronics, Inc. will mark all EEE products in accordance with the WEEE Directive. It is our goal to comply in the collection, treatment, recovery, and environmentally sound disposal of those products; however, these requirements do vary within European Union member states. For more information about where you should dispose of your waste equipment for recycling and recovery and/or your European Union member state requirements, please contact your dealer or distributor from which your product was purchased.

Glossary

<u>Sonar Terms:</u>

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 boats 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:

Humminbird
Service Department
678 Humminbird Lane
Eufaula, AL 36027 USA

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