

# Operations Manual

531369-1\_F



Matrix 10



Matrix 12



Matrix 17



Matrix 20



Matrix 27



Matrix 37

 **HUMMINBIRD**

**Matrix**<sup>®</sup>  
FISHING SYSTEM

## Thank You!

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**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.*

**NOTE:** *All screens and graphics used in this manual are based on the 320V x 320H display size of the Matrix 17; however, this information is applicable to the models which have 240V x 160H, 240V x 240H and 640V x 320H displays also.*

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*NOTE: Entries in this Table of Contents which list (DualBeam PLUS™ and QuadraBeam® Only) are only available on products sold with a DualBeam PLUS™ or QuadraBeam® transducer.*

*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 [www.humminbird.com](http://www.humminbird.com) or contact our Customer Resource Center at (334) 687-6613.*

*NOTE: Entries in this Table of Contents which list (with Temp/Speed or GPS Receiver, or (with PC Connect Cable Only) require the purchase of separate accessories. You can visit our web site at [www.humminbird.com](http://www.humminbird.com) to order these accessories online or contact our Customer Resource Center at 1-800-633-1468.*

## **How Sonar Works**

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

Your Matrix 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  $\frac{1}{4}$  of a second. It is unlikely that your boat can "outrun" this sonar signal.

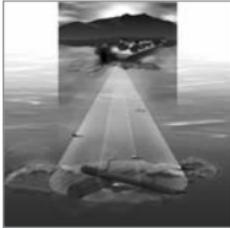
Your Matrix Fishing System will either have Single Beam, DualBeam PLUS™ or QuadraBeam™ sonar. Find the correct sonar description that applies to your unit.



## Single Beam Sonar

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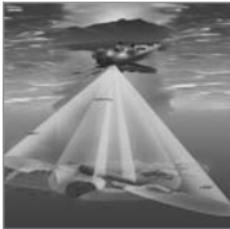
Your Matrix 10, 12 or 20 uses a 200 kHz single beam sonar system with a 20° area of coverage. Depth capability is affected by such factors as boat speed, wave action, bottom hardness, water conditions and transducer installation.



## DualBeam PLUS™ Sonar

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Your Matrix 17 or 27 uses a 200/83 kHz DualBeam PLUS™ sonar system with a wide (60°) area of coverage. 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.



## QuadraBeam™ Sonar

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Your Matrix 37 Fishing System uses QuadraBeam® sonar. QuadraBeam® sonar provides an extremely wide 90° area of coverage. QuadraBeam® starts with two 45° 455 kHz beams for a continuous 90° of uninterrupted side to side coverage to 160 feet. These Side Structure locating beams reveal fish and structure to the left and right of your boat near the bottom. For structure directly below your boat, QuadraBeam® uses DualBeamPLUS™ technology.

# What's On the Display

The Matrix Fishing System can display a variety of useful information about the area

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

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

**Temperature** - water surface temperature.

**Timer** - elapsed time with Temp/Speed Accessory 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.

**Bait Ball**

**Hard Bottom**

**Rocky Bottom**

**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** - available in Freeze Frame and can depth of a sonar return and bottom depth



**Cursor Dialog Box** - indicates cursor depth directly below the cursor.

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

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

be positioned in the Sonar View to provide below the cursor.



**83 kHz, Wide Beam Hollow Fish Symbol (DualBeam PLUS™ Units Only)**

**Structure** - where fish may be hiding.

**Fish** - fish are displayed as arches and/or fish icons, and the unit can be set to alarm when a fish of a certain size is detected. When a target is detected and Fish ID+ is on, a Fish ID+™ symbol with depth is displayed. The size of the symbol shows 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.

**200 kHz, Narrow Beam Shaded Fish Symbol**

**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 gray levels moving across the display at the same depth.

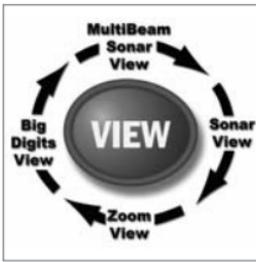
**Soft Bottom**

**RTS™ (Real Time Sonar) Window**

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

on the display and the depth of the bottom

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



## Views

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The views available on your Matrix Fishing System are:

- Sonar View
- Zoom View
- 200/83 kHz Split Sonar View (DualBeam PLUS™ and QuadraBeam® Only)
- Big Digits View
- Side Beam View (QuadraBeam® Only).

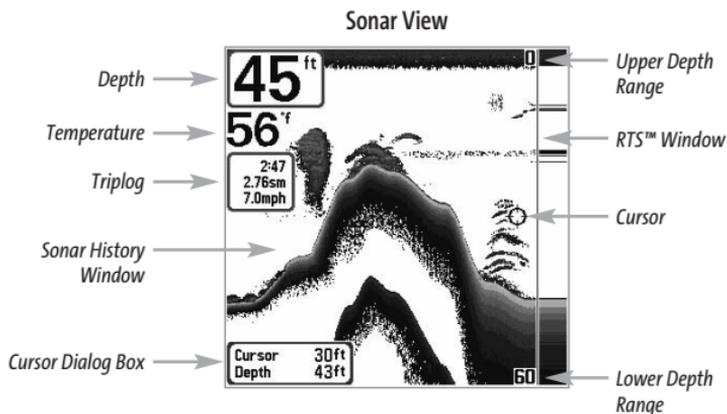
**Sonar View** is the default view. When the VIEW key is pressed, the display cycles through the available views. When the EXIT key is pressed, the display cycles through the available views in reverse order. Any view can be hidden or displayed as part of the view rotation using Select View from the Advanced Setup Menu.

*NOTE: When you change any menu settings that affect the sonar, the view will update immediately (i.e. you don't have to exit the menu to apply the change to the screen). For instance, by switching between "Inverse" and "Structure ID®" from the X-Press™ Menu it is possible to quickly alternate between the two viewing methods.*

## Sonar View

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**Sonar View** presents a historical log of sonar returns. Depth is always displayed. Readouts for temperature and speed are automatically displayed if the appropriate accessory is connected. The most recent sonar returns are charted on the right side of the window; as new information is received, the older information is moved across the display to the left. A Digital Depth Readout is displayed in the upper left corner. A scale with Upper and Lower Depth Range readouts appears along the right edge of the Sonar View. The scale indicates the distance from the surface of the water to a depth range sufficient to show the bottom. Depth Range is automatically selected to keep the bottom visible on the display, although you can adjust it manually as well (see **Sonar X-Press™ Menu**). Either five or six additional Digital Readouts (depending on your model) display information from optional-purchase accessories. These information boxes can be customized to show only the information desired (see **Setup Menu Tab, Select Readouts**).



**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.

**Freeze Frame** - Pressing any arrow on the 4-WAY Cursor Control key will freeze the screen in the Sonar View and a cursor will be displayed on the screen. The cursor can be positioned on the display using the 4-WAY Cursor Control key to determine the depth of any sonar return. The RTS™ Window continues to update in Freeze Frame. In addition, see the effects of menu setting changes with Instant Image Update. Pressing EXIT will exit Freeze Frame and the display will start to scroll. Freeze Frame is only available in the Sonar View.

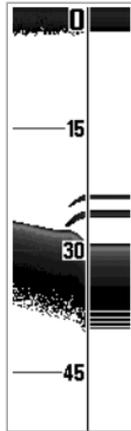
## **Understanding Sonar History**

It is important to understand the significance of the Matrix Fishing System 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.

## 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 always 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 - RTS™ Window*).

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



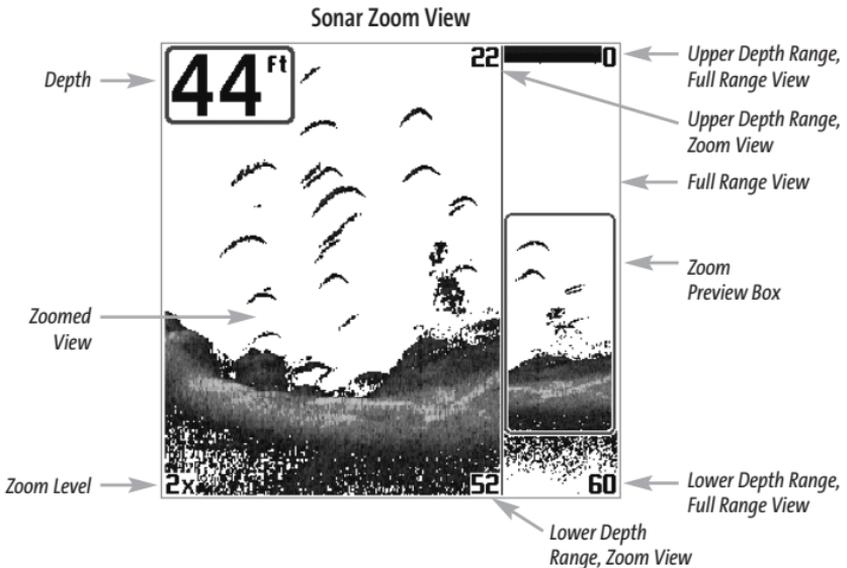
The **Wide RTS™ Window** indicates the sonar intensity through the use of a bar graph. The length of the plotted return provides an indication of whether the return is weak or strong. The depth of the sonar return is indicated by the vertical placement of the return on the display depth scale. The Wide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

## Sonar Zoom View

**Sonar Zoom View** increases the displayed resolution to separate sonar returns that are very close together, such as those caused by fish suspended close to the bottom or within structure. In Zoom View, the display is split to show a narrow slice of the full range view on the right and the zoomed view on the left. The full range view on the right also contains the Zoom Preview Box that shows what part of the full range view is shown in zoom view on the left; the Zoom Preview Box tracks the bottom in the full range view.

As the depth changes, the zoomed view updates automatically to display a magnified image of the bottom. The Zoom Preview Box shows where the zoomed view is in relation to the full range view. The Zoom Level, or magnification, is displayed in the lower left corner and can be changed to suit conditions (see **Sonar X-Press™ Menu: Zoom Level**). Upper and Lower Zoom Depth Range numbers indicate the depth of the water which is being viewed.

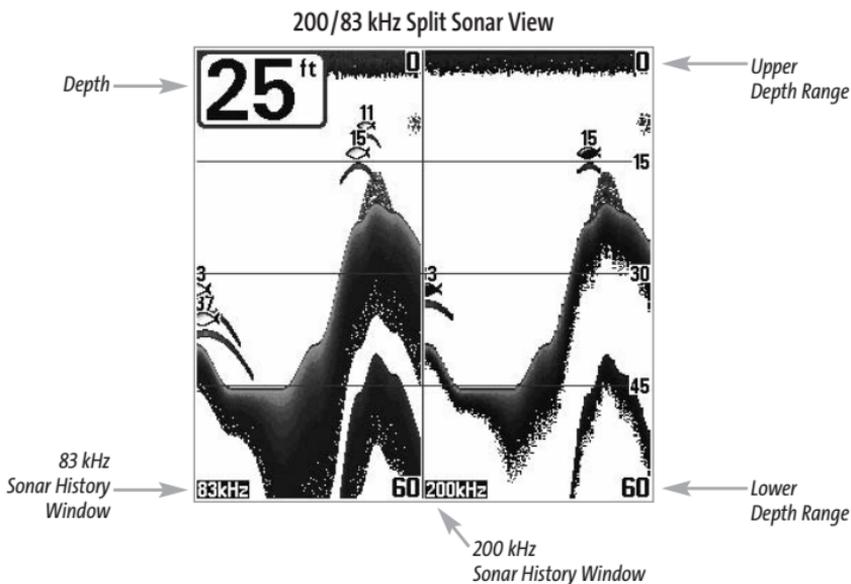
Digital depth is displayed in the upper left hand corner. The digital readouts in the Sonar Zoom View cannot be customized; therefore, information such as water temperature and voltage are unavailable in the Sonar Zoom View.



## 200/83 kHz Split Sonar View (DualBeam PLUS™ and QuadraBeam® Only)

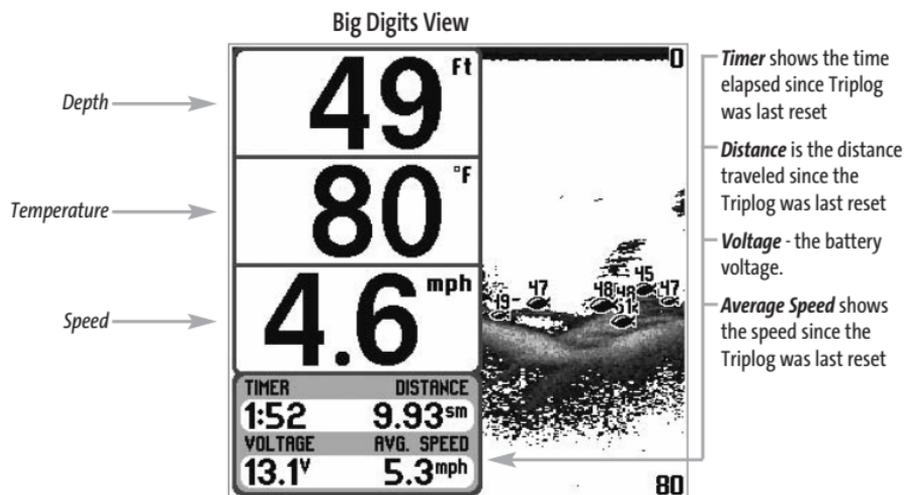
**Split Sonar View** displays sonar returns from the 83 kHz wide beam on the left side of the screen and displays sonar returns from the 200 kHz narrow beam on the right side of the screen. Depth is always displayed in the upper left hand corner. You can use the Split Sonar View to make side by side comparisons between the sonar returns from the 83 kHz wide beam and the 200 kHz narrow beam.

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.



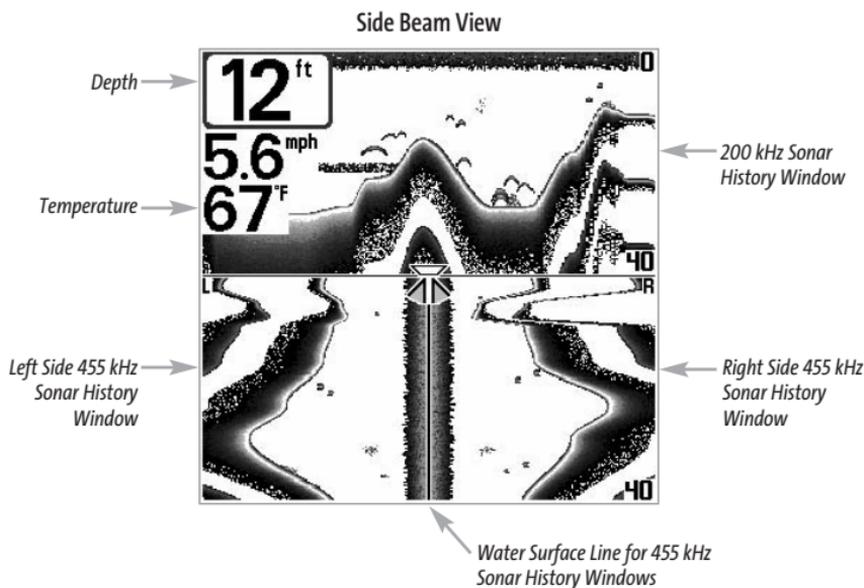
## Big Digits View

**Big Digits View** provides digital data in a large, easy-to-see format. Depth is always displayed. Readouts for temperature, speed and Triplog information are displayed automatically if the appropriate accessory is connected to the system. The Triplog shows distance traveled, average speed, and time elapsed since the Triplog was last reset. The digital readouts in the Big Digits View cannot be customized.



## Side Beam View (QuadraBeam® Only)

**Side Beam View** shows sonar information from both the left and right 90° 455 kHz beams and the 200 kHz down-looking beam in one view. The top portion of the display presents a historical log of sonar returns from the 200 kHz down-looking sonar. The bottom portion of the display presents a historical log of sonar returns from the 455 kHz right- and left-looking sonar. New information appears at the top, and scrolls down the display in the 455 kHz Windows. The sonar information from the side-looking beams reveal bottom contour, structure and fish similar to the down-looking beam, but the area covered is to the left and right of the area shown in the down-looking portion so you actually see more of the bottom. The distance covered by the right and left 90° beams is based on the depth setting for the down-looking beam, up to a maximum of 160 feet.

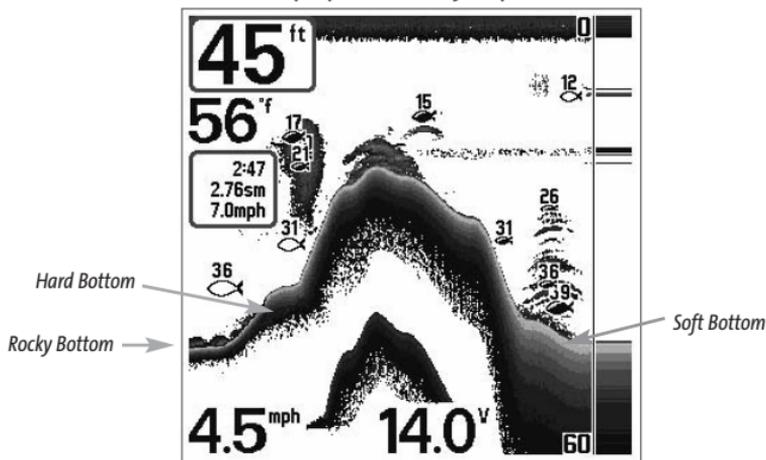


The digital readouts in the Side Beam View cannot be customized.

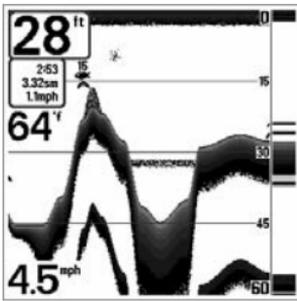
## Bottom Presentation

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

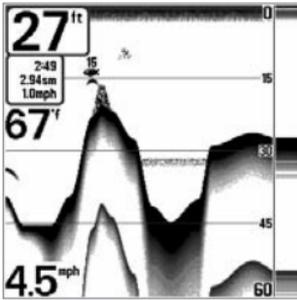
Bottom Contour Profile with RTS™ Window.  
Temp/Speed Accessory is optional.



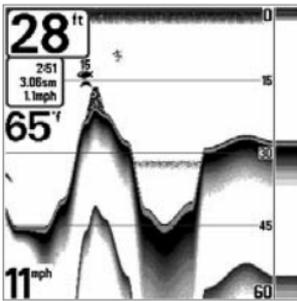
The sonar returns from the bottom, structure and fish can be represented as either **Inverse** (default), **WhiteLine™**, **Structure ID®**, or **Bottom Black**. See *Sonar X-Press™ Menu: Bottom View* for details on how to set the bottom view.



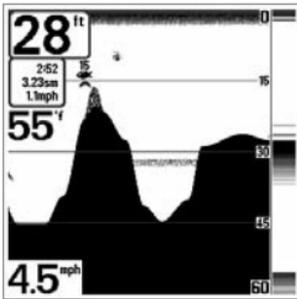
**Inverse** is a method where weak returns are shown with dark pixels and strong returns with lighter pixels. This has the benefit of ensuring that weak signals will be clearly visible on the display.



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



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



**Bottom Black** displays all pixels below the bottom contour as black, regardless of signal strength. This has the benefit of providing a high contrast between the bottom and other sonar returns on the display. Any targets such as fish, structure and thermoclines will be shown using the Structure ID® method.

## Key Functions

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Your Matrix 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.

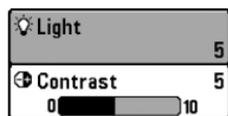


### POWER/LIGHT Key

---

The POWER/LIGHT key is used to turn the Matrix Fishing System on and off, and also to adjust the backlight and contrast of the display.

Press the POWER/LIGHT key to turn the unit on. The Title screen is then displayed until the Fishing System begins sonar operation.



Your Fishing System will start up with the backlight on and will automatically turn it off to conserve power. To turn the backlight on for night fishing, or to adjust the display contrast, press the POWER/LIGHT key to access the Light and Contrast menu. Use

the 4-WAY Cursor key to select Light or Contrast and then use the LEFT or RIGHT Cursor key to change the settings. Press EXIT to exit the Light and Contrast menu.

Press and hold the POWER/LIGHT key for 3 seconds to turn the unit off. A message will appear telling you how many seconds there are until shutdown occurs. Your Fishing System should always be turned off using the POWER/LIGHT key. This will ensure that shutdown occurs properly and any menu settings will be saved.



### 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 *Setup Menu Tab: Select Views, Advanced*).



## **MENU Key**

---

The MENU key is used to access the menu system.

**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 for the Sonar X-Press™ Menu. The X-Press™ Menu allows you to access frequently-used settings without having to navigate through the whole menu system. When the X-Press™ Menu is displayed, you can use the UP or DOWN Cursor keys to move to a particular menu choice. As soon as you alter a parameter (using the RIGHT or LEFT Cursor keys) the X-Press™ Menu will collapse temporarily, and the screen will update if it is affected by your menu setting change, allowing you to see the effects of your action immediately. Reactivate the X-Press™ Menu by using the UP or DOWN Cursor keys.

**Main Menu** - Press the MENU key twice for the tabbed Main Menu System. The Main Menu System is organized under tabbed headings to help you find a specific menu item quickly: Alarms, Sonar, Setup and Accessories tabs are part of your tabbed Main Menu System. Use the LEFT or RIGHT 4-WAY Cursor Control key to select a tab; then use the DOWN or UP key to select the menu item, and the LEFT or RIGHT key to alter a menu setting.



## **4-WAY Cursor Control Key**

---

Use the DOWN or UP arrow keys to select a menu choice from the menu list, then use the LEFT or RIGHT arrow keys to change a menu setting.

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

Press any arrow key to activate Freeze Frame while in the Sonar View and then use the 4-WAY Cursor Control Key to position the cursor on the display.

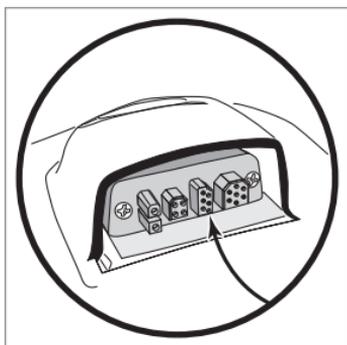


## **EXIT Key**

---

The EXIT key has multiple functions, depending on the situation:

- If an alarm is sounding, pressing EXIT will cancel the alarm.
- If a menu tab is selected, pressing EXIT will exit the menu mode and return to the view.
- If a menu is active, pressing EXIT will return to the previous level in the menu system.
- Pressing EXIT will cycle through the available views in reverse order.
- If Freeze Frame is active, pressing EXIT will return to a scrolling display.



## Accessory Bus

Use the Accessory Bus to expand the functionality of the Matrix Fishing System. Accessories plug directly into the Matrix Fishing System, enabling Advanced features such as WeatherSense™, GPS Functionality and the SmartCast® Wireless Sonar Link. Additional menu tabs and menu choices will be added to the menu system automatically when an accessory is plugged into the unit. In addition,

multiple accessories can be attached simultaneously. See **Accessories Menu Tab** and **Matrix Fishing System Accessories** in this manual, as well as your accessory's Operations Manual for additional details.

**NOTE:** Accessories to enable WeatherSense™, GPS Functionality and the SmartCast® Wireless Sonar Link require separate purchases. You can visit our website at [www.humminbird.com](http://www.humminbird.com) or contact our Customer Resource Center at 1-800-633-1468 for additional details.



## Powering Up the Unit

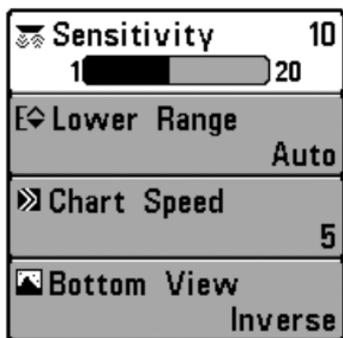
Turn on your Matrix Fishing System by pressing the POWER/LIGHT key. The Title screen is displayed until the Fishing System begins operation. Your Fishing System will begin Normal or Simulator operation, depending on the presence or absence of a transducer.

This is a typical Title screen for the Matrix 17. Your model may have a slightly different Title screen.

## The Menu System

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

**Start-Up Options Menu** - Press the MENU key during the power up sequence to view the Start-Up Options menu.

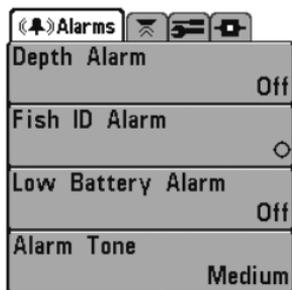


X-Press™ Menu

**X-Press™ Menu** - The X-Press™ Menu allows you to access the settings that are changed frequently without having to navigate through the whole menu system. Press the MENU key once to display the X-Press™ Menu. When you select a menu item from the X-Press™ Menu, the menu will collapse, leaving only the menu choice on the screen. Use the UP or DOWN Cursor keys to reactivate the X-Press™ Menu.

*NOTE: The X-Press™ Menu choices will vary depending on which view is active when you press the MENU key, as well as whether you are in Normal or Advanced User Mode.*

**Main Menu Tabs** - Less frequently-adjusted menus are grouped into the Main Menu System. The Main Menu system is organized under the following tab headings to help you find a specific menu item quickly: Alarms, Sonar, Setup, and Accessories.

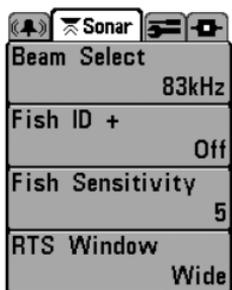


Main Menu System  
Normal User Mode

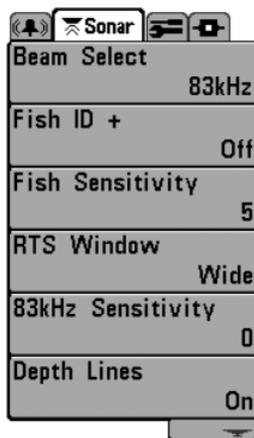
Press the MENU key twice for the Main Menu, then use the 4-WAY Cursor LEFT or RIGHT key to select a tab, and use the DOWN or UP key to select a specific menu item under that tab, then use the LEFT or RIGHT keys again to change a menu setting. Press the EXIT key to move quickly to the top of the tab. A down arrow at the bottom of a menu means that you can scroll to additional menu choices using the DOWN Cursor key. A right or left arrow on a menu choice means that you can use the RIGHT or LEFT Cursor keys to make changes or see more information.

*NOTE: The Main Menu choices will vary depending on whether you are in Normal or Advanced User Mode.*

**User Mode (Normal or Advanced)** - An Advanced Mode is provided for users who desire the highest level of control over the Fishing System and Normal Mode for users who desire greater simplicity and fewer menu choices. Additional Advanced menu choices will be displayed throughout the menu system when you navigate to specific menus while in Advanced Mode. Any changes made while in Advanced Mode will remain in effect after you switch back to Normal Mode. For example, if you set specific views to be visible while in Advanced User Mode, and then return to Normal User Mode, those views will still be visible. See *Setup Menu Tab: User Mode* for specific instructions on changing to Advanced User Mode.



Sonar Tab, Normal Mode



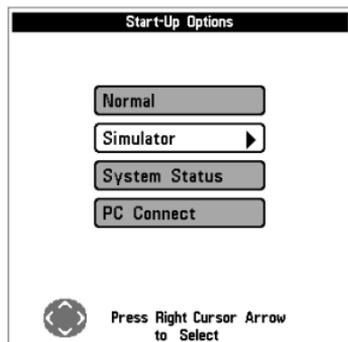
Sonar Tab, Advanced Mode

**Total Screen Update** - when you change any menu settings that affect the Sonar View, the view will update immediately (i.e. you don't have to exit the menu to apply the change to the screen). For instance, by switching between "Inverse" and "Structure ID®" from the X-Press™ Menu it is possible to alternate quickly between the two viewing methods.

## Start-Up Options Menu

---

Press the MENU key when the Title screen is displayed to access the Start-Up Options menu.



Start-Up Options Menu

Use the UP or DOWN 4-WAY Cursor keys to position the cursor, then the RIGHT Cursor key to select one of the following choices. If you wait too long, the system will default to whichever menu mode happens to be highlighted:

- Normal
- Simulator
- System Status
- PC Connect (use with PC Connect Cable).

See the following paragraphs for more information about each of these choices.

## Normal Operation

---

Use Normal operation for on the water operation with a transducer connected. In addition, your Matrix Fishing System uses advanced transducer detection methods to determine if a transducer is 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.

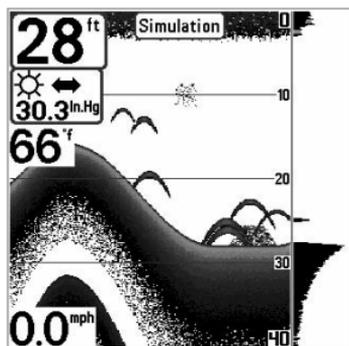
Exit Normal operation by powering your Fishing System off.

## Simulator

---

Use the Simulator to learn how to use your Matrix Fishing System before taking your boat on the water. The Simulator is a very powerful tool that simulates on the water operation, providing a randomly-updated display. We recommend going through this manual while using the Simulator, since all of the menu function and affect the display the way they actually do when in Normal operation.

***NOTE:** To get the full benefit of the Simulator, 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). Manually selecting Simulator from the Start-Up Options menu allows you to pre-configure your Matrix Fishing System for on the water operation. Any menu changes you make will be saved for later use.*



Simulator, Shown with Optional WeatherSense™ Accessory

A message will appear on the display periodically to remind you that you are using the Simulator.

Exit the Simulator by powering your Fishing System off.

SYSTEM STATUS	
SELF TEST	
PASSED	
S/N	
0-1-100000000	
SOFTWARE VERSION	
2.005	
VOLTAGE	TOTAL TIME
13.8 <sup>v</sup>	84 <sup>hrs</sup>
PCB S/N	
0-0-0000000	
Press VIEW for Next Screen	

System Status Self Test 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.

SYSTEM STATUS	
ACCESSORY TEST	
GPS	UNCONNECTED
SmartCast WSL	UNCONNECTED
Speed	CONNECTED
Temperature	CONNECTED
WeatherSense	UNCONNECTED
Exit SYSTEM STATUS by powering the unit off	

System Status Accessory Test Screen

Exit System Status by powering your Fishing System off.

## PC Connect (With PC Connect Cable Only)

Use PC Connect to update the software of the Matrix control head. This feature requires the use of the PC Connect Cable. Complete instructions are included with the PC Connect Cable accessory.

*NOTE: The PC Connect Cable requires a separate purchase. For more information visit our website at [www.humminbird.com](http://www.humminbird.com) or contact our Customer Resource Center at 1-800-633-1468.*

Exit PC Connect mode by powering the Fishing System off.

## System Status

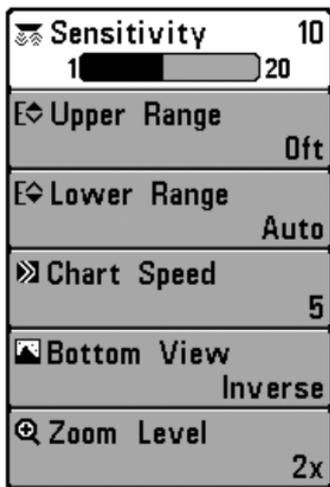
Use System Status to view system connections and to conduct a unit self-test.

The following screens are displayed in turn when you press the VIEW button when using System Status:

- Self Test
- Accessory Test.

**Accessory Test** lists the accessories connected to the system.

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



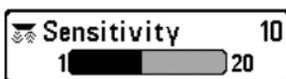
Sonar X-Press™ Menu

## Sonar X-Press™ Menu

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

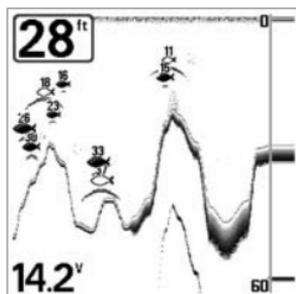
*NOTE: Upper Range only appears in Advanced User Mode when in Sonar, Split Sonar or Big Digits View.*

*NOTE: Zoom Level only appears in Sonar Zoom View.*

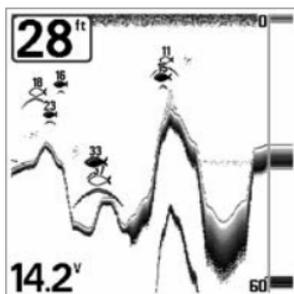


## Sensitivity

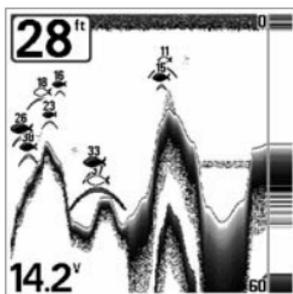
**Sensitivity** controls how much detail is shown on the display. Increasing the sensitivity shows more sonar returns from small baitfish and suspended debris in the water; however, the display may become too cluttered. When operating in very clear water or greater depths, increased sensitivity shows weaker returns that may be of interest. Decreasing the sensitivity eliminates the clutter from the display that is sometimes present in murky or muddy water. If Sensitivity is adjusted too low, the display may not show many sonar returns that could be fish.



Sensitivity at Low



Sensitivity at Medium



Sensitivity at High

## To adjust the Sensitivity:

1. Highlight Sensitivity on the Sonar X-Press™ Menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to increase or decrease the Sensitivity setting. (Low = 1, High = 20, Default = 10)



## **Upper Range**

**(Advanced: Sonar, Split Sonar and Big Digits Views Only)**

**Upper Range** sets the shallowest depth range that will be displayed on the Sonar, Split Sonar and Big Digits Views. The Upper Range menu choice is available when User Mode is set to Advanced (see *Setup Menu Tab: User Mode*) and can only be accessed from the Sonar, Split Sonar and Big Digits Views. Upper Range is often used with Lower Range.

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

## To adjust the Upper Range:

1. Make sure you are in Advanced Mode, then highlight Upper Range on the Sonar X-Press™ Menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to increase or decrease the Upper Range setting. (0 to 790/990/1490 feet or 0 to 257/327/497 meters *[International Models Only]*, Default = 0)

***NOTE:** Settings are dependent on the depth capability of your particular Fishing System model.*



## Lower Range

**Lower Range** sets the deepest depth range that will be displayed. Automatic is the default setting. When in automatic mode, the lower range will be adjusted by the unit to follow the bottom. Selecting a specific setting locks the depth range into Manual mode. Use both Upper and Lower Range together to view a specific depth range manually when looking for fish or bottom structure.

**M** will be displayed in the lower right corner of the screen when you start manually adjusting the Lower Range to indicate that you are in Manual mode.

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

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

### To adjust the Lower Range:

1. Highlight Lower Range on the Sonar X-Press™ Menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to increase or decrease the Lower Range setting. (AUTO, 10 to 800/1000/1500 feet, 3 to 260/330/500 meters [*International Models Only*], Default = AUTO)

**NOTE:** Settings are dependent on the depth capability of your particular Fishing System model.

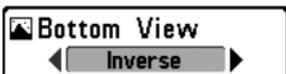


## Chart Speed

**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. Adjust Chart Speed to your personal preference.

### To adjust the Chart Speed:

1. Highlight Chart Speed on the Sonar X-Press™ Menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to increase or decrease the Chart Speed setting. (1-9, Ultra, where 1 = Slow, 9 = Fast, Ultra = Fastest, Default = 4)

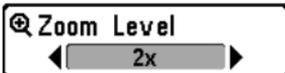


## Bottom View

**Bottom View** selects the method used to represent bottom and structure on the display. **Inverse** represents weak returns as dark pixels and strong returns as lighter pixels. This has the benefit of ensuring that weak signals will be clearly visible on the display. **Structure ID®** represents weak returns as light pixels and strong returns as dark pixels. This has the benefit of ensuring that strong returns will be clearly visible on the display. **Whiteline™** highlights the strongest sonar returns in white resulting in a distinctive outline. This has the benefit of clearly defining the bottom on the display. **Bottom Black** displays all pixels below the bottom contour as black, regardless of signal strength. This has the benefit of providing a high contrast between the bottom and other sonar returns on the display. Any targets such as fish, structure and thermoclines will be shown using the Structure ID® method. See **Bottom Presentation** for more information.

### To adjust the Bottom View:

1. Highlight Bottom View on the Sonar X-Press™ Menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Bottom View setting. (Inverse, Structure ID®, Whiteline™, Bottom Black, Default = Inverse)



## **Zoom Level**

**(Sonar Zoom View Only)**

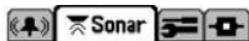
---

**Zoom Level** sets the magnification level for the Sonar Zoom View, and is only available on the X-Press™ Menu when the Sonar Zoom View is active. Use Zoom to increase the display resolution to separate sonar returns that are very close together.

### **To adjust the Zoom Level:**

1. Highlight Zoom Level on the Sonar X-Press™ Menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Zoom Level setting for the Sonar Zoom View. (2x, 4x, 6x, 8x, Default = 2x)

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



## Sonar Menu Tab

Beam Select	83kHz
Fish ID +	Off
Fish Sensitivity	5
RTS Window	Wide
83kHz Sensitivity	0
455kHz Balance	0
Depth Lines	On
Surface Clutter	5
Noise Filter	Off
Max Depth	Auto
Water Type	Fresh
Transducer Select	Dual Beam

Sonar Menu

Press the MENU key twice to access the Main Menu System and then press the RIGHT Cursor key to select the Sonar tab.

*NOTE: Beam Select and 83 kHz Sensitivity will only appear if you have a DualBeam PLUS™ or QuadraBeam® Matrix Fishing System.*

*NOTE: Depth Lines, Surface Clutter, Noise Filter, Max Depth, and Water Type only appear in Advanced User Mode.*

*NOTE: 455 kHz Balance and Transducer Select will only appear if you have a QuadraBeam® Matrix Fishing System.*

Beam Select

◀ 200/83kHz ▶

## Beam Select

**(DualBeam PLUS™ and QuadraBeam® Only)**

---

**Beam Select** sets which sonar returns from the transducer will be displayed on the screen.

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 narrow 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 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 and the Big Digits 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 and the Big Digits 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.

***NOTE:** Beam Select does not affect the Side Beam View. The Side Beam View will continue to display sonar returns from the 200 kHz narrow beam in the upper frame and returns from the 455 kHz side beams in the two lower frames irrespective of the Beam Select setting.*

### To use Beam Select:

1. Highlight Beam Select on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to select either the 200 kHz beam, the 83kHz beam or the 200/83kHz beams. (200/83 kHz, 200 kHz, 83 kHz, Default = 200 kHz)

**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.

**Single beam** sonar models represent targets as Shaded Fish Symbols.

**DualBeam PLUS™** sonar models represent targets detected in the 200 kHz narrow beam as Shaded Fish Symbols, and represent targets detected in the 83 kHz wide beam as Hollow Fish Symbols.

**QuadraBeam®** sonar models represent targets detected in the 200 kHz narrow beam as Shaded Fish Symbols, and represent targets detected in the 83 kHz wide beam as Hollow Fish Symbols. In addition, targets detected in the 455 kHz side beams are represented with Hollow Fish Symbols.



200 kHz, Narrow Beam Shaded Fish Symbols



83 kHz, Wide Beam and 455 kHz Side Beam Hollow Fish Symbols (DualBeam PLUS™ and QuadraBeam® Only)



Transducer Cone and Fish Arches

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.

### **To turn Fish ID+ on or off:**

1. Highlight Fish ID+ on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to turn the Fish ID+™ setting On or Off. (Off, On, Default = Off)

## Fish Sensitivity 5

1  10

## Fish Sensitivity

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

### To change the Fish Sensitivity setting:

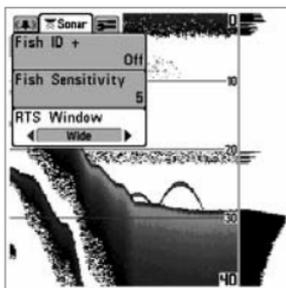
1. Highlight Fish Sensitivity on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Fish Sensitivity setting. (Low = 1, High = 10, Default = 5)

## RTS Window

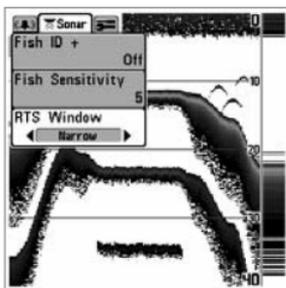
◀ Narrow ▶

## Real Time Sonar (RTS™) Window

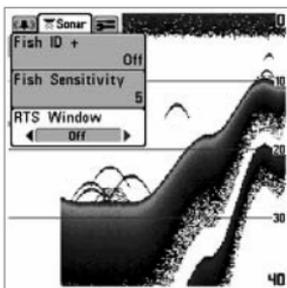
**RTS™ Window** sets the RTS™ Window to either Wide or Narrow, or turns it off in the Sonar View. The RTS™ Window always updates at the fastest rate possible and only displays returns that are within the transducer beam. (See *Real Time Sonar (RTS™) Window* for additional detail).



RTS™ Window (Wide)



RTS™ Window (Narrow)



RTS™ Window (Off)

### To change the RTS™ Window setting:

1. Highlight RTS Window on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the RTS™ Window setting. (Wide, Narrow, Off, Default = Wide [Default = Off for Matrix 10])



## 83 kHz Sensitivity

**(Advanced: DualBeam PLUS™ and QuadraBeam® Only)**

---

**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. The 83 kHz Sensitivity menu choice is only available when User Mode is set to Advanced (see *Setup Menu Tab: User Mode*).

### To set the 83 kHz Sensitivity:

1. Make sure you are in Advanced User Mode, then highlight 83 kHz Sensitivity on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to set the 83 kHz Sensitivity. (-10 to +10, Default = 0)



## 455 kHz Balance

**(Advanced: QuadraBeam® Only)**

---

**455 kHz Balance** adjusts the sensitivity of the 455 kHz beam. Increasing the sensitivity will display additional weak returns and decreasing the sensitivity will display fewer weak returns. The 455 kHz Balance menu choice is available when User Mode is set to Advanced (see *Setup Menu Tab: User Mode*).

### To change the 455 kHz Balance setting:

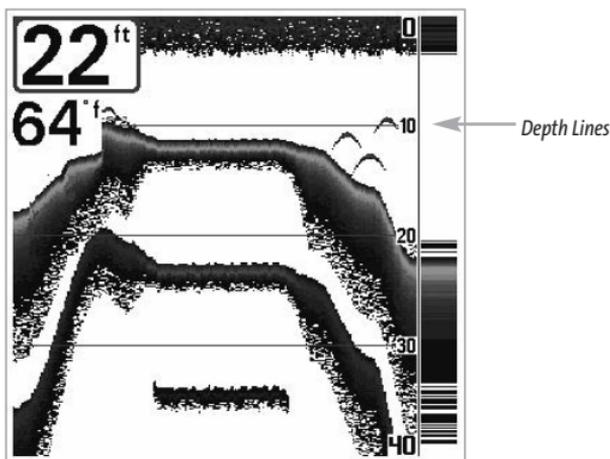
1. Make sure you are in Advanced User Mode, then highlight 455 kHz Balance on the Sonar Main Menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the 455 kHz Balance. (-10 to +10, Default = 0)

**Depth Lines**

◀ On ▶

**Depth Lines  
(Advanced)**

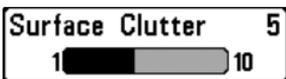
**Depth Lines** divide the display into four equal sections which are separated by three horizontal depth lines. The depth of each line is displayed along the depth scale. You can either turn Depth Lines On or Off. The Depth Lines menu choice is available when User Mode is set to Advanced (see *Setup Menu Tab: User Mode*).



Depth Lines

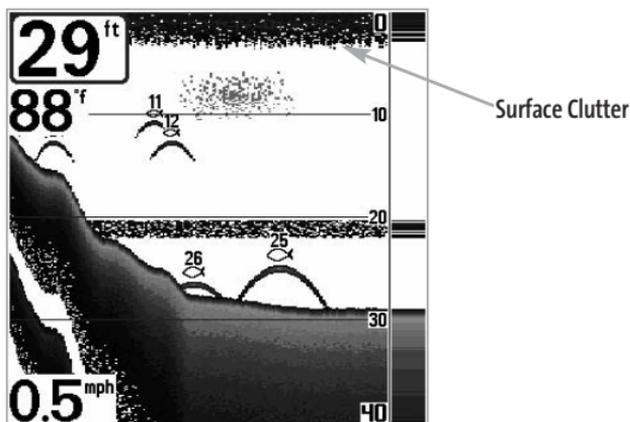
**To change the Depth Lines setting:**

1. Make sure you are in Advanced User Mode, then highlight Depth Lines on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to turn the Depth Lines setting On or Off. (Off, On, Default = On)



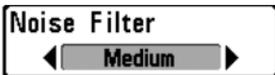
## Surface Clutter (Advanced)

**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. The Surface Clutter menu choice is available when User Mode is set to Advanced (see *Setup Menu Tab: User Mode*).



### To change the Surface Clutter setting:

1. Make sure you are in Advanced User Mode, then highlight Surface Clutter on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Surface Clutter setting. (Low = 1 to High = 10, Default = 5)



## Noise Filter (Advanced)

---

**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 Noise Filter menu choice is available when User Mode is set to Advanced (see *Setup Menu Tab: User Mode*).

*NOTE: The Off setting removes all filtering; Low, Medium and High settings add progressive filtering of the sonar returns. In some deep water situations, the High setting may actually hinder your unit's ability to find the bottom.*

### To change the Noise Filter setting:

1. Make sure you are in Advanced User Mode, then highlight Noise Filter on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Noise Filter setting. (Off, Low, Medium, High, Default = Low)



## Max Depth (Advanced)

---

**Max Depth** adjusts the maximum depth of operation. The performance of your Fishing System can be tuned to the maximum depth you will be fishing in by setting the Max Depth. When a maximum depth is set, your Fishing System will not attempt to acquire sonar data below that depth, thus increasing overall performance. When Max Depth is set to Auto, the Fishing System will acquire bottom readings as needed (within the capacity of the unit). If the bottom is deeper than the Max Depth setting, the digital depth readout will flash, indicating that the Fishing System cannot locate the bottom. The Max Depth menu choice is available when User Mode is set to Advanced (see *Setup Menu Tab: User Mode*).

### To change the Max Depth setting:

1. Make sure you are in Advanced User Mode, then highlight Max Depth on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Max Depth setting. (AUTO, 10 to 800/1000/1500 feet, 3 to 260/330/500 meters [*International Models Only*], Default = AUTO)

*NOTE: Settings are dependent on the depth capability of your particular Fishing System model.*



## Water Type (Advanced)

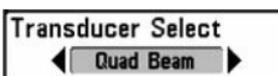
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**Water Type** configures your unit for operation in fresh or salt water. The Water Type menu choice is available when User Mode is set to Advanced (see *Setup Menu Tab: User Mode*).

*NOTE: 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. Also, make sure that the Water Type is set accurately, especially in salt water, as this affects the accuracy of deep water depth readings.*

### To change the Water Type setting:

1. Make sure you are in Advanced User Mode, then highlight Water Type on the Sonar main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Water Type setting. (Fresh, Salt, Default = Fresh)



## Transducer Select (QuadraBeam® Only)

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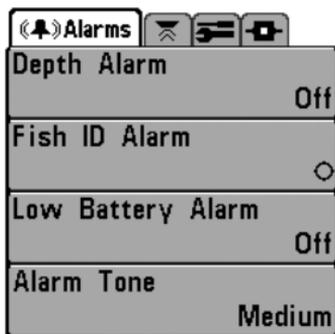
**Transducer Select** allows you to select which transducer you want to use .

*NOTE: The Matrix 37 supports the WideSide transducer which requires a separate purchase. You can visit our website at [www.humminbird.com](http://www.humminbird.com) to order the WideSide transducer online or contact our Customer Resource Center at 1-800-633-1468.*

*NOTE: The WideSide View will be added to the view rotation when a WideSide transducer is connected to the Matrix 37 and Transducer Select is set to WideSide. In addition, Wide Side View and Side Beam Range will be added to the X-Press™ Menu. WideSide Sensitivity will be added to the Sonar Tab of the main menu system.*

### To change the selected Transducer:

1. Highlight Transducer Select on the Sonar Main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the transducer selected. (QuadraBeam, WideSide, Default = QuadraBeam)

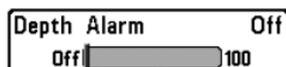


Alarms Menu

## Alarms Menu Tab

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

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



## Depth Alarm

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

### To change the Depth Alarm setting:

1. Highlight Depth Alarm on the Alarms main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Depth Alarm setting. (OFF, 1 to 100 feet, or 0.5 to 30 meters [*International Models Only*], Default = OFF)



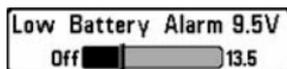
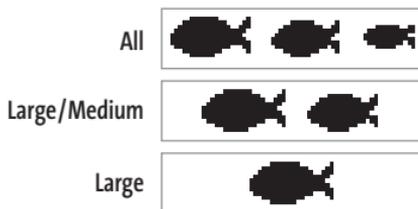
## Fish ID Alarm

**Fish ID Alarm** sounds when the Fishing System detects fish that correspond to the alarm setting. Fish ID Alarm will only sound if Fish ID+™ is on.

For example, if you've set the Fish ID Alarm to sound for Large fish only, the Fish ID alarm will sound when a large-sized fish is detected.

### To change the Fish ID Alarm setting:

1. Highlight Fish ID Alarm on the Alarms main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Fish ID Alarm setting. (Off, All, Large/Medium, Large, Default = Off)

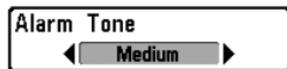


### **Low Battery Alarm**

**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 Matrix Fishing System. The Low Battery Alarm should be set to warn you when the battery voltage drops below the safety margin that you have determined. 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.

### To change the Low Battery Alarm setting:

1. Highlight Low Battery Alarm on the Alarms main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Low Battery Alarm setting. (Off, 8.5V - 13.5V, Default = Off)

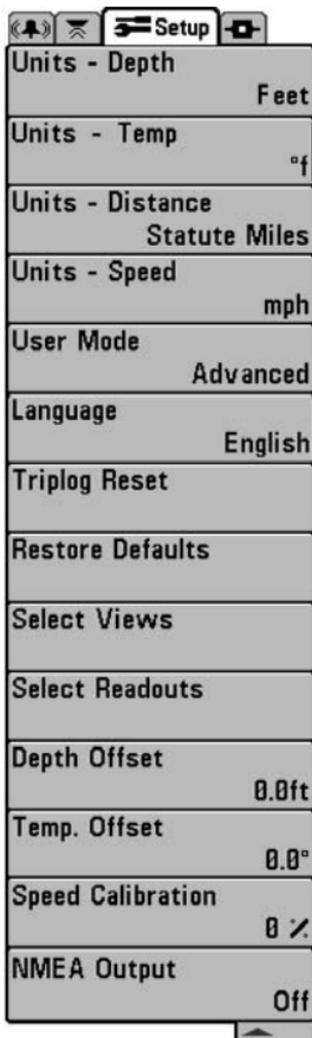


### **Alarm Tone**

**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.

### To change the Alarm Tone setting:

1. Highlight Alarm Tone on the Alarms main menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Alarm Tone setting. (High, Medium, Low, Default = Medium)



## Setup Menu Tab

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

### NOTE:

Units - Temp	(International Models Only)
Units - Distance	(If Temp/Speed or GPS Receiver is Connected)
Units - Speed	(If Temp/Speed or GPS Receiver is Connected)
Triplog Reset	(If Temp/Speed or GPS Receiver is Connected)
Language	(International Models Only)
Select Views	(Advanced)
Select Readouts	(Advanced)
Depth Offset	(Advanced)
Temp Offset	(Advanced)
Speed Calibration	(Advanced, only if Temp/Speed is Connected)
NMEA Output	(Advanced)

Setup Menu Tab

Units - Depth

◀ Feet ▶

## Units - Depth

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

### To change the Units - Depth setting:

1. Highlight Units - Depth on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Units - Depth setting. (Meters [*International Models Only*], Feet, Fathoms; Default is Meters for International models, and Feet for Domestic models)

Units - Temp

◀ °f ▶

## Units - Temp (International Only)

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

### To change the Units - Temp setting:

1. Highlight Units - Temp on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Units - Temp setting. (Celsius, Fahrenheit; Default = Celsius)

Units - Distance

◀ Feet/Statute Miles ▶

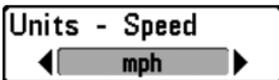
## Units - Distance (with Temp/Speed or GPS Receiver)

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

### To change the Units - Distance setting:

1. Highlight Units - Distance on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Units - Distance setting. (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)



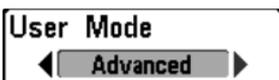
## **Units - Speed** **(with Temp/Speed or GPS Receiver)**

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

### **To change the Units - Speed setting:**

1. Highlight Units - Speed on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Units - Speed setting. (kph [*International Models Only*], mph, kts, Default = kph for International models and mph for Domestic models)



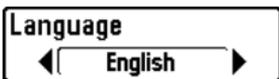
## **User Mode**

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**User Mode** sets the menu system to either Normal or Advanced. When set to Normal (default setting,) only the basic menu options are shown. When set to Advanced, additional menu choices are available.

### **To change the User Mode setting:**

1. Highlight User Mode on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the User Mode setting. (Normal, Advanced, Default = Normal)



## **Language** **(International Only)**

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

### **To change the Language setting:**

1. Highlight Language on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Language setting. (Default = English)



## Triplog Reset (with Temp/Speed or GPS Receiver)

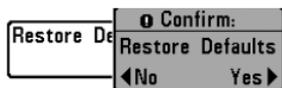
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**Triplog Reset** resets the Triplog to zero, and will appear in the menu if a Temp/Speed Accessory is connected and the paddlewheel has moved at least once, or if a GPS Receiver is connected. The Triplog provides the following information: timer for elapsed time, distance traveled since last reset, and average speed.

*NOTE: See Setup Menu Tab: Select Readouts (Advanced) to find out how to display Triplog information on the screen.*

### To Reset Triplog:

1. Highlight Reset Triplog on the Setup menu.
2. Use the RIGHT 4-WAY Cursor Control key to initiate Triplog Reset.
3. The Confirm dialog box will appear. To reset the Triplog, press the RIGHT Cursor key once more. To cancel Reset Triplog, press the LEFT Cursor key.



## Restore Defaults

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**Restore Defaults** resets ALL menu settings to their factory defaults. Use this menu choice with caution!

### To Restore Defaults:

1. Highlight Restore Defaults on the Setup menu.
2. Use the RIGHT 4-WAY Cursor Control key to initiate restoring defaults.
3. The Confirm dialog box will appear. To reset the defaults, press the RIGHT Cursor key once more. To cancel Restore Defaults, press the LEFT Cursor key.

<b>Select Views</b>	
<b>SELF TEST</b>	<b>Hidden</b>
<b>Accessory Test</b>	<b>Hidden</b>
<b>Side Beam View</b>	<b>Visible</b>
<b>Sonar View</b>	<b>Visible</b>
<b>Sonar Zoom View</b>	<b>Visible</b>
<b>Split Sonar View</b>	<b>Visible</b>
<b>Big Digits View</b>	<b>Visible</b>

Select Views

## Select Views

### (Advanced)

**Select Views** sets 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. The following views are available:

- Self Test
- Accessory Test
- Side Beam View (QuadraBeam® Only)
- Sonar View
- Sonar Zoom View
- Split Sonar View (DualBeam PLUS™ and QuadraBeam® only)
- Big Digits View.

The display status of these views can be changed only when in Advanced User Mode (*see Setup Menu Tab: User Mode.*)

### To Select Views:

1. Make sure you are in Advanced User Mode, then highlight Select Views on the Setup menu.
2. Use the RIGHT 4-WAY Cursor Control key to initiate this procedure.
3. The Select Views submenu will appear, showing a list of all Views that can be hidden or made visible. Use the UP or DOWN Cursor keys to select a particular view, then use the RIGHT or LEFT Cursor keys to change the View status from Visible to Hidden or vice versa.

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

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## Select Readouts

### (Advanced, Sonar View Only)

**Select Readouts** sets individual digital readouts on the Sonar View. This Advanced feature allows you to select what data will be displayed in each of either 5 or 6 (depending on your model) fixed-position data windows arranged around the left and bottom edges of the Sonar View screen, or whether a particular window will be turned off, displaying nothing in that area; you can access this menu choice only when in Advanced User Mode (see *Setup Menu Tab: User Mode.*)

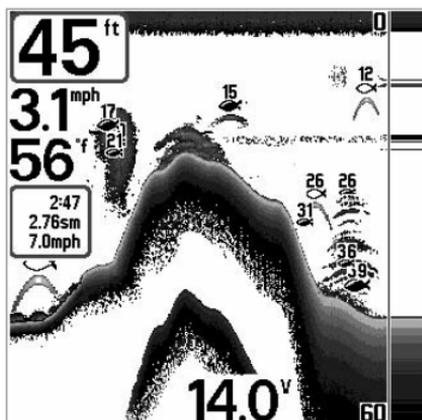
Select Readouts

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

- **Speed** (will be displayed if a Temp/Speed Accessory is attached and the paddlewheel has moved at least once, or if a GPS Receiver is connected)
- **Temperature**
- **Triplog** (will be displayed if a Temp/Speed Accessory is attached and the paddlewheel has moved at least once, or if a GPS Receiver is connected)
- **Voltage**
- **Water Speed** (will only be displayed if a Temp/Speed Accessory is attached and the paddlewheel has moved at least once). Water Speed is not available with a GPS receiver.



Default Sonar View



Customized Sonar View

### To Select Readouts:

1. Make sure you are in Advanced User Mode, then highlight Select Readouts on the Setup main menu.
2. Use the RIGHT 4-WAY Cursor Control key to initiate this procedure.
3. The Select Readouts submenu will appear, showing a list of all Readouts. Use the UP or DOWN Cursor keys to select a particular Readout position, then use the RIGHT or LEFT Cursor keys to change what will be displayed at that position. (Off, Speed, Temperature, Triplog, Voltage, Water Speed)



## Depth Offset (Advanced)

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**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. This menu choice is available only when in Advanced User Mode (see *Setup Menu Tab: User Mode*.)

### To change the Depth Offset setting:

1. Make sure you are in Advanced User Mode, then highlight Depth Offset on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Depth Offset setting. (-10.0 to +10.0 feet or -3 to 3 meters [*International Models Only*], Default = 0)



## Temp Offset (Advanced)

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**Temp Offset** will adjust the temperature readout by the amount entered. This menu choice is available only when in Advanced User Mode (see *Setup Menu Tab: User Mode*.)

### To change the Temp Offset setting:

1. Make sure you are in Advanced User Mode, then highlight Temp Offset on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Temp Offset setting. (-10.0 to +10.0 degrees, Default = 0)



## Speed Calibration

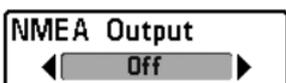
(Advanced, with Temp/Speed Only)

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**Speed Calibration** will adjust the speed readout by the percentage entered, and will appear in the menu if a Temp/Speed Accessory is connected and the paddwheel has moved at least once, when the unit is in Advanced User Mode (see *Setup Menu Tab: User Mode.*)

### To change the Speed Calibration setting:

1. Make sure you are in Advanced User Mode, then highlight Speed Calibration on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the Speed Calibration setting. (-20% to +20%, Default = 0%)



## NMEA Output

(Advanced)

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**NMEA Output** turns the NMEA output on or off. This menu choice is available only when in Advanced User Mode (see *Setup Menu Tab: User Mode.*)

The following NMEA sentences are output:

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

When navigating, the following NMEA sentences are also output:

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

### To turn NMEA Output on or off:

1. Make sure you are in Advanced User Mode, then highlight NMEA Output on the Setup menu.
2. Use the LEFT or RIGHT 4-WAY Cursor Control keys to change the NMEA Output to On or Off (On, Off, Default = Off).

## Accessories Menu Tab

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

If no accessories are attached to the Accessory Bus, no menu choices will appear under the Accessories tab. If an accessory is attached, however, 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™, GPS Functionality and the SmartCast® Wireless Sonar Link require separate purchases. You can visit our website at [www.humminbird.com](http://www.humminbird.com) or contact our Customer Resource Center at 1-800-633-1468 for additional details.

## **Troubleshooting**

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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.

### **Matrix Doesn't Power Up**

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If your Matrix 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 Matrix 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.

### **Matrix Defaults to Simulator with a Transducer Attached**

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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

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

## Finding the Cause of Noise

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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
<b>Other electronic devices</b>	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.
<b>The boat's engine</b>	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.
<b>Cavitation from the boat's propeller</b>	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.

## Accessories

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

**Temperature/Speed:** purchase and plug in the Temperature/Speed accessory to your Matrix control head to get real time speed and temperature readouts, as well as a valuable Triplog function.

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

**WeatherSense™ Fishing Condition Monitor:** purchase and plug in the WeatherSense accessory to your Matrix Fishing System to obtain barometric pressure readouts and trend data in real time.

**GR4 GPS Receivers:** purchase and connect the GR4 GPS Receiver to your Matrix Fishing System to access advanced FishingGPS™, trackplotter and navigation capabilities built-in to your Fishing System.

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

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

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

Be sure to check out our web site **www.humminbird.com** for additional new and exciting accessories to grow your Matrix Fishing System!

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

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

## Specifications

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<b>Depth Capability</b> .....	800 ft (250 m) - Matrix 10, 12 or 20 1000 ft (300 m) - Matrix 17 1500 ft (450 m) - Matrix 27 and Matrix 37
<b>Power Output</b> .....	250 Watts (RMS), 2000 Watts (Peak to Peak) - Matrix 10, 12 or 20 300 Watts (RMS), 2400 Watts (Peak to Peak) - Matrix 17 500 Watts (RMS), 4000 Watts (Peak to Peak) - Matrix 27 and Matrix 37
<b>Operating Frequency</b> .....	200 kHz Single Beam (Matrix 10, 12 or 20) 200 kHz and 83 kHz DualBeam PLUS™ (Matrix 17 and 27) 200 kHz/83 kHz/455 kHz QuadraBeam® (Matrix 37)
<b>Area of Coverage</b> .....	60° @ -10 dB in 83 kHz 20° @ -10 dB in 200 kHz 90° Total Coverage (Two 45° Beams) @ -10 dB in 455 kHz
<b>Target Separation</b> .....	2½ Inches (63.5 mm)
<b>Power Requirement</b> .....	10-20 VDC
<b>LCD Matrix</b> .....	240 V x 160 H (Matrix 10) 240 V x 240 H (Matrix 12 or 20) 320 V x 320 H (Matrix 17) 640 V x 320 H (Matrix 27 and Matrix 37)
<b>Transducer</b> .....	XHS-9-20-T (Matrix 10, 12, 20, 17, and 27) XT-6-TB-90-T (Matrix 37)
<b>Transducer Cable Length</b> .....	20 ft (6 m)

*Product specifications and features are subject to change without notice.*

**ENVIRONMENTAL COMPLIANCE STATEMENT:** *It is the intention of Humminbird® 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 wheeled 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. Humminbird® 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.*

## 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):

**[cservice@johnsonoutdoors.com](mailto:cservice@johnsonoutdoors.com)**

For direct shipping, our address is:

**Humminbird**  
Service Department  
678 Humminbird Lane  
Eufaula, AL 36027 USA



**HUMMINBIRD®**