

105SX SINGLE BEAM *Fishfinder*

Operations Manual



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 Guarantee - free of charge during the first year after purchase, and available at a reasonable rate after the one-year period. Complete details are included at the end of this manual.

We encourage you to read this operations manual carefully in order to get full benefit from all the features and uses of your Humminbird product. Also, to register your purchase and help us learn more about you, please fill out the warranty registration card at the back of this manual.

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: Dis-assembly and repair of this electronic unit should only be performed by authorized service personal. Any modification of the serial number or attempt to repair the original equipment or accessories by unauthorized individuals will void the warranty. handling and/or opening this unit may result in exposure to lead, in the form of solder.

Warning: This product contains lead, a chemical known to the State of California to cause cancer and birth defects and other reproductive harm.

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INSTALLATION PREPARATION

PARTS SUPPLIED

PARTS SUPPLIED

Before installing your 105SX, please ensure the following parts are included in the box:

- 105SX fishfinder
- Transducer with 20' (6m) of cable and mounting hardware kit
- Mounting system and mounting hardware kit
- 6' (2m) power cable
- Publications kit
- Temperature Probe

If any of these items is missing, call our Customer Support Hotline.

ACCESSORIES

Humminbird offers a wide assortment of accessories that complement and expand the capability of your new 105SX. These accessories are designed with the same high standards and are backed by the same one-year warranty. The Humminbird Accessory catalog included with your unit contains descriptions of the many accessories available and ordering information. All Humminbird accessories are available through your full-service Humminbird dealer or factory direct through our number listed in the Customer Support section.

INSTALLATION OVERVIEW

The 105SX consists of two primary components to install: the control head and the transducer.

The control head contains the sonar transmit and receive circuitry, as well as the user controls and display. It should be installed in a location that provides access to the controls and visibility while in use. The control head mounts on a quick disconnect mounting system that swivels and tilts providing flexibility for viewing from almost anywhere on the boat.

The transducer converts electrical energy from the transmitter into mechanical pulses or sound waves. The transducer also receives the reflected sound waves and converts them back into electrical signals for display on the control head. It should be installed in contact with the

INSTALLATION PREPARATION

INSTALLATION OVERVIEW

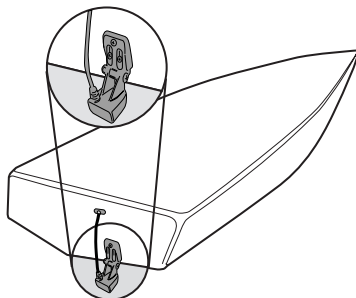
surface of the water in an area that has smooth water flow - usually on the transom of the boat. There are several mounting options for the transducer. Review the following section to determine the method that works for you and your boat.

Determining How to Mount the Transducer

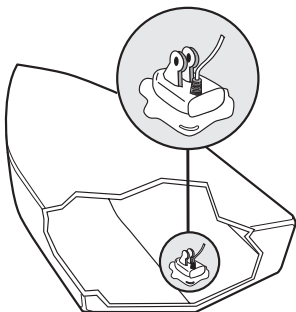
The 105SX includes a model XHS- 6-24 transducer. This transducer can be mounted on the transom of the boat, or bonded to the inside of a fiberglass hull boat.

The transom installation, which is the most widely used, places the transducer on the outside of the boat hull. This technique produces the least signal loss, and provides a way to adjust the transducer after installation.

As an alternative to transom mounting, it is possible on many fiberglass-hulled boats to glue the transducer on the inside of the boat hull. Since fiberglass has similar sonar characteristics as water, the sonar signal can pass through the boat hull with minimal loss. The hull of the boat must be single layer construction (not double-hulled). Also, any air trapped in the lamination of the fiberglass would prevent the sonar signal from passing through.



Transom Mounted Transducer



Inside the Hull Mounted Transducer

Inside the hull installations require no holes be drilled into the boat and through experimentation, high-speed operation comparable to transom mounting can be achieved. Two part, slow cure epoxy (not included) is required to glue the transducer in place.

INSTALLATION PREPARATION

ALTERNATE TRANSDUCERS AND MOUNTING METHODS

ALTERNATE TRANSDUCERS AND MOUNTING METHODS

The 105SX comes with everything necessary for installation and operation on most boats. However, there are several situations which may require a different type of transducer. Inboard boats, wood or metal hulls, and sail boats create unique transducer mounting needs. Alternate transducers and mounting methods are detailed below.

Portable Mounting

The standard transducer can be adapted for portable installations using part number

MHX-SPT. This accessory adapts your transducer to a suction cup mount for temporary installation on the boat hull or other surface.

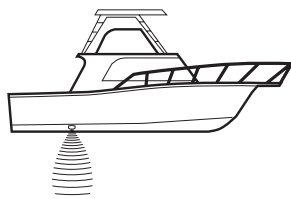
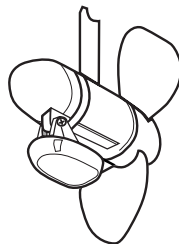
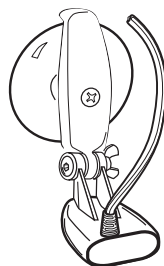
Trolling Motor Mounting

The standard transducer can also be adapted to mount on most trolling motors using part number AD-STM. This accessory includes a bracket and hose clamp that allows mounting the transducer to the body of most trolling motors.

Thru-Hull Mounting

Thru-hull transducers install through a hole drilled in the hull of the boat. Larger boats or boats with inboard motors create turbulence that make transom mounting ineffective. Also, hulls that are very thick or are double layered, or made from materials such as wood or metal, (which do not conduct sonar signals) make inside the hull mounting inadvisable.

Thru-hull mounting may require the use of a fairing block to level the transducer with the waterline. Also, since special tools and knowledge may be required to perform this type of installation it is best to refer to a qualified marine technician.



INSTALLATION PREPARATION

TRANSDUCER EXCHANGE

TRANSDUCER EXCHANGE

Other transducers are available as replacements for the standard transducer. You may exchange your new and unassembled transducer for another type by returning it to the address listed in Customer Support. Some transducers may have additional costs. Refer to the Accessory catalog or call Customer Support for information.

BEGINNING INSTALLATION

Now that you have determined the transducer mounting method, you can begin installation of the 105SX. The fold out installation guide included provides detailed step by step instructions for installation of the control head and transducer. For transom mount transducer installations, you will need the mounting template in the center of this manual.

In addition to the parts included you need the following for installation and operation:

- A powered hand drill and various drill bits
- Phillips and flat-head screw drivers
- A ruler or measuring tape
- Pen or pencil
- 12 volt power source (your boat's battery)
- A 1-amp fuse
- A fuse holder (if you are wiring directly to the boat's battery)
- Silicone sealant (for sealing drilled holes)
- 2-part, slow-cure epoxy (for inside the hull transducer installations)

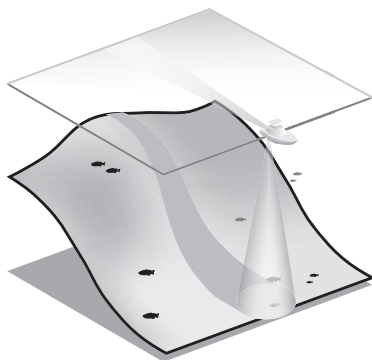
USING THE 105SX

HOW SONAR WORKS

HOW SONAR WORKS

Your Humminbird unit uses sonar to locate and define underwater objects, define the bottom terrain, as well as determine distance.

Sonar technology is based on sound waves. Your Humminbird unit sends out a sound wave signal. With this signal it determines distance by measuring the time between the transmission of the sound wave and when the sound wave is reflected off an object. Your Humminbird 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 600' (185m) and back again in less than $\frac{1}{4}$ of a second. It is unlikely that your boat can "outrun" this sonar signal.

The 105SX is a 200kHz, single-beam fishfinder. The 200 kHz frequency provides excellent sonar resolution (the ability to distinguish small returns or returns which are close to the bottom), while providing depth capabilities to 600' (185m). The shape of the sonar beam is symmetrical and covers an area of approximately 24 degrees side to side and front to rear.

Actual depth capability depends on factors such as bottom hardness, water conditions, and transducer installation. Units will typically read to deeper depths in fresh water than in salt water

USING THE 105SX

SIMULATOR OPERATION

SIMULATOR OPERATION

The 105SX contains a simulator that allows you to use the unit as if you are on the water. The simulator is invaluable for learning how to operate the 105SX.

There are two ways to start the simulator. If the unit is powered off, press and hold the POWER button for approximately three seconds until you hear a continuous chirp.



The simulator can also be started by selecting the Simulator option on the start-up screen after you power-up the unit.

When this screen is shown, simply press the DOWN ARROW until "Simulator" is highlighted. When the screen times out, the unit will be in simulator mode.

When in simulator operation, the 105SX responds to control inputs as if it is in actual operation, so feel free to experiment, or to customize the unit for your particular operation.

To exit Simulator mode, power the unit off.

When in simulator mode, the word "simulator" will flash on and off in the top center part of the display.

FEATURE MEMORY

If your 105SX is installed with a transducer connected, any changes you make to the set-up while in Simulator are retained in the unit's memory. This allows you to use simulator to experiment with the various set-up options, and retain your selected settings for normal operation.

USING THE 105SX

WHAT YOU SEE ON-SCREEN

If you are using the 105SX in Simulator when no transducer is connected, any selected options are lost when the unit is powered off. The 105SX will return to Factory Settings, or options selected when last used with a transducer, if no transducer is connected.

IMPORTANT: A transducer must be connected to the 105SX in order to retain user settings selected when in simulator mode. If no transducer is detected, the unit defaults to pre-selected options when powered off.

What You See On-Screen

Your 105SX uses a 128 x 64 matrix FSTN LCD display. This display provides outstanding viewability in all light conditions over a wide range of temperatures.

At initial power-up, the 105SX uses settings that were set at the factory. After initial use, the 105SX will remember the settings you enter.

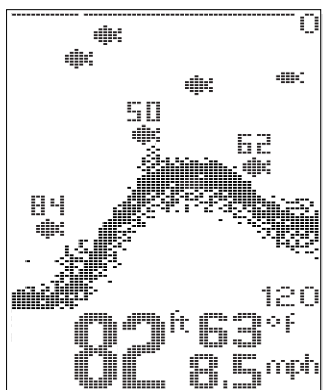
There are several elements on-screen that are common to all modes of operation.

Speed/Temperature. The initial screen layout takes one of two basic forms depending on presence of accessories such as Temperature or Speed/Temperature sensors. Figure A shows the default view when the Speed/Temp or Temperature accessory is installed. Figure B shows the default view when no accessory is installed.

Depth. The digital depth number shows the water depth directly beneath the transducer location.

Depth Range. The depth range is shown to the right of the screen. The upper number is 0 indicating the surface of the water. The lower number is one of the nine depth ranges available that best match the depth of the water. As the depth of the water changes, the range changes as necessary in order to retain a bottom representation on-screen.

Figure A



USING THE 105SX

WHAT YOU SEE ON-SCREEN

When in Auto mode, the horizontal line at the top of the screen is the "zero line," representing the surface of the water. Occasionally there is a gap in this line. This gap indicates the unit is updating the display even if the bottom is not visible on-screen, or if the bottom information is not changing.

New sonar information appears on the right side of the graphic area of the display and moves to the left as new information is displayed. The 105SX automatically selects the appropriate depth range to show the depth of water beneath the transducer. This range is selected so the bottom representation is typically shown about $\frac{2}{3}$ down the display.

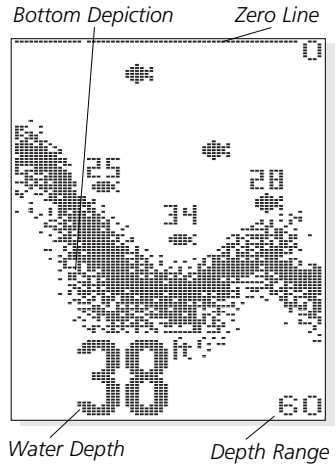
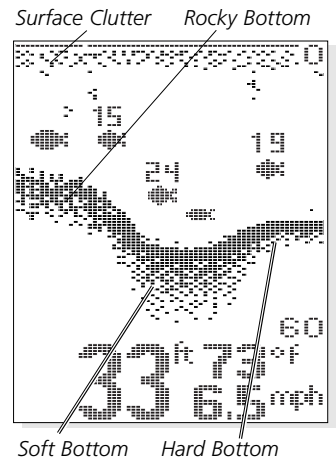


Figure B

Bottom. The graphic depiction of the bottom provides an effective tool for understanding the composition of the bottom. If the bottom is hard and smooth, the bottom depiction is narrow and dense. If the bottom is soft mud or sand, the depiction will be thick and less dense. This indicates much of the signal is absorbed by the soft bottom. If the bottom is rocky or rugged in composition, the depiction is of varying density and textured in appearance.

Wave action also affects the bottom depiction. The information drawn is a distance measurement, so if the boat is moving up and down over flat bottom, the bottom depiction often appears in regular variations that match wave timing.



USING THE 105SX

WHAT YOU SEE ON SCREEN

Structure. Structure is defined as any object physically attached to the bottom. The sonar configuration of the 105SX is optimized to give the most accurate depiction of bottom structure possible. Grass, trees, stumps, wrecks or other debris are accurately displayed, however the depiction of these objects varies with boat speed and direction. The best way to learn to interpret structure is to operate the 105SX over a variety of known conditions and experiment with user functions to best represent those conditions on-screen.

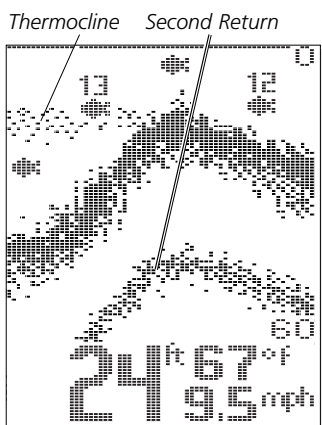
Surface Clutter. Surface clutter is the layer of water near the surface that is rich in algae and other growth, and often is aerated by wind or wave action. This area of water interferes with sonar transmission and often appears on-screen as regular clusters of individual dots near the "0" line.

Thermoclines. Thermoclines are sharp differences in water temperature. These are easily identified by the continuous nature of the return.

Second Returns. When a sonar signal is reflected off the bottom back to the transducer, there is often enough energy left in the signal to be reflected off the surface of the water back to the bottom a second time. Second returns appear as a slightly weaker bottom representation exactly twice the depth of the primary bottom return. The second return is most likely to occur in shallow water and in areas of relatively hard bottom.

Fish ID. The 105SX uses advanced signal processing to further evaluate any sonar return between the surface and the bottom. For instance, a small school of bait fish

usually appears as a dense cluster of individual dots. If the return meets certain additional criteria, a fish symbol is assigned. There are three different size fish symbols used to indicate the intensity of the sonar return. While signal intensity is a good indicator of relative fish size,



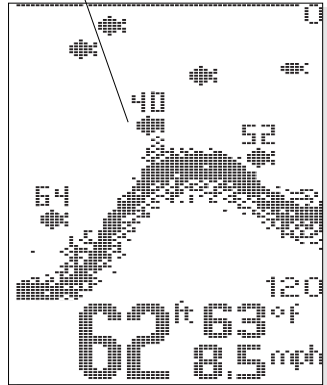
USING THE 105SX

CONTROL FUNCTIONS

different species of fish have different sonar characteristics, so it is not always possible to distinguish fish size between varying species. The signal intensity is "normalized" for depth so a small fish close to the boat does not appear as a large fish symbol.

ID+ adds an additional piece of information to help the user locate fish. On selected fish symbols, the digital depth of the designated fish is drawn to help locate the fish vertically.

ID+ Fish
Depth

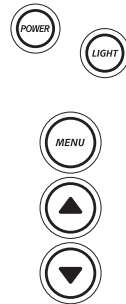


CONTROL FUNCTIONS

The 105SX uses a simple five button keypad for all user input. Press any button and an audible "chirp" confirms the control input. If a button has no function or is inappropriate for the situation, an audible "error" is heard. The unit sounds multiple chirps.

Power. The Power button powers the 105SX up for normal operation. When the unit is on, POWER turns the unit off. POWER can also be used to go directly into Simulator mode. To enter simulator, with the unit powered off, press and hold POWER for several seconds until a continuous chirp is heard.

Light. LIGHT controls the unit's display backlight. With the unit powered on, press LIGHT once to turn the backlight on "high." Press LIGHT a second time to turn the backlight on "low," and a third time turns the backlight off. The backlight is very effective for low-light and nighttime operation. When the backlight is on, the 105SX will consume more power than with the backlight off. This is important when using the 105SX in a portable configuration powered by a separate battery, or when powering the unit from a trolling motor battery.



USING THE 105SX

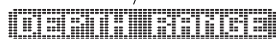
CONTROL FUNCTIONS

When powering the unit from a battery such as in portable applications, you can prolong the battery life by using the backlight at a minimum.

The three lower buttons, MENU, UP ARROW, and DOWN ARROW work together to control the 105SX menu-controlled user functions.

Menu. MENU displays a menu on-screen for adjustment. In normal operation, pressing MENU repeatedly cycles through all available menu headings. When a menu heading displays, the full menu appears after a short pause. A menu remains on-screen for several seconds, and can be adjusted by using the ARROW keys. If no adjustment is made in the allotted time, the menu disappears. If you want the menu to remain on-screen longer press and hold MENU—the menu will remain on-screen indefinitely. Once you release the menu button, the screen will time out. Once a menu times out, it is still considered the active menu. Press MENU to bring up the last menu used.

Menu Heading



Arrow Keys. The UP ARROW and DOWN ARROW make adjustments to menu functions. On the left side of every menu there are UP ARROW and DOWN ARROW symbols. The symbols indicate which ARROW button has a function in a particular situation. Either one or both ARROW buttons can be used to adjust the menu function. A hollow ARROW symbol means the corresponding ARROW button has no function. Pressing that button will result in no adjustment and the "error" audible will be heard. A solid ARROW symbol means the corresponding ARROW button can be used to affect the menu adjustment.

The ARROW buttons often can be used when no menu is on-screen. In these situations, pressing the ARROW button twice affects the function of the active (last-used) menu. This is a short-cut to menu operation. The menu appears on-screen while the adjustment is made and times out. A frequently used menu can be adjusted very quickly using this technique.

After an adjustment is made to a menu function, the menu times out after a few seconds and the unit returns to normal operation.

USING THE 105SX

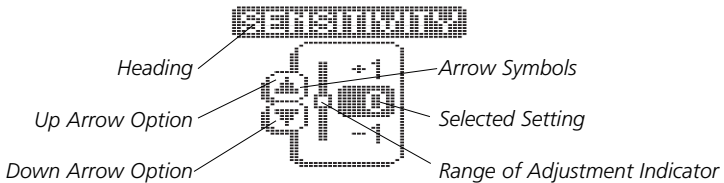
CONTROL FUNCTIONS

Menu Layout. All menus use the same basic layout. The heading at the top describes the menu function. The UP ARROW and DOWN ARROW symbols to the left of the menu indicate which buttons are available for adjustment. In menus that have several possible settings, a range of adjustment indicator shows the total range available and the current setting.



Within the menu are the options available. The selected option or current setting is highlighted in the black box. If no adjustment is made, this is the selected setting. Press an ARROW button while the menu is displayed to select another option.

Several of the menus are multi-step. In some situations if an adjustment is made, additional options become available for further adjustment. Examples of these multi-step menus are Depth Range, Depth Alarm and Zoom. See the detailed description of each function for further explanation.



USING THE 105SX

MENU FUNCTIONS

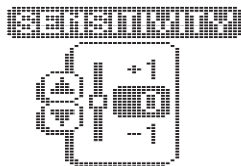
Menu Functions

Sensitivity. The Sensitivity function controls the sensitivity of the sonar receiver. The 105SX automatically adjusts the level of receiver sensitivity based on a number of factors including the depth of the water and the level of noise present. Noise can be caused by other electronic devices, engines, trolling motors, propeller cavitation and hydrodynamic flow among others.

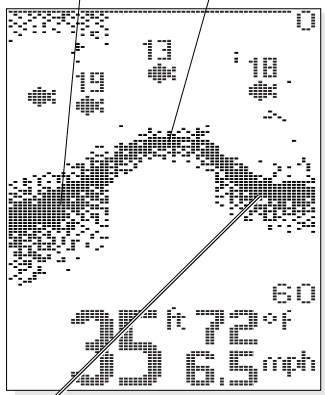
The user has the option of adjusting the Sensitivity higher or lower based on personal preference. You can select one of 11 sensitivity settings from -5 to +5. A setting of 0 (factory setting) has no effect on the automatic sensitivity control. Increasing the sensitivity (+1 through +5) enables the unit to display the information from progressively smaller sonar returns. By decreasing the sensitivity bias (-1 through -5), the unit effectively filters small sonar returns.

In murky or muddy water, it is often helpful to reduce the sensitivity. This prevents the display from being cluttered with sonar returns from debris or suspended particles. In very clear or very deep water, it may be helpful to increase the sensitivity since even the smallest sonar return may be of interest to the user.

To adjust Sensitivity, press MENU repeatedly until the Sensitivity heading is displayed. When the Sensitivity menu appears, use the UP ARROW to increase the sensitivity, or the DOWN ARROW to reduce sensitivity. To sequence through the available settings, press and hold either ARROW button. Release the button at the setting you want to change.



(+)High Sensitivity (-)Low Sensitivity



Sensitivity at "0"

USING THE 105SX

MENU FUNCTIONS

After an adjustment is made, the menu disappears and the new sensitivity setting is in affect. If additional time is needed to study a menu, press and hold the MENU button and the menu will remain on-screen indefinitely. If you need to make an additional adjustment, press the UP ARROW or DOWN ARROW button.

Depth Range. The Depth Range function controls the vertical distance displayed on the graphic area of the display. There are nine depth ranges available. The top of the range is always 0, or the surface of the water. Ranges of 0–15', 0–30', 0–60', 0–120', 0–180', 0–240', 0–360', 0–480' and 0–600' are available. The range that positions the bottom depiction closest to the bottom of the screen, will best utilize the available display resolution.

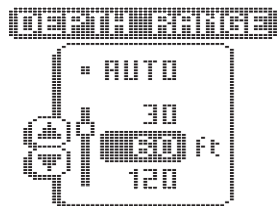


The 105SX automatically adjusts the depth range depending on the depth of the water. The unit tries to maintain the bottom depiction about $\frac{2}{3}$ down the total range (for example, in 20' (6m) of water, the 0-30' (0-10m) range would be selected). This provides the best display resolution and therefore the best target separation possible.



The Depth Range can be adjusted manually. Press MENU repeatedly until the Depth Range menu is visible. Two options are available: Auto and Manual.

The manual setting enables you to adjust the current depth range setting. The unit no longer adjusts the Depth Range to the most appropriate range for bottom display. Often, the bottom may not be visible on-screen. The digital depth readout always determines the depth of the bottom, even if it is not visible on-screen.



USING THE 105SX

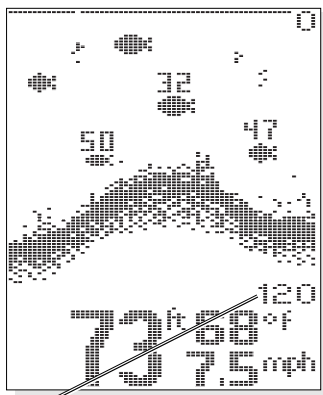
MENU FUNCTIONS

Using manual Depth Range control, you can view sonar information from the area near the surface in greater detail.

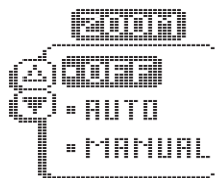
To return to automatic Depth Range control, press the MENU button until the Depth Range menu appears on-screen and use the UP ARROW to select AUTO.

Zoom. Zoom is similar to Depth Range because it controls the range of information displayed on screen. Zoom, however, allows selection of ranges beneath the surface so any area of water between the surface and the bottom can be enlarged to provide more detailed information. By using the full display to show a small area of coverage, the effective display resolution is increased, and the unit's ability to separate close targets is enhanced.

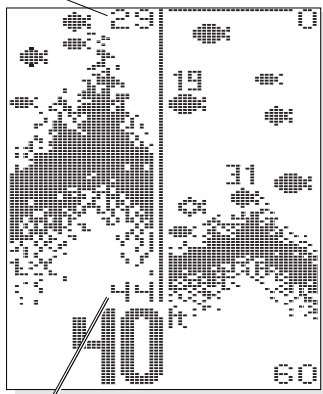
There are four Zoom ranges available: 7½', 15', 30', and 60'. These ranges are not directly user controlled but are instead dependent on the current depth range. In shallow water, when the 15' or 30' range is in use, the Zoom range is 7½'. If the 60' or 120' range is in use, the Zoom range is 15', if a 180'-480' depth range is in use, the Zoom range is 30', and if the 600' range is in use, the Zoom range is 60'.



Depth Range



Upper Zoom Limit

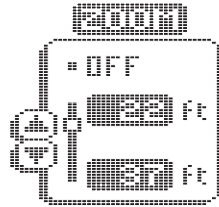


Lower Zoom Limit

USING THE 105SX

MENU FUNCTIONS

The Zoom range is shown on the left side of the screen and full range information is shown on the right side of the display. Zoom can either operate automatically, in which the Zoom range is constantly adjusted to show the bottom, or manually, in which the user controls the location of the Zoom range.



Automatic Zoom is especially helpful when looking for structure or bottom detail. The Automatic Zoom keeps the bottom in view even in quickly changing terrain, but is most useful in flatter areas without considerable depth variation. Manual Zoom provides detailed information of any area from the surface to the bottom. In manual Zoom, the Zoom range does not move as the terrain changes.

When the range is shown in the menu, the upper number represents the top of the current Zoom range. The lower number represents the bottom of the Zoom range. Use the UP and DOWN ARROW buttons to move this range. The upper number can never be less than 0 (the surface of the water), and the lower number can never be greater than the active depth range. The difference between the two numbers (the Zoom range) is preset and determined by the active depth range.

Once manual Zoom is selected, the display appears the same as in Auto Zoom, but the zoom range does not change automatically.

To disable Zoom, press the MENU button until the Zoom menu is on-screen. Use the UP ARROW to highlight Off, and let the menu time out.

When the unit is powered off, the Zoom menu returns to Zoom Off.

USING THE 105SX

MENU FUNCTIONS

Depth Alarm. The 105SX contains an audible alarm to warn you of shallow water depths. The alarm is adjustable to depths of 3' to 99' (30m). When the alarm is enabled, an audible alarm sounds if the water beneath the boat is equal to or less than the selected alarm depth. The alarm sounds continuously for about five seconds, and then intermittently to remind you that you are still in shallow water.

Fish Alarm. The Fish Alarm alerts you to the presence of fish, or other targets not connected to the bottom. The Fish Alarm has three different settings that correspond to the three different size fish symbols shown on-screen.

The default setting is "OFF." With the "Large fish only" setting, the 105SX alarms on only those targets that are represented by the large fish symbols. The 105SX can be set to alarm on only large and medium fish, or set to alarm on all fish.

Once the Fish Alarm is enabled, the 105SX emits an audible beep when the selected size fish symbol appears on-screen.

DEPTH ALARM



DEPTH ALARM



DEPTH ALARM



FISH ALARM



FISH ALARM



Set for large fish only



Set for large and medium fish



Set for all fish



USING THE 105SX

MENU FUNCTIONS

Bottom Black. There are two selections available: Off and On. The factory setting is Off. With this setting, the 105SX displays the bottom using Structure ID. This allows you to determine the texture and relative hardness of the bottom. Selecting Bottom Black "ON" causes the unit to blacken in the display below the bottom. This gives the user easiest recognition of the bottom location, even from a great distance.

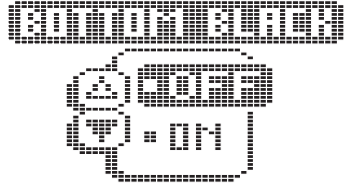
The 105SX remembers the Bottom Black setting when powered off.

Fish ID. There are three selections available: Off, ID+ ON, and Adjust. The factory setting is ID+ On. With Fish ID Off, sonar returns are displayed as "raw" information. There is no interpretation made by the unit. Selecting ID Off also disables the fish alarm.

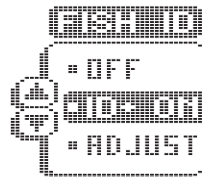
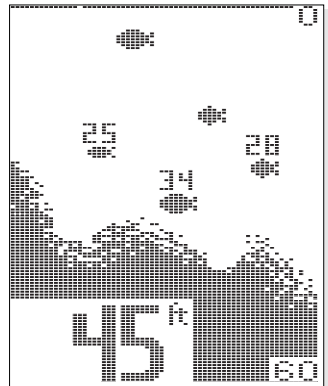
ID+ On enables the 105SX to interpret the raw sonar data and, using a variety of techniques, depict appropriate target returns as one of three different size fish symbols. The 105SX also displays the depth beneath the surface with the corresponding fish symbol.

Selecting Adjust and making incremental changes enhances the fishfinder's ability to identify sonar returns as fish symbols.

Increasing the value to a number greater than zero shows more fish



Bottom Black View



USING THE 105SX

MENU FUNCTIONS

symbols on-screen. In this case smaller sonar returns will be depicted as fish symbols. This is useful for identifying many smaller sonar returns (such as baitfish) as fish symbols.

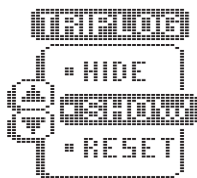
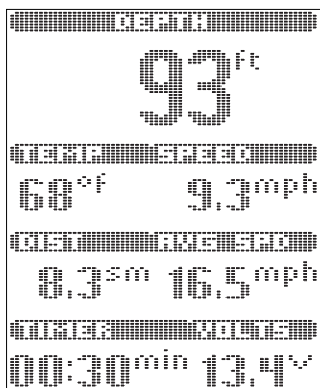
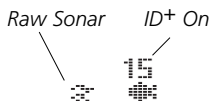
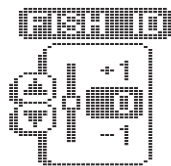
Decreasing the value to a number less than zero shows fewer fish symbols on-screen. In this case smaller sonar returns are disregarded. This is useful for eliminating many small sonar returns when seeking larger species of fish.

The 105SX remembers this selection even when the unit is powered off.

Triplog. Triplog provides a running log of information based on input from the Speed/Temp sensor.

Since Triplog requires information from the Temp or Speed/Temp sensors to operate, if an accessory sensor is not detected by the 105SX, the Triplog menu will not appear as a control menu.

Triplog provides seven pieces of information: the current digital depth, water surface temperature, current boat speed, the distance traveled since the 105SX was powered up or reset, the average speed, the total time elapsed since power-up or reset, and the input



ADVANCED FEATURES

USING THE DIAGNOSTIC FEATURE

voltage from your boat's electrical system.

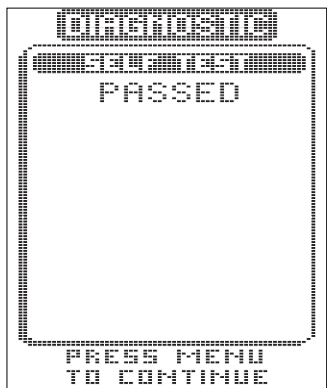
The time, speed and distance calculations are useful for tracking your progress on a trip. The input voltage is useful for determining the condition of the charging system of the boat. When used in a portable application or whenever the 105SX is operated from a battery source, the voltage number can be used to determine battery life. The 105SX will operate at voltages from 10 to 20 VDC. Voltages in excess of 20 or less than 10 VDC cause the unit to power off.

USING THE DIAGNOSTIC FEATURE

The 105SX contains a powerful diagnostic tool that can aid in determining the cause of a problem.

To use the Diagnostic feature, select the Diagnostic feature on the start-up menu on the initial screen.

Self Test. Initially, the 105SX will perform a self-test. This test confirms the operation of all internal circuitry. At the conclusion of the test, one of two messages will appear. "Passed" indicates the internal test discovered no failures, "Failed" indicates a significant internal problem was discovered and the unit requires factory service. A code number appears that tells repair personnel where the problem is.



Transducer Connection. The first connection tested is Transducer input. If a transducer is detected, the message "connected" appears. If a series of dashed lines is shown, no transducer is connected or there is a problem with the transducer or cable.

If you are using multiple transducers, switch between transducers to confirm the connections for each.

Voltage Input. Another connection tested is the voltage input, and is

MAINTENANCE AND WARRANTY

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especially helpful in diagnosing input voltage problems. The present input voltage is displayed. If voltage fluctuations or power supply in excess of 20 VDC or less than 10 VDC is suspected, use the diagnostic screen to confirm input voltage. Often, small outboard motors do not effectively regulate voltage when operated at high engine speeds.

Use Diagnostic while running the boat at high speeds to show the voltage gain. Also, if you are using the 105SX in portable configuration or from the trolling motor battery, Diagnostic can be used to evaluate the health of the battery by showing the present voltage. Voltage can also be viewed in the Trip Log view.

Total Time. The total time category indicates the total time the unit has been in use since shipped from the factory. It is normal for some hours to appear in the total time when the unit is new due to factory testing. While this is often of interest to the user, it is primarily a diagnostic tool for the repair technician should the unit need service.

MAINTENANCE

Your 105SX is designed to provide years of trouble free operation with virtually no maintenance. Follow these simple procedures to ensure your 105SX continues to deliver top performance.

- If the unit comes into contact with salt spray, simply wipe the affected surfaces with a cloth dampened in fresh water. Do not use a chemical glass cleaner on the lens. Chemicals in the solution may cause cracking in the lens of the unit.
- When cleaning the LCD protective lens, use a chamois and non-abrasive, mild cleaner. Do not wipe while dirt or grease is on the lens. Be careful to avoid scratching the lens.



MAINTENANCE AND WARRANTY

TROUBLESHOOTING

- If your boat remains in the water for long periods of time, algae and other marine growth can reduce the effectiveness of the transducer. Periodically clean the face of the transducer with liquid detergent. Pivoting the transducer up in the bracket may allow better access for inspection or cleaning.
- If your boat remains out of the water for a long period of time, it may take some time to wet the transducer when returned to the water. Small air bubbles can cling to the surface of the transducer and interfere with proper operation. These bubbles dissipate with time, or you can wipe the face of the transducer with your fingers after the transducer is in the water.
- Never leave the 105SX in a closed car or trunk—the extremely high temperatures generated in hot weather can damage the electronics.

TROUBLESHOOTING

Do not attempt to repair the 105SX yourself. There are no user serviceable parts inside, and special tools and techniques are required for reassembly to ensure the waterproof integrity of the housing. Repairs should be performed only by authorized Humminbird technicians.

Many requests for repair received by Humminbird involve units that do not actually need repair. These units are returned “no problem found.” If you have a problem with your 105SX, use the following troubleshooting guide before calling Customer Support or sending your unit in for repair. The 105SX contains several tools that can aid in determining if there is a problem and how to isolate and repair the problem in many cases.

1. *Nothing happens when I turn the unit on.*

Check the power cable connection at both ends. Be sure the cable is connected correctly to a reliable power source—red lead to positive, black lead to negative or ground. Ensure the power available at the mount is between 10 and 20 VDC. If the unit is wired through a fuse panel, ensure the panel is powered. Often accessory fuse panels are controlled by a separate switch or the ignition switch. Also, often a fuse can appear to be good when in fact is not. Check the fuse with a tester or replace it with a fuse known to be good.

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TROUBLESHOOTING

Check the power connection to the 105SX. It is possible to force the power cable connector into the cable holder incorrectly. If the connector is reversed, the unit will not work. Examine the contacts on the back of the unit to ensure there is no corrosion. Finally, ensure the unit is firmly seated on the mount. The electrical contacts are not made until the unit is fully seated.

Ensure the metal cable retainer is properly installed in the mount. If not, the power connected may push out when the unit is put on the mount.

2. *There is no transducer detected.*

The 105SX has the ability to detect and identify that a transducer is connected. If, at power up, a message indicates "transducer not connected," only simulator operation is possible. First, ensure that an appropriate transducer connector is positioned correctly in the connector holder, and that the unit is fully seated on the mount. The 105SX will work with the standard single beam transducer.

Second, inspect the transducer cable from end to end for breaks, kinks, or cuts in the outer casing of the cable. Also ensure the transducer is fully submerged in water. If the transducer is connected to the unit through a switch, temporarily connect it directly to the unit and try again. If none of these items identifies an obvious problem, the transducer itself is probably the problem. Be sure to include the transducer if returning the unit for repair.

3. *There is no bottom reading visible on the display.*

There are a number of possible causes for this condition. If the loss of bottom information occurs only at high boat speeds, the transducer needs adjusting. If the digital depth readout is working but there is no bottom visible on-screen, it is possible the depth range has been adjusted manually to a range lower than what is needed to display the bottom. Also, in very deep water, it may be necessary to manually increase the sensitivity setting to maintain a graphic depiction of the bottom.

If you are using a transducer switch to connect two transducers to the 105SX, ensure the switch is in the correct position to connect a transducer that is in water. (If a trolling motor transducer is selected and the trolling motor is out of water, no sonar information appears.)

If none of the above solve the problem, inspect the transducer cable from end to end for breaks, kinks, or cuts in the outer casing of the cable. If

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TROUBLESHOOTING

the transducer is connected to the unit through a switch, temporarily connect it directly to the unit and try again. If none of these items identifies an obvious problem, the transducer itself may be the problem. Be sure to include the transducer if returning the unit for repair.

4. When in very shallow water, I get gaps in the bottom reading and inconsistent digital depth indication.

The 105SX will work reliably in water 3', or deeper. The depth is measured from the transducer, not necessarily from the surface.

5. The unit comes on before I press POWER, and won't turn off.

Check the transducer cable—if the outer jacket of the cable has been cut and the cable is in contact with bare metal, you need to repair the cut with electrical tape. If there is no problem with the cable, disconnect the transducer from the unit and see if the problem is corrected, to confirm the source of the problem.

6. I get gaps in the reading at high speeds.

Your transducer needs adjusting. If the transducer is transom-mounted, there are two adjustments available to you—height, and running angle. Make small adjustments and run the boat at high speeds to determine the effect. It may take several tries to optimize high speed operation. This can also be a result of air or turbulence in the transducer location caused by rivets, ribs, etc.

7. My unit loses power at high speeds.

Your 105SX has over-voltage protection that turns the unit off when input voltage exceeds 20 VDC. Some outboard motors do not effectively regulate the power output of the engine's alternator and can produce voltage in excess of 20 volts when running at high RPMs. The 105SX displays input voltage in the Diagnostic screen. Use this readout to determine if the voltage exceeds 20 VDC.

8. The screen begins to fade out. Images are not as sharp as normal.

Check the input voltage using Diagnostic. The 105SX will not operate on input voltages below 10 VDC.

9. The display shows many black dots at high speeds and high sensitivity settings.

You are seeing noise or interference caused by one of several sources. Noise

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WARRANTY

can be caused by other electronic devices. Turn off any nearby electronics and see if the problem goes away. Noise can also be caused by the engine. If engine noise is causing the interference, the problem will intensify at higher RPMs. Increase the engine speed with the boat stationary to isolate this cause. Propeller cavitation can appear as noise on-screen. If the transducer is mounted too close to the propeller, the turbulence generated can interfere with the sonar signal. Ensure that the transducer is mounted at least 15" (38cm) from the prop.

HUMMINBIRD ONE YEAR FULL WARRANTY

First year repairs (from original date of purchase) on your 105SX are absolutely free. This does not include physical damage to the unit or its accessory items. Any modification or attempt to repair the original equipment or accessories by unauthorized individuals will void the warranty. Return the warranty registration card and retain your bill of sale for warranty verification. Accessories not manufactured under the Humminbird trade name are not covered by our warranty. **The customer is responsible for shipping charges to Humminbird.** Humminbird will provide ground UPS or Parcel Post shipping back to the customer free of charge. This warranty applies to the original purchaser only.

This warranty is in lieu of all other warranties expressed or implied and no representatives or persons are authorized to provide for any other liability in connection with the sale of our products. Humminbird reserves the right to perform modifications or improvements on its products without incurring the obligation to install the changes on units previously manufactured, sold, delivered, or serviced.

THIS IS A FULL WARRANTY AS DEFINED BY THE FEDERAL WARRANTY ACT, EFFECTIVE JULY 4, 1975.

MAINTENANCE AND WARRANTY

SERVICE POLICY

SERVICE POLICY

This Service Policy is valid in the United States only. This applies to Humminbird units returned to our factory in Eufaula, Alabama, and is subject to change without notice.

All repair work is performed by factory-trained technicians to meet exacting factory specifications. Factory serviced units go through the same rigorous testing and quality control inspection as new production units.

Even though you'll probably never need to take advantage of our incredible service guarantee, it's good to know that we back our units this well. We do it because you deserve the best. We will make every effort to repair your unit within three working days from the receipt of your unit. This does not include shipping time to and from our factory. Units received on Friday are usually shipped by Wednesday, units received Monday are usually shipped by Thursday, etc.

We reserve the right to deem any product unserviceable when replacement parts are no longer reasonably available or impossible to obtain.

After the original warranty period, a standard flat rate service charge will be assessed for each repair (physical damage and missing parts are not included). Please call our Customer Support Department to verify the service charge for your unit.

If charges are not prepaid, the unit will be returned C.O.D. If you are experiencing problems related to bottom or depth readings, please send your transducer along with your unit when sending for repair.

MAINTENANCE AND WARRANTY

CUSTOMER RESOURCE CENTER

CUSTOMER RESOURCE CENTER

If you have any questions, call our Humminbird Customer Resource Center Hotline:

1-334-687-0503

Throughout the U.S. and Canada, hours are Monday-Friday, 8:15 a.m. to 5:00 p.m. Central time.

Or visit our web site: **www.humminbird.com** for *Product Support* and troubleshooting guides.

If after reading "Troubleshooting" you determine your unit needs factory service, please attach a description of the problem and send it with the unit to the address below.

If you are including a check, please attach it to the unit.

**Humminbird
Service Department
108 Maple Lane
Eufaula, AL 36027**

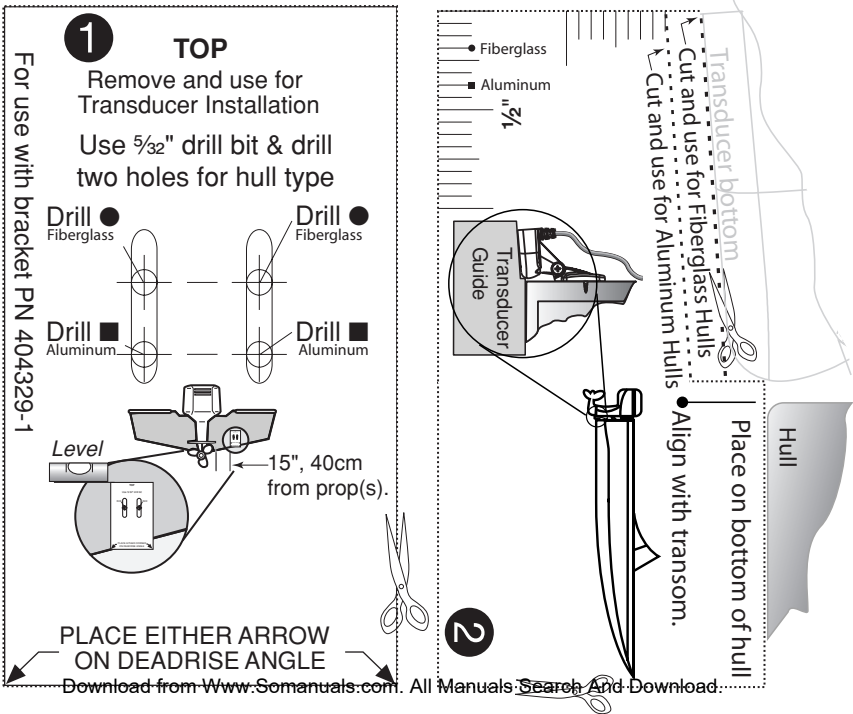
Further information on Humminbird products can be found at:

www.humminbird.com

MAINTENANCE AND WARRANTY

SPECIFICATIONS

Operating Frequency	200 kHz
Power Output	2000 Watts (Peak to Peak) - 250 Watts (RMS)
Area of Coverage	24° at -10 db
Power Requirement	10 - 20 VDC
Display	FSTN LCD
LCD Matrix	128 V x 64 H
Viewing Area	2.90" V x 2.35" H
Mounting	Quick Disconnect Mount
Unit Size	6 ³ / ₄ " H x 6 ¹ / ₄ " W x 4 ¹ / ₄ " D
Transducer (Standard)	XHS-6-24
Transducer Cable Length	20'
Depth Ranges	15', 30', 60', 120', 180', 240', 360', 480', & 600'
Zoom Ranges	7 ¹ / ₂ ', 15', 30', & 60'



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