

Fishfinder 160C®

color sonar

owner's manual



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INTRODUCTION

About This Manual

Thank you for choosing the Garmin Fishfinder 160C.

This manual covers the installation and operation of the Fishfinder 160C. To get the most out of your new Fishfinder, take time to read this manual and learn the operating procedures for your unit in detail.

The **Introduction** contains information about this manual and the Table of Contents.

The **Installation Instructions** contain the information needed to properly install the Fishfinder 160C.

The **Operating Instructions** contain information about the operation of the Fishfinder 160C.

The **Appendix** contains information such as specifications, understanding the sonar, license requirements and warranty information.

The **Index** helps you find information more quickly.

Manual Conventions

This manual uses the term **Warning** to indicate a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

This manual uses the term **Caution** to indicate a potentially hazardous situation, which, if not avoided, may result in minor injury or property damage. It may also be used without the symbol to alert you to avoid unsafe practices.



WARNING: This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This Notice is being provided in accordance with California's Proposition 65. If you have any questions or would like additional information, please refer to our Web site at <http://www.garmin.com/prop65>.

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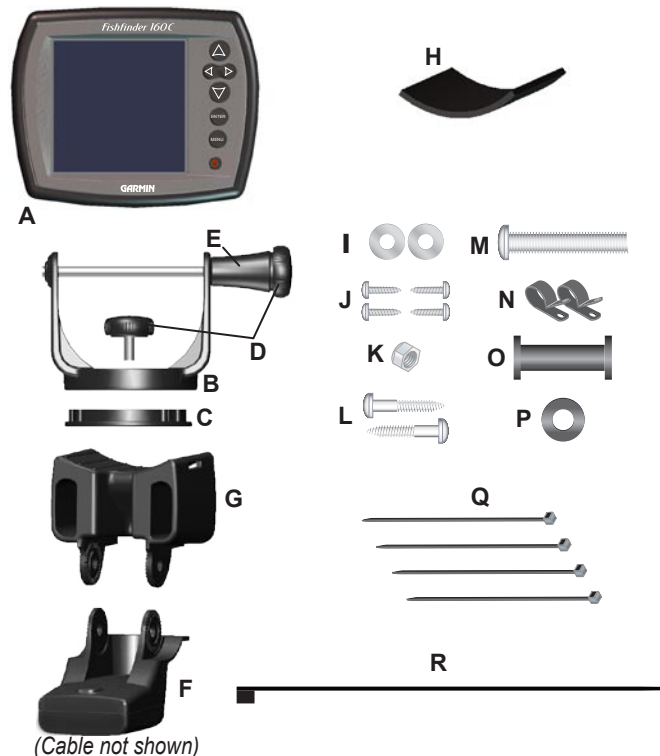
INSTALLATION INSTRUCTIONS

Please read through these instructions thoroughly before attempting installation. Make sure you completely understand these instructions before you begin. When in doubt, seek professional assistance.

Be sure the wiring harness reaches the unit and transducer location before beginning installation. The Garmin Fishfinder 160C hardware allows for installation on either the transom or trolling motor. Please check the packing list below. If you are missing any items, please contact your Garmin dealer.

Packing List

A–Fishfinder 160C Sonar Unit (1)	K–10-32 Lock Nut (1)
B–Swivel Mount Bracket (1)	L–5 x 30 mm Screws (2)
C–Swivel Base (1)	M–10-32 x 1.75 Screw (1)
D–Mounting Knobs- Short, Long (1ea)	N–1/4" Cable Clamps (2)
E–Mounting Knob Spacer (1)	O–Plastic Spacer (1)
F–Transducer With Power Cable (1)	P–1/4" Rubber Washer (1)
G–Transducer Mount (1)	Q–Cable Tie, 5.6" (4)
H–Trolling Motor Mount Gasket (1)	R–Cable Tie, 20" (1)
I–5 mm Flat Washers (2)	S–Power/Data Cable
J–4 x 12 mm Screws (4)	(not shown)



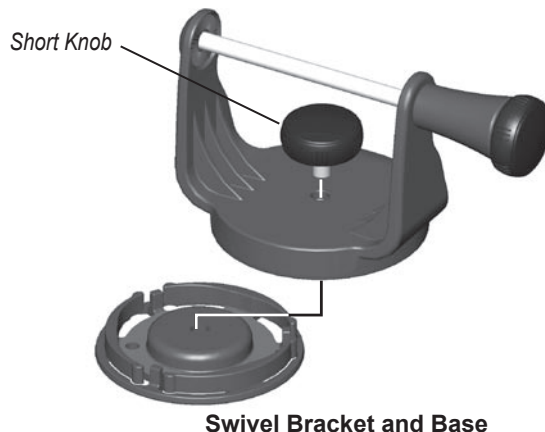
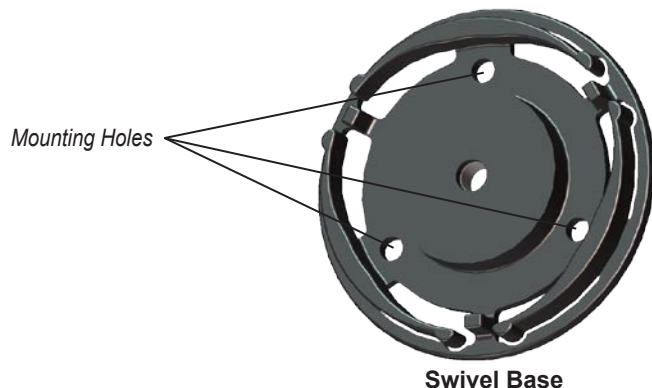
Unit Installation

Choose a location that provides optimal viewing and allows easy access to the unit's keypad. Select a mounting surface strong enough to support the weight of the unit and protect it from excessive vibration or shock. **DO NOT** mount the bracket in a location where the unit is exposed to extreme temperature conditions. When installing the mounting bracket, be sure to allow room for the connection and routing of the power cable.

Tool List (not included)—drill, screwdriver (Phillips or standard), three #8 pan-head machine bolts with matching nuts and washers, and a 5/32" drill bit, OR three #8 pan head self-tapping screws, and a 1/16" drill bit.

To mount the bracket assembly:

1. Using the swivel base as a template, mark the location of the three mounting holes.
2. If securing the base with machine bolts, drill three 5/32" holes at the locations you marked. If securing the base using self-tapping screws, drill 1/16" starter holes at the locations you marked. Generally, starter holes should be no deeper than half the screw length.
3. Secure the swivel base with three bolts or screws. **DO NOT OVERTIGHTEN.**
4. Attach the swivel bracket and secure it with the short knob.



To install the unit on the mounting bracket:

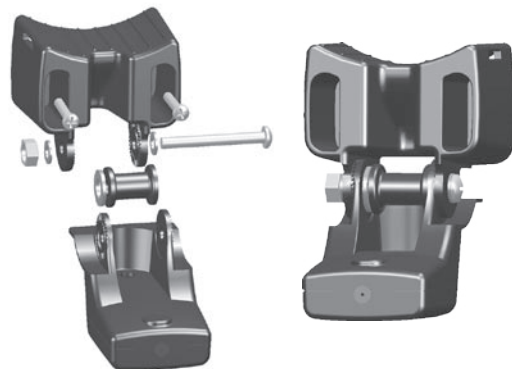
1. Align the slot on the back of the unit with the long mounting knob and slide into place. It may be necessary to adjust the long knob to spread the bracket arms apart. (Turn counter-clockwise to widen the bracket arms, clockwise to tighten.)
2. Adjust the unit angle and tighten the long mounting knob until snug.
3. Tilt the unit by loosening the long knob on the right side of the bracket assembly.
4. Rotate the entire bracket by twisting it left or right. (NOTE: You will hear clicks as you turn the bracket.)
5. Tighten all knobs when the viewing angle you want is obtained.



Transducer Installation

To assemble the transducer:

1. Insert the rubber washer and plastic spacer in the transducer at the same time. DO NOT lubricate the rubber washer.
2. Route the cable toward the back and slide the transducer into the mounting bracket.
3. Place a 5 mm flat washer on the 10-32 x 1.75" screw and insert the screw through the mounting bracket, spacer, and rubber washer.
4. Place the remaining 5 mm flat washer on the exposed end, and install the 10-32 lock nut finger tight. The transducer is tightened further after installation on the boat.



Selecting a Transom Mount Location

For your sonar to operate properly, the transducer has to be located in clean (non-turbulent) water. The transducer should be mounted as near the center of the boat as possible.

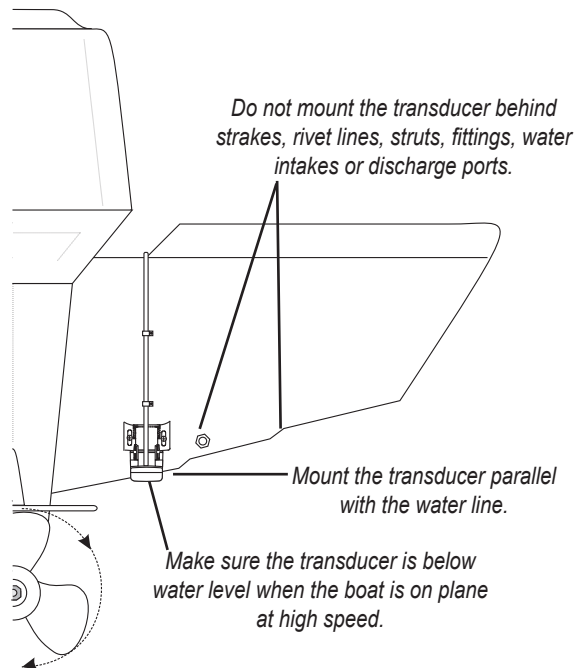
DO NOT cut the transducer lead, this will void your warranty and may degrade the sonar's operation.

DO NOT mount the transducer behind strakes, rivet lines, struts, fittings, water intake, discharge ports, eroding paint, or anything that creates air bubbles or causes the water to become turbulent.

It is important that the transducer be as close to the center line as possible in calm, non-turbulent water for optimal performance.

Avoid mounting the transducer in locations where the boat may be supported during launching, hauling, trailering, or storage.

Mount the transducer away from the path of the prop on single drive boats. On twin drive boats, mount the transducer between the drives if possible. Do not mount the transducer directly in the path of the prop. The transducer can cause cavitation that may degrade the boat's performance and damage the prop.



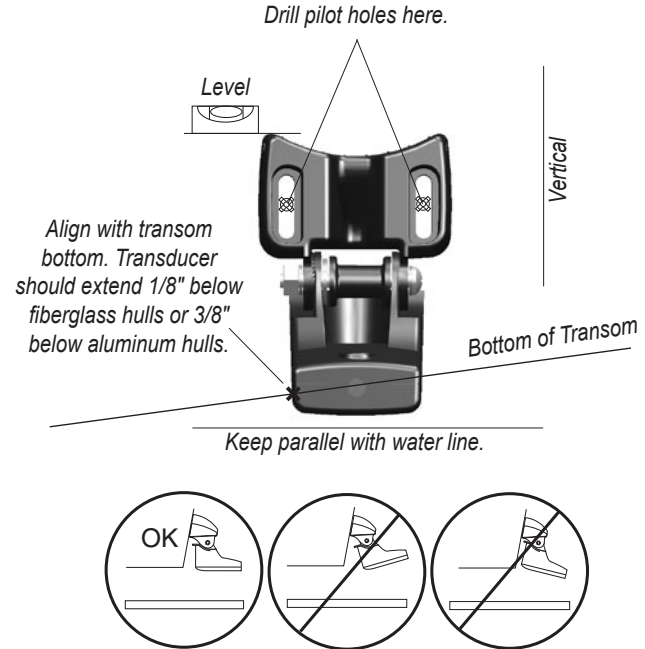
Apply marine sealant to all screw threads to prevent water from seeping into the transom.

Mounting the Transducer on a Transom

Tool List (not included)—drill, 3/8" wrench or socket, 5/32" and 1/8" drill bits, masking tape, #2 Phillips screwdriver, marine sealant.

To mount the transducer on a transom:

1. Position the transom mount at the selected location, making sure the transducer is parallel with the water line. Mark the center locations of each hole on the transom mount (see figures to the right).
2. Using the 5/32" bit, drill the pilot holes approximately 1" (25 mm) deep at the marked locations. To avoid drilling the holes too deep wrap a piece of tape around the bit 1" from the point of the bit.
3. Apply marine sealant to the 5 x 30 mm screws. Attach the transducer to the transom using the 5 x 30 mm screws. Adjust the transducer to extend beyond the bottom of the transom approximately 1/8" (3 mm) on fiberglass hulls or 3/8" (10 mm) on aluminum hulls. Adjust the transducer to be aligned parallel with the water.
4. Tighten the 10-32 locking nut until it touches the mounting bracket, and then tighten 1/4 turn more (do not overtighten).

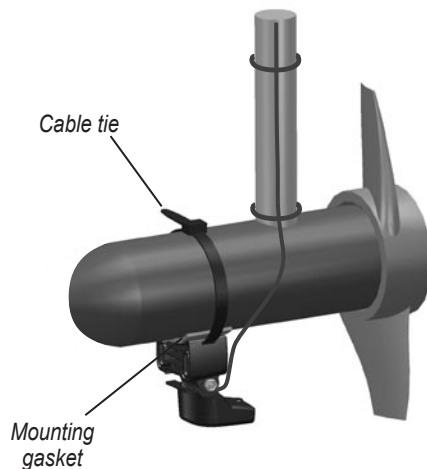


Mounting the Transducer on a Trolling Motor

To mount the transducer on a trolling motor:

1. Slide the large cable tie through the slot on the transducer mount with the ridges of the band facing up until equal lengths extend on both sides of the mount. (**NOTE:** For cold water, or heavy timber or debris areas, a metal 4-5" worm gear clamp is recommended.)
2. Position the mount gasket on the curved top of the transducer mount.
3. Place the transducer assembly against the motor body of the trolling motor, with the front of the transducer pointed away from the trolling motor propeller.
4. Wrap the two ends of the cable tie around the motor body. Place the pointed end of the cable tie through the fastener hole on the opposite end and pull it through until it is snug but not tight. (The cable tie clicks when you pull it.)
5. Position the transducer so that it is parallel with the bottom when in use, and make sure the gasket is aligned properly. Pull the cable tie end until tight. Trim off the excess, if necessary. Tighten the 10-32 locking nut until it touches the mounting bracket and then tighten 1/4 turn more. (Do not overtighten.)

6. Route the 30' (9 m) transducer cable using the supplied cable ties to secure the cable to the motor shaft. You can fill the forward-facing portion (except the cable tie pocket) of the transducer mount with sealant to avoid accumulating debris.



Testing the Transom Mount Installation

Perform this test after you install the Fishfinder. Because you need water to carry the sonar signal, the Fishfinder does not function properly with the transducer out of the water. When you place your boat in the water, CHECK FOR LEAKS around the screw holes that are below the water line. DO NOT leave your boat in the water for an extended period of time without checking for leaks.

To test the transom mount installation:

1. Begin testing the installation at a slow speed. If the sonar appears to be working properly, gradually increase the boat's speed observing the sonar's operation. If the sonar signal suddenly is lost or the bottom return is severely degraded, note the speed at which this occurs.
2. Return the boat to the speed at which the signal was lost. Make moderate turns in both directions and see if the signal improves.
3. If the signal strength improves while turning, adjust the transducer so that it extends another 1/8" below the transom of the boat. It might take several adjustments to eliminate the degradation.
4. If the signal does not improve it may be necessary to move the transducer to a different location.

Wiring Harness Installation

The Fishfinder 160C comes with a wiring harness that connects the unit to power and the transducer with one easy-to-remove connection. If it is necessary to extend the power wires, use 22 AWG wire. DO NOT cut the transducer cable, as this will void your warranty. Transducer extension cables are available from your Garmin Dealer.

If your boat has an electrical system, it may be possible to wire the unit directly to an unused holder on your current fuse block. If you are using the boat's fuse block, remove the in-line fuse supplied with the unit. You may also wire the unit direct to the battery.

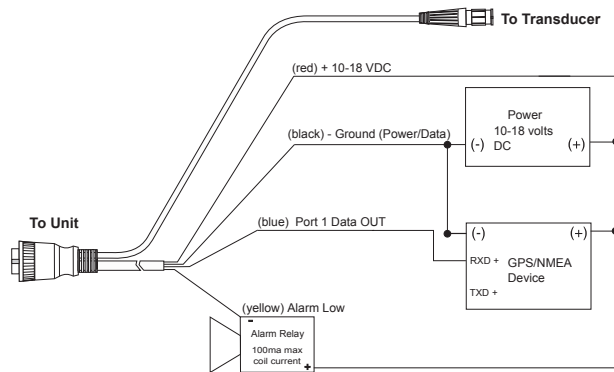
To install the wiring harness:

1. Install the Red (+) wire on the positive battery terminal.
2. Install the Black (-) wire on the negative battery terminal.
3. Install a 2 Amp fuse in the fuse holder (fuse block only).
4. Align the notches on the cable plug and back of the unit. Insert the cable into the connector and turn the lock ring counter-clockwise until it stops.

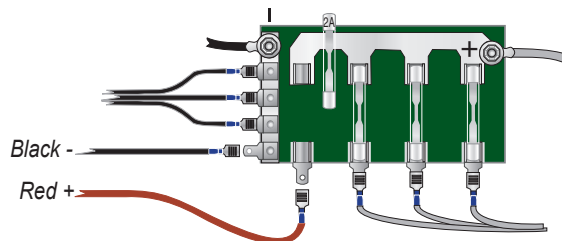
The FF160C outputs NMEA data for: Water Depth, Water Speed and Water Temperature.

To connect the NMEA output to a NMEA device:

Connect the Blue wire to the Data Input of the NMEA device.



Wiring Diagram



Wiring to a Fuse Block

Caring for the Fishfinder 160C

The FF160C's case is constructed of high-quality materials and does not require user maintenance except cleaning.

Cleaning the Case

Clean the unit's outer casing (except for the screen) using a cloth dampened with a mild detergent solution, and then wipe dry. Avoid chemical cleaners and solvents that may damage plastic components.

Cleaning the Screen

The screen should only be cleaned using eyeglass lens cleaner. Use a soft, clean, lint-free cloth. Using cleaners containing Ammonia will harm the anti-reflective screen coating. Apply the liquid to the cloth and then gently wipe the screen with the moistened cloth.

Storage

Do not store the FF160C where prolonged exposure to temperature extremes may occur (such as in the trunk of a car) as permanent damage may result.

Water Immersion

The FF160C is waterproof to IEC Standard 60529 IPX7. It can withstand immersion in 1 meter of water for 30 minutes. Prolonged submersion can cause damage to the unit. After submersion, be certain to wipe and air dry the unit before reuse.



WARNING: The Fishfinder 160C lens is coated with a special anti-reflective coating which is very sensitive to skin oils, waxes, and abrasive cleaners. CLEANERS CONTAINING AMMONIA WILL HARM THE ANTI-REFLECTIVE COATING. It is very important to clean the lens using an eyeglass lens cleaner which is specified as safe for anti-reflective coatings and a clean, lint-free cloth.

OPERATING INSTRUCTIONS



The Arrow keys

The **up** and **down Arrow** keys are used to select items on the Adjustment Bar and Setup menu. The **left** and **right Arrow** keys are used to quickly cycle through Adjustment Bar settings.

The ENTER key

The **ENTER** key activates or deactivates Adjustment Bar and Setup menu data fields for review or changes.

The MENU key

The **MENU** key activates or deactivates Adjustment and Setup menus.

The POWER key

The **POWER** key turns the unit on or off, and activates the backlight. Press and hold to turn the unit on or off. Press briefly and release to activate the backlight. To change the backlight level, press the **POWER** key repeatedly to cycle between off, user level, and high.

Unit Capabilities

Water Depth

The Depth Scale is displayed from top to bottom along the right side. Messages and Alarm Icons are displayed along the bottom.

Water Temperature

The unit can display the water temperature at the transducer.

Speed

Speed can be displayed in miles per hour, kilometers per hour, and knots. A speed capable transducer is required.

Distance

Distance can be displayed in miles, nautical miles, or kilometers. A speed capable transducer is required.

Battery Voltage

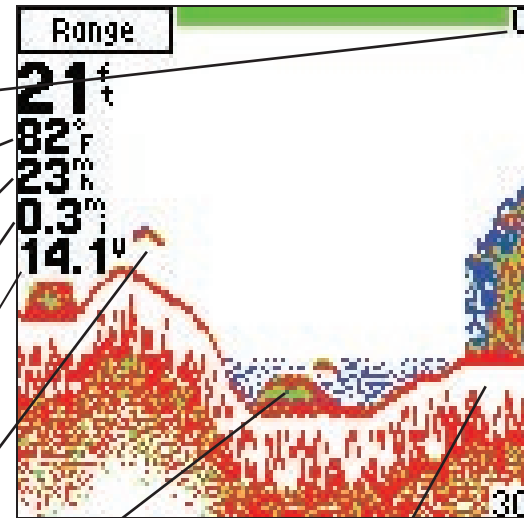
Current battery voltage can be displayed.

Fish

The unit displays fish as arches or fish symbols in three sizes and can alert you when a fish is detected.

Thermocline and Structure

Garmin's See-Thru technology can display more than just the thermocline and structure, the unit displays fish in and below the thermocline, trees, brush, and deadfall.



(Simulated display)

Bottom Shape and Type

Garmin's Auto Gain system provides a clear graphic representation of the bottom type and its shape.

The Adjustment Bar

The Adjustment Bar allows quick access to the settings most commonly changed while using the unit. The Adjustment Bar settings are: Range, Gain, Scroll, Zoom, and View.

Current Adjustment Bar settings are viewed by pressing the **MENU** key. Press **MENU** again to hide the window. The current adjustment option always appears in the upper left of the display. Press **left** or **right** on the **Arrow** keys to scroll through the available options.

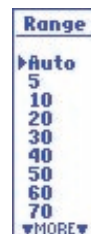
To immediately change the current adjustment option, press the **up** or **down Arrow** key. To review the available settings before making a change, press the **ENTER** key to activate the adjustment window.

To change a setting on the unit:

1. Press **MENU**, use the **up** or **down Arrow** key.
2. Move the selection arrow to the option you want, and press **ENTER**.
3. Choose **Setup** for the main Setup Menu.

Range

Sets the display depth range. The unit can automatically track the bottom, or be set to a user-specified range. Available settings are: **Auto** (default) or **5-900 ft**.



Gain

Controls the sensitivity of the unit's sonar receiver. This provides some flexibility in what is seen on the display. To see more detail, increase the receiver sensitivity by selecting a higher gain (+). If there is too much detail or if the screen is cluttered, lowering the sensitivity (-) may increase the clarity of the display. Available settings are: **Auto** (default) and **0-100%**. The Auto setting level is controlled by the Auto Gain setting in the Setup menu.



Scroll

Adjusts the rate that the graph scrolls from right to left. If you are sitting still or the graph is moving too fast, slowing or pausing the graph can be beneficial.



Zoom

Selects a screen zoom scale. Available settings are: **OFF** (default), **2X**, and **4X** zoom.



View

View is only available when a Zoom scale other than **Off** is selected. This setting allows you to select a specific zoom area to view on the screen, or allows the unit to automatically select a zoomed viewing area based on the bottom. When adjusting this setting, the top and bottom numbers reflect the zoomed view depth range.



The Setup Menu

The Setup menu contains the settings that should not need to be changed frequently.

To display the Setup menu:

1. Press the **MENU** key.
2. Using the **up** or **down Arrow** key select **Setup**, and press the **ENTER** key.

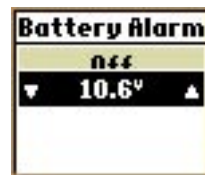
To change a Setup menu item:

1. Using the **up** or **down Arrow** key, highlight the selection.
2. Press the **ENTER** key to activate the setting.
3. Using the **up** or **down Arrow** key, make the change.
4. Press the **ENTER** key to accept the change.

Alarms

Battery

Sounds an alarm when the battery has discharged to a user-determined voltage. The Battery Alarm can help determine when the battery is reaching a critical state of discharge.



Shallow

The **Shallow** Alarm sounds a warning at a determined depth between **1** and **900** ft.



Deep

The **Deep** Alarm sounds a warning at a determined depth between **1** and **900** ft.



Fish Alarm

Sounds an alarm when the unit detects what it determines to be a fish. The alarm selections are: **Off** (default) or **On**.



Graph

Fish ID

The Fish ID setting determines how the graph displays underwater targets and background information. If **Fish ID** is set to **Off**, the unit displays all of the available information about the underwater environment. If a fish symbol is selected, the graph displays only the information related to that symbol (large, medium, and small sizes). In wide beam, fish detected toward the outside of the beam are displayed with a hollow symbol. Fish detected directly under the boat are solid.

Off—All available information is displayed. (default)

—Suspended targets appear as symbols. No background information is displayed in this mode.

—Same as above with target depth displayed.

—Suspended targets appear as symbols. In this mode background information is still displayed making fish identification easier.

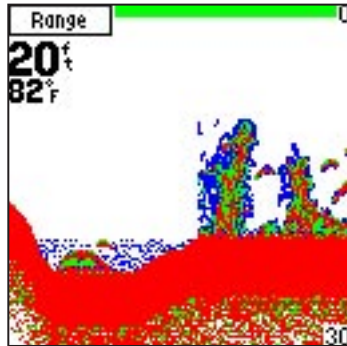
—Same as above with target depth displayed.

Beam

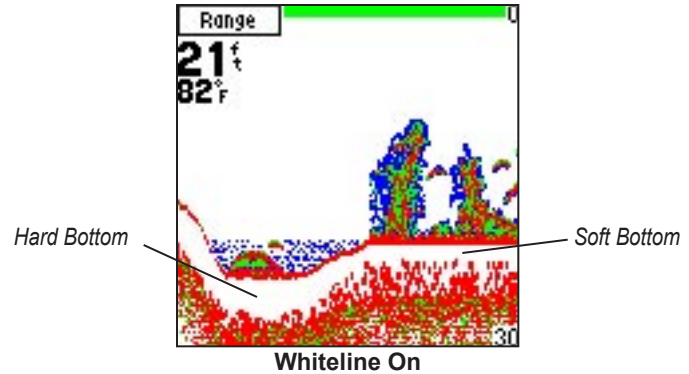
The Beam setting allows the selection of a Narrow Beam or Wide Beam for the transducer. A narrow beam provides higher detail structure returns of a smaller bottom area. The wide beam shows a larger fish return area with poorer detail of non-bottom structure.

Whiteline

The Whiteline setting controls how the unit displays information about the bottom type (hard or soft). With Whiteline **off**, the bottom return displays as a solid color. With Whiteline **on**, the strongest area of bottom return becomes white and can be used to determine bottom hardness. A hard bottom returns a stronger signal and displays a thicker bottom layer. A soft bottom returns a weaker signal and displays a thinner bottom layer.



Whiteline Off



Auto Gain

The Auto Gain setting controls the sensitivity of the receiver when in the gain option is set to Auto. Auto Gain has three settings; **High**, **Medium**, and **Low**. Increasing the Auto Gain setting makes the FF160C more aggressive when adjusting gain automatically. High auto gain may lead to excessive clutter on the screen.



Background

This setting allows the Background color to be changed. The available settings are: **Black**, **Blue**, and **White**.



Numbers

Keel Offset

The Keel Offset setting allows the user to offset the surface reading for the depth of a keel. This makes it possible to measure depth from the bottom of your keel instead of from the transducer's location. Enter a positive number to offset for a keel. It is also possible to enter a negative number to compensate for a large vessel that may draw several feet of water.

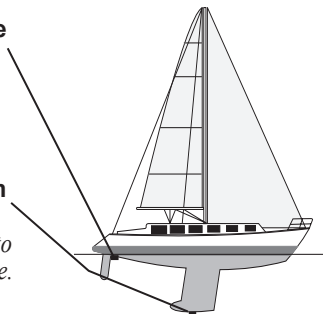


Transducer at Surface

Enter (+) positive number to show depth from the bottom of keel.

Transducer at Bottom of Keel

Enter (-) negative number to show depth from the surface.



Size

Determines the size of the depth, battery, temperature, speed, and distance numbers displayed on the screen, either **Small** or **Large** (default).



Battery

Choose to either **Hide** (default) or **Show** the current battery voltage.



Water Temp

Water Temperature automatically appears when set to **Auto** (default), or you may choose to **Hide** the Water Temperature.



Speed

Speed automatically appears when set to **Auto** (default), or you may choose to **Hide** the Speed.



Distance

Distance automatically appears when set to **Auto**, or you may choose to **Hide** (default) the Distance.



Calibrate Speed

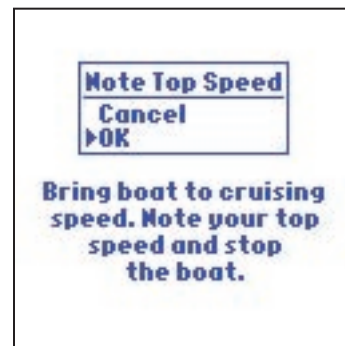
This only appears if you are using a speed-capable transducer. Calibration is required to ensure that the speed displayed on your unit is accurate. Use the boat's speedometer, a stopwatch, or a GPS to determine your speed. If using a stopwatch, measure the distance that the boat travels in a period of time (distance / time = speed). It is recommended that the calibration take place in water having little or no current.

To calibrate the speed:

1. Highlight **Calibrate Speed**, and press the **ENTER** key.
2. Bring the boat to cruising speed, note the top speed, and stop the boat.
3. With **OK** selected, press the **ENTER** key.
4. Using the **up** or **down Arrow** key, set the maximum speed and press the **ENTER** key.



NOTE: If the boat is not moving fast enough or the speed sensor is not registering a speed, you will see **Speed Too Low** displayed in the selection box. With **OK** highlighted, press **ENTER** and check that the speed sensor wheel is moving or safely increase boat speed. If there is a problem with the speed sensor/unit, check the cable connections.



Reset Distance

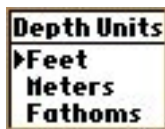
Reset Distance only appears if you are using a speed-capable transducer. Reset Distance resets the displayed Distance to zero.



Units

Depth

Choose to display measurements in Feet (ft, default), Meters (m) or Fathoms (fa).



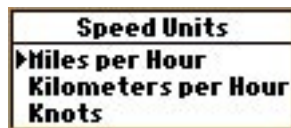
Temperature

Choose to display the water temperature in Fahrenheit (°F, default) or Celsius (°C).



Speed

Choose to display Speed in Miles per Hour (mph, default), Kilometers per Hour (kph), or Knots (kt).



Distance

Choose to display Distance in Miles (mi, default), Nautical Miles (nm), or Kilometers (km).



System

Simulator

The Fishfinder 160C comes with a built-in Simulator mode that allows you to practice and learn the operation of the unit at home rather than on the water. The unit indicates that it is running the Simulator mode by showing **Simulator** in the lower-left of the screen. While in the simulator mode, the unit displays a simulated bottom scene, and the Fishfinder 160C can be controlled (except Gain) just as if it were on the water. To exit Simulator mode, turn the unit off. If no keys are pressed for 1 minute, the unit automatically resets while in Simulator mode. At startup if a transducer is not detected, the unit automatically starts in Simulator mode.

Language

Choose to display information in one of four languages.



NMEA Output

Choose to turn the NMEA Output **On** or **Off** (default). The Fishfinder 160C can output NMEA data for Water Depth, Water Temperature, and Water Speed. The NMEA output is NMEA 0183 version 3.01.



Defaults

This option restores the factory default settings for the unit.



Beeper

Choose to turn the Beeper **On** or **Off**. When the Beeper is **On**, a beep is sounded when a key is pressed, a message is shown or an alarm activated. With the Beeper **Off**, all Beeper functions are muted.



Contrast

Adjust to compensate for different light levels or viewing angles. Moving the slider up darkens the contrast. Moving the slider down lightens the contrast.



Light

Changes the level of screen backlighting. This setting affects the middle level (user level) when cycling through the Backlight setting. To cycle through the Backlight settings, press and release the **POWER** key.



APPENDIX

Specifications

Physical Specifications

Size: 4.9" H x 6.1" W x 2.9" D (12.4 cm x 15.5 cm x 7.4 cm)

Weight: 1.1 lbs. (0.5 kg)

Display: 4.4" diagonal (11.3 cm), 3.14" H x 3.14" W (8.0 cm x 8.0 cm) high-contrast, 16-color CSTN display with adjustable brightness (128 x 128 pixels)

Case: Fully gasketed, high-impact plastic alloy, waterproof to IEC 529 IPX7 standards

Temp. Range: 5°F to 130°F (-15°C to 55°C)

Power

Source: 10-18v DC

Usage: 9 watts max. at 18V DC; 7 watts at 12V DC nominal.

Fuse: AGC/2A - 2.0 Amp

Sonar

Power: Dual Beam: 150 watts (RMS); 1200 watts (peak to peak)

Frequency: 200 kHz/80kHz

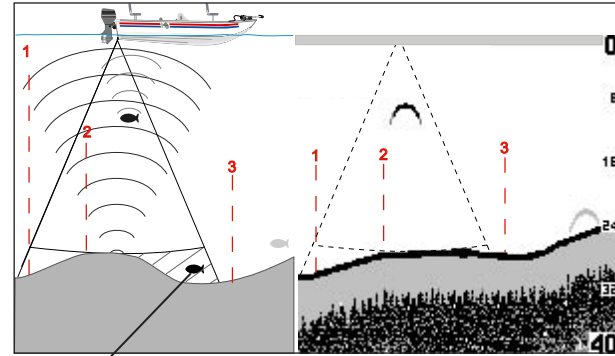
Depth: 900 foot max depth (Depth capacity is dependent on water salinity, bottom type, and other water conditions.)

Understanding Sonar

This section is intended to help the novice user gain some understanding of how the Fishfinder 160C operates and how it can help improve fishing productivity.

To understand what the unit is displaying, it is important to have a general knowledge of how the unit works and how it determines what to display. Briefly described, the unit operates by transmitting sound waves toward the bottom of a lake, stream, or seabed in a cone-shaped pattern. When a transmitted soundwave strikes an underwater object such as the bottom, a piece of structure, or a fish, sound is reflected back to the transducer. The transducer collects the reflected sound waves and sends the data to the unit to be processed and displayed on the graph. The underwater data is displayed on the graph in the order that it is returned: first returned—first on the graph. The diagram to the right demonstrates this by showing an underwater scene as it would be displayed on the graph. Generally speaking, if the only thing between the transducer and the bottom is water, the first strong return will come from the bottom directly below the transducer. The first strong return sets the bottom level. Weaker secondary returns provide the detailed data. Sonar returns display as reds (strongest), then oranges (strong), yellows (medium), greens (weaker), and blues (weakest).

That is a brief description of how your Fishfinder 160C operates. The following pages show how this data can help you to improve your fishing.

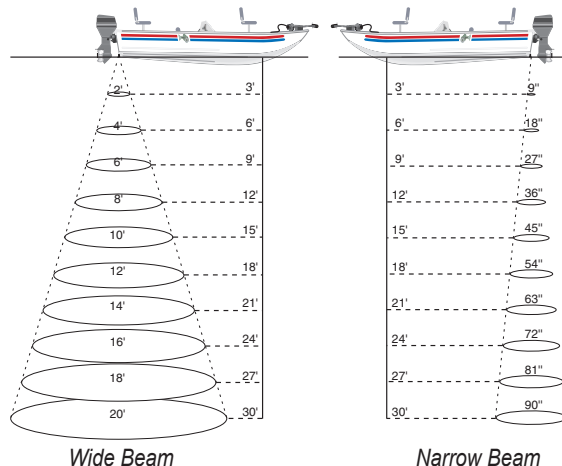


This fish is currently in a dead zone and is not detected by the sonar. The fish is in the coverage area of the transducer, but remember—the first strong return sets the bottom level. The fish will eventually be detected when the first strong return sets the bottom level below the fish.

Transducer Coverage

Understanding Transducer Coverage

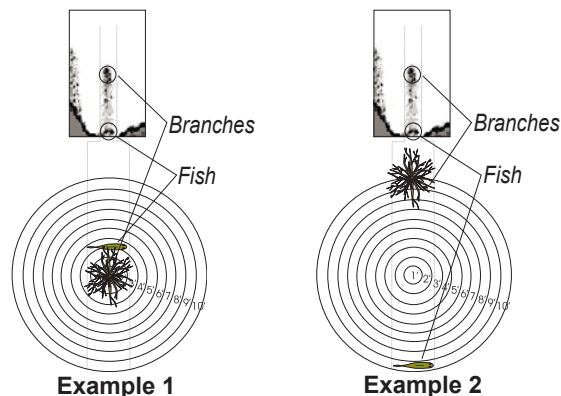
The bottom area covered by the transmitted sound waves is determined by the beam width of the transducer, and the water depth. The Fishfinder 160C can transmit either a Narrow or Wide beam. The Narrow beam provides crisp bottom and structure detail, but the coverage area is limited. As shown in the illustration below, at a 30 foot depth the Narrow beam covers the area of a 6-foot circle. The Wide beam covers a much larger area, but with some loss of bottom and structure detail. As illustrated below, at a 30-foot depth the Wide beam covers the area of a 20-foot circle.



Understanding the Graph

It is important to understand that the unit does not display a 3-D representation of the underwater environment. The unit can display multiple things at the same time, but cannot determine where the return originated—only when it was received.

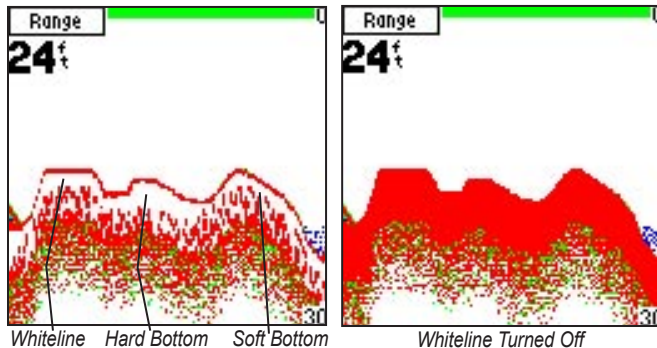
Examples 1 and 2 provide a look at the underwater world from a top view, and illustrate how these views would be displayed on the graph. On both graphs it appears the fish and tree are side by side as shown in Example 1. However, when we look at Example 2, we see that the fish can be several feet from the tree. It is important to remember that the Fishfinder cannot determine where in the coverage area the tree or fish are, only that the returns were received at the indicated depths in the same time frame.



Whiteline

The Fishfinder 160C can help you to determine if the bottom is hard or soft. When the sonar soundwaves are reflected back by the bottom, a hard bottom returns a stronger signal than a soft bottom. A thin whiteline indicates a softer bottom while a thick whiteline indicates a harder bottom. Normally, a red line shows the point where water meets the bottom. This line follows the bottom contour, along with any significant objects lying on the bottom. The unit uses the whiteline function to make the bottom layer information easier to distinguish.

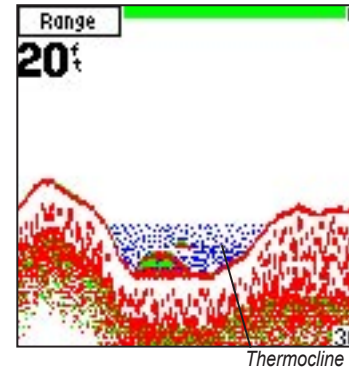
With the Fishfinder 160C, active whiteline helps accentuate where strong signals are located, which makes bottom type determination easier. The example below shows the bottom return with and without the whiteline activated.



Thermoclines

Garmin's See-Thru technology allows the Fishfinder 160C to "see" through thermoclines and helps locate fish where they live; and fish love thermoclines!

A rough definition of a thermocline is a break in water where the water temperature changes faster than the water above it.



Limited Warranty

This Garmin product is warranted to be free from defects in materials or workmanship for one year from the date of purchase. Within this period, Garmin will at its sole option repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs.

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Garmin retains the exclusive right to repair or replace the unit or software or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

To obtain warranty service, contact your local Garmin authorized dealer or call Garmin Product Support for shipping instructions and an RMA tracking

number. The unit should be securely packed with the tracking number clearly written on the outside of the package. The unit should then be sent, freight charges prepaid, to any Garmin warranty service station. A copy of the original sales receipt is required as the proof of purchase for warranty repairs.

Online Auction Purchases: Products sold through online auctions are not eligible for rebates or other special offers from Garmin. Online auction confirmations are not accepted for warranty verification. To obtain warranty service, an original or copy of the sales receipt from the original retailer is required. Garmin will not replace missing components from any package purchased through an online auction.

International Purchases: A separate warranty is provided by international distributors for units purchased outside the United States. This warranty is provided by the local in-country distributor and this distributor provides local service for your unit. Distributor warranties are only valid in the area of intended distribution. Units purchased in the United States or Canada must be returned to the Garmin service center in the United Kingdom, the United States, Canada, or Taiwan for service.

The Garmin Fishfinder 160C has no user-serviceable parts. Should you ever encounter a problem with your unit, please take it to an authorized Garmin dealer for repairs.

The Fishfinder 160C is fastened shut with screws. Any attempt to open the case to change or modify the unit in any way will void your warranty and may result in permanent damage to the equipment.

Software License Agreement

BY USING THE FISHFINDER 160C, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THE FOLLOWING SOFTWARE LICENSE AGREEMENT. PLEASE READ THIS AGREEMENT CAREFULLY.

Garmin grants you a limited license to use the software embedded in this device (the “Software”) in binary executable form in the normal operation of the product. Title, ownership rights, and intellectual property rights in and to the Software remain in Garmin.

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Product Registration

Help us better support you by completing our online registration today! Have the serial number of your Fishfinder 160C handy and connect to our Web site (<http://www.garmin.com>). Look for the Product Registration link on our Home page.

Use this area to record the serial number (8-digit number located on the back of the box) in case your Fishfinder 160C is lost, stolen, or needs service. Be sure to keep your original sales receipt in a safe place or attach a photocopy inside the manual.

Serial Number: ____ _

Contact Garmin

If you should encounter any difficulty while using your Fishfinder 160C, or if you have any questions, in the U.S.A. contact Garmin Product Support by phone: 913/397.8200 or 800/800.1020, Monday–Friday, 8 AM–5 PM Central Time; or go to www.garmin.com/support/, and click on Technical Support.

In Europe, contact Garmin (Europe) Ltd. at 44/0870.8501241.

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Part Number 190-00532-00 Rev. B