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INTRODUCTION

Congratulations on your purchase of the Bottom Line[®] Tournament 3100[™]! Your new SONAR includes Bottom Line's advanced high-clarity bottom graph *plus* water temperature and boat speed (with optional sensor) to make the most out of your boating and fishing experience.

Make sure that your package contains the following items:

- ✓ Tournament 3100 display unit with mounting bracket
- ✓ Transducer with mounting brackets and hardware
- ✓ Power cord
- ✓ Warranty card (back page of this manual)

INSTALLATION

Proper installation is essential in getting the best performance from your 3100. Please read these directions carefully. If you do not feel comfortable performing the installation yourself, contact your authorized Bottom Line[®] dealer for a professional installation.

Here is what you will need to do:

1. Mount the display
2. Route and connect the power cable
3. Mount the transducer and route the transducer cable.

Mount the Display

Any convenient location will work for the 3100, provided there is enough room in the back of the unit for the power and transducer cables when the display is tilted at the best viewing angle. Four holes in the base of the display bracket allow for wood screws or through-bolt mounting.

- ⚡ **Tip:** If you are planning to cut a hole in your dash for the power and transducer cables, only a 3/4" hole is required, which can be covered later with the mounting bracket. In this case, leave the bracket loose until the cables have been routed.
- ⚡ **Tip:** If your dash is made from thin fiberglass, consider adding a piece of wood underneath to secure the mounting hardware.
- ⚠ **Caution:** The mount must be secure enough to handle the roughest ride that your boat provides.

Connect the Power Cable

The 3100 works from a 12-volt battery system and requires $\frac{1}{4}$ amp during use (1-amp peak). For the best results, attach the power cable directly to the battery. You can attach the power cable to an accessory panel, however you may experience electrical interference. Connect the power cord to the battery as follows:

- Red wire to positive (+) terminal.
- Black wire to negative (-) terminal

🔊 **Note:** Connecting to the same circuit with other devices such as tachometers, marine radios or trim switches may cause electrical interference.

⚠ **Caution:** To protect both the cable and the display unit, Bottom Line highly recommends that you install an in-line 1-amp fast-blow fuse (available at automotive stores) in series with the red wire *at the battery*.

Mount the Transducer

Your choice of where and how to mount the transducer will have a direct impact on the performance of your 3100. You can mount the transducer on either the transom, the trolling motor or inside the hull. Before you get started, you need to know these basic principles:

- Your transducer will not work when it is not in the water.
- Even turbulent water or water filled with air bubbles can cause interference or completely inhibit transducer operation.

A transom mount allows you to use the 3100 while running with your main engine. A bow trolling motor mount puts the transducer closest to where you are fishing, but only works when the trolling motor is in the water.

In-hull mounting in fiberglass boats is also an option, *but may substantially reduce the SONAR signals*. This mounting option is most commonly used for optimum high-speed operation or for boats when the transducer cannot be exposed.

Transom Mount

In order to mount the transducer on the transom you will need the following materials:

- Phillips head screwdriver (#2)
- Drill with an 1/8" bit
- Adjustable wrench
- Silicone caulk
- Pencil
- Transducer hardware package (4 bolts, 4 lock nuts, 4 #8 wood screws, 2 metal brackets)

🔊 **Note:** On some aluminum boats, interference may be reduced with a 1" thick wood backing plate for the transducer. Use the wood screws provided to attach the transducer bracket to the wood, and separate stainless steel bolts or screws (not provided) to attach the wood piece to your boat transom. Be sure to use marine varnish to seal the wood.

□ *STEP 1 - Choose the location*

The most important part of mounting the transducer on your boat's transom is to choose the best location and orientation. The preferred transom transducer location is within the center 1/3 of the transom (excluding the turbulent area around the main propeller) so that when the boat is on plane the transducer is in contact with undisturbed water.

🔊 **Tip:** Before deciding on a transducer location, drive your boat at a variety of speeds and have a helper find the spot where the water flows clearest behind the transom.

Here are a few other considerations:

- For the most accurate readings, the transducer should be mounted as horizontal as possible (with the exception of a slight forward tilt for high-speed operation).
- Sometimes during high-speed operation a transducer hanging too far below the bottom edge of the transom can cause drag and *rooster tails*. If you typically operate your boat at high speeds, you may want to mount the transducer so the face is parallel with the *deadrise* of the boat (see Figure 1). If after following the above instructions, you still have performance problems at high speeds, further suggestions can be found on page 6.

- On an aluminum boat, you should not mount the transducer directly behind a row of rivets because they cause turbulence that may interfere with the operation of the transducer, especially at speeds above trolling.

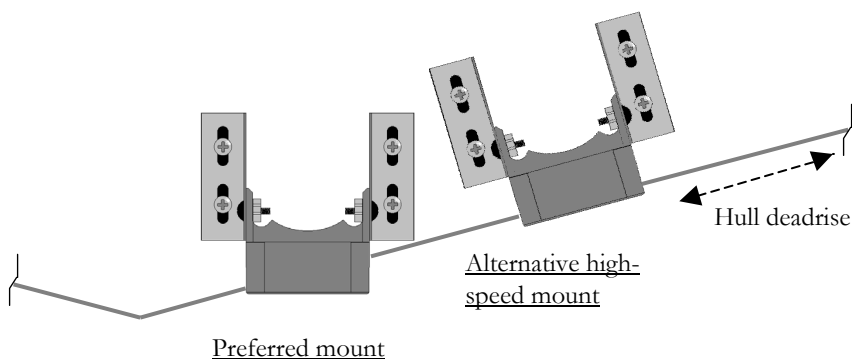


Figure 1. *Transducer mounting options on V-hull transom*

☐ STEP 2

Attach the transducer to the bracket with bolts and lock nuts provided. Do not tighten fully (see Figure 2).

☐ STEP 3 - *Aluminum boats only*

For aluminum boats, attach the wood backing plate.

- Position the wood flush with the outside of the hull and mark the position with a pencil.
- Seal the wood with marine varnish. Allow to dry.
- Drill appropriate holes in the wood and the boat for the bolts or screws.
- To prevent leakage, apply a layer of silicone caulk to the backside of the wood, the holes, and the bolts or screws. Secure the wood to your boat with bolts or screws (not provided).

☐ STEP 4

Position the transducer/bracket assembly on the transom at the location chosen according to previous recommendations. The face of the transducer must always remain in contact with the water flowing along the hull when in operation (see Figure 2). The transducer is designed to be mounted slightly below the bottom of the boat and therefore is streamlined so that it will cut through the water with minimal turbulence. The bottom of the transducer should extend 1/8" to 1/4" below the hull. The slots in the brackets allow you to make slight adjustments after mounting is complete.

□ **STEP 5**

Mark the bracket holes on the boat (or wooden backing plate) with a pencil. Set the transducer assembly aside and drill four 1/8" holes at the pencil marks, 3/4 " deep.

□ **STEP 6**

Attach the two brackets to your boat with the four #8 screws supplied.

□ **STEP 7**

Remove one of the screws. Fill the hole with silicone caulk, then re-tighten. Repeat for the remaining screws.

△ **Caution:** Failure to complete Step 7 may lead to water damage of your boat.

□ **STEP 8**

Loosen the transducer from the bracket. Make final adjustments and re-tighten.

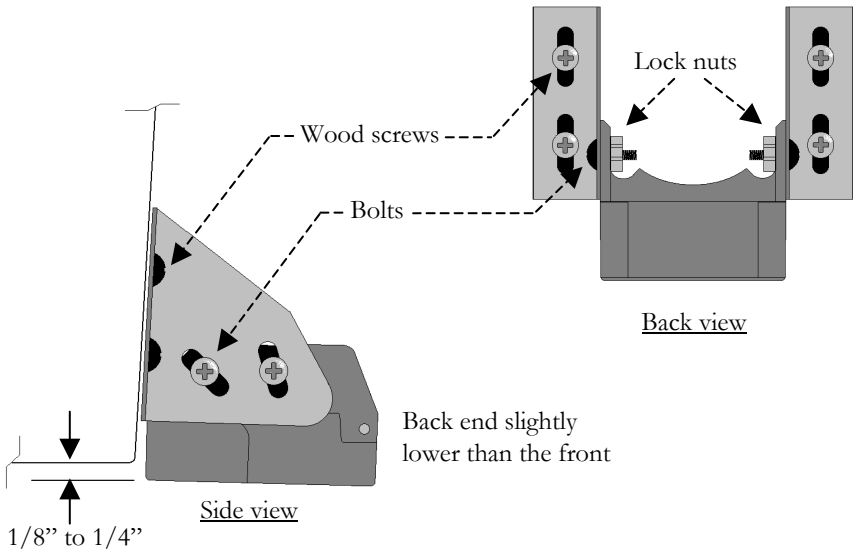


Figure 2. Transducer on the transom

Further Changes for High-Speed Operation

If optimum high-speed operation is not obtained with the transducer mounting as described above, try one or both of the following:

1. Loosen the two bolts holding the transducer to the mounting brackets. Push the back of the transducer slightly down, a maximum of 5 degrees. Even extremely small changes may produce good results. Re-tighten the bolts and check again for high-speed operation.
2. Loosen the four screws that mount the brackets to the transom, and lower the transducer to a maximum of 1/4" below the hull. Re-tighten the screws and try again.

Trolling Motor Mount

To mount the transducer on the trolling motor, you will need the following:

- Flat-bladed 5/16" screwdriver
- One size 64 hose clamp
- Three to five cable ties

☐ *STEP 1*

Position the transducer on the trolling motor (see Figure 3) and feed the hose clamp through the transducer mounting slots and around the motor, then tighten just enough to hold the transducer in place.

☐ *STEP 2*

Adjust the transducer position so that it faces straight down, then tighten the hose clamps enough to prevent further movement.

☐ *STEP 3*

Route the cable up the trolling motor shaft and secure with cable ties.

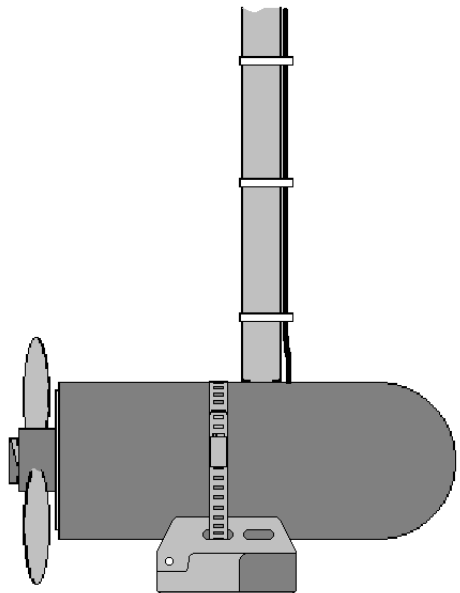


Figure 3. Transducer on the trolling motor

Transducer Cable Routing

When routing the transducer cable, observe the following:

- Keep the cable away from high traffic areas.
- Keep the cable clear of any areas where it might be cut or frayed (e.g., consider possible damage by the propeller).
- In order to reduce interference, route the cable away from other wiring or electronic equipment.
- Do not coil the cable to take up slack. Instead, use a figure "8" pattern, which is less prone to noise and interference.

△ **Caution:** Secure the transducer cable to the transom close to the transducer. This may help prevent the transducer from swinging into the boat if it is knocked off at high speeds.

MAINTENANCE

Your 3100 should work reliably for many years, however, there are a few things you may want to consider and check periodically:

- When cleaning the acrylic display lens, do not use ammonia or alcohol-based cleaners.
- Periodically clean all surfaces of the transducer with soap and water to remove any oil film. Oil and dirt on the transducer will reduce the sensitivity or may completely inhibit transducer operation.
- Consider using commonly available corrosion inhibitors on the back-panel connectors in harsh environments.

FUNCTIONS AND FEATURES

The best way to get familiar with your 3100 is to power-up in demo mode and start pressing buttons. You won't hurt anything by doing so, and if you mess-up some settings, don't worry. Your 3100 has a reset feature that restores everything back to factory settings.

Power On and Off, Demo Mode

POWER ON – *press and release* the **POWER** button.

DEMO MODE – While powering on the 3100, keep the **POWER** button pressed until the **REAL** and **DEMO** menu choices appear. Use the **↑** and **↓** buttons to move the fish symbol in front of your selection, then press the **MENU** button to continue.

POWER OFF – *press and hold* the **POWER** button until the display goes blank.

🔊 **Note:** The 3100 remembers your previous settings every time you power it on again (this does not happen in demo mode).

Set and Adjust Features

After power-up, features can be adjusted using this button sequence:

1. Press the **MENU** button to displays feature adjustments.
2. Press the **←** or **→** button to find the feature you want to adjust.
3. Press the **↑** or **↓** button to adjust the feature (see specific instructions below for Range and Depth Alarm).
4. Press the **MENU** button to restore the normal display.


🔊 **Tip:** When no menu is displayed, press and hold the **↑** or **↓** button to freeze the graph.

CONTRAST – Contrast is the darkness or lightness of the display. Both your viewing angle and the ambient temperature affect the contrast.

🔊 **Caution:** Facing the screen toward the sun for extended periods may cause the display to reach its upper temperature limit and become black. If this occurs and you cannot adjust it lighter, *immediately* cover the screen or turn it away from the sun.

LIGHT – The 3100 has a three-level adjustable display backlight.

FISH ALARM – The bottom fish alarm chimes and displays fish symbols for echoes that are likely to be from fish (see Figure 4). The depth of the fish symbol is also shown if there is room on the display. Three sizes of symbols are used to indicate the relative signal strength of the echo, with the largest representing the strongest echo (for more information, see ‘How Your 3100 Works’ on page 13).

 These symbols at the top of the screen indicate what strengths you have chosen for the fish alarm.

🔊 **Note:** A timer function prevents the alarm from chiming too often.

DEPTH ALARM – The depth alarm sounds when the depth (from the *transducer* to the estimated bottom) is less than the setting.

- ▶ Operation: Press the **MENU** button, then press the **←** or **→** button until **DEPTH ALARM** appears. *Press and hold* the **↑** or **↓** to activate the alarm and set the depth. *Press and release* the **↑** or **↓** button to turn the alarm on and off.

GAIN – The gain control sets the graph’s overall sensitivity to echoes. Generally, a higher gain number means that more fish and structure are shown. Lowering the gain may help reduce interference caused by trolling motors and other sources of noise.

🔊 **Tip:** Use as much gain or as little gain as you want, but remember that the bottom depth readout may not work under all settings.

SURFACE – The surface clutter control is used to reduce interference at the top of the graph that can be caused by wind chop and other air churned into the water. Turn the surface clutter control on if this interference becomes so severe that the 3100 interprets it as the bottom reading.

🔊 **Note:** Turning on the surface clutter control may inhibit shallow-water bottom readings.

ICE MODE – The ice fishing mode control overrides the screen clutter control and increases the gain significantly to help display smaller objects. Although this improves the picture in most ice fishing situations, it may increase clutter and is normally turned off for other types of fishing.

TRUE VIEW / GREY LINE – This feature allows you to choose how the 3100 uses grey shades to show bottom, fish and other objects in the water. True View™ is the natural display that displays weak echoes in light shades and strong echoes in dark shades. Grey line displays the strongest echoes in grey to more clearly define the bottom. A further explanation of these features can be found on page 14.

RANGE – The bottom range control allows you to set how deep the bottom graph will display. The bottom range is displayed in the upper-right and lower-right corners of the graph (see Figure 4).

In automatic mode, the 3100 sets the graph range to graph from the water surface down to just below the bottom.

AUTO This symbol in the upper-right corner of the display indicates automatic range mode.

You may want to set the range manually if the bottom reading becomes unreliable or if you are only interested in seeing the top portion of the water. In this case, the **AUTO** symbol will disappear indicating that you set the range yourself.

In bottom-tracking mode, the 3100 sets the range to graph the 10ft (3m) of water just above the bottom. This zoomed-in graph is useful for determining bottom features and for marking fish lying close to the bottom.

BTRK This symbol in the upper-right corner of the display indicates bottom-tracking mode.

- ▶ Operation: Press the **MENU** button, then press the ◀ or ▶ button until **BOTTOM RANGE** appears. *Press and release* the ↑ or ↓ button to select automatic or bottom-tracking mode, or *press and hold* ↑ or ↓ to set a manual range, then press the ➔ button to clear the menu.

GRAPH SPEED – The graph speed controls the maximum rate that the graph is shifted to the left (see page 13). This determines how much history is in the graph and therefore the shape of fish and bottom structure.

🔊 **Tip:** The graph speed slows down automatically in deeper water, because it takes more time for echoes to return.

UNITS – The 3100 can display in either U.S. or metric units for depth, temperature and speed & distance (with optional speed sensor).

KNOTS – The 3100 can display nautical miles for distance and knots for speed (KTS).

RESET – This feature resets most menu settings back to the factory defaults. Try using reset when the 3100 does not appear to be working properly and you are not sure if the problem is in the settings.

SCREENS – The screen menu lets you choose between display combinations; Bottom graph only or Bottom graph and large readouts. The large readouts screen shows the battery voltage, water temperature, bottom depth and speed & distance traveled (with optional speed sensor).

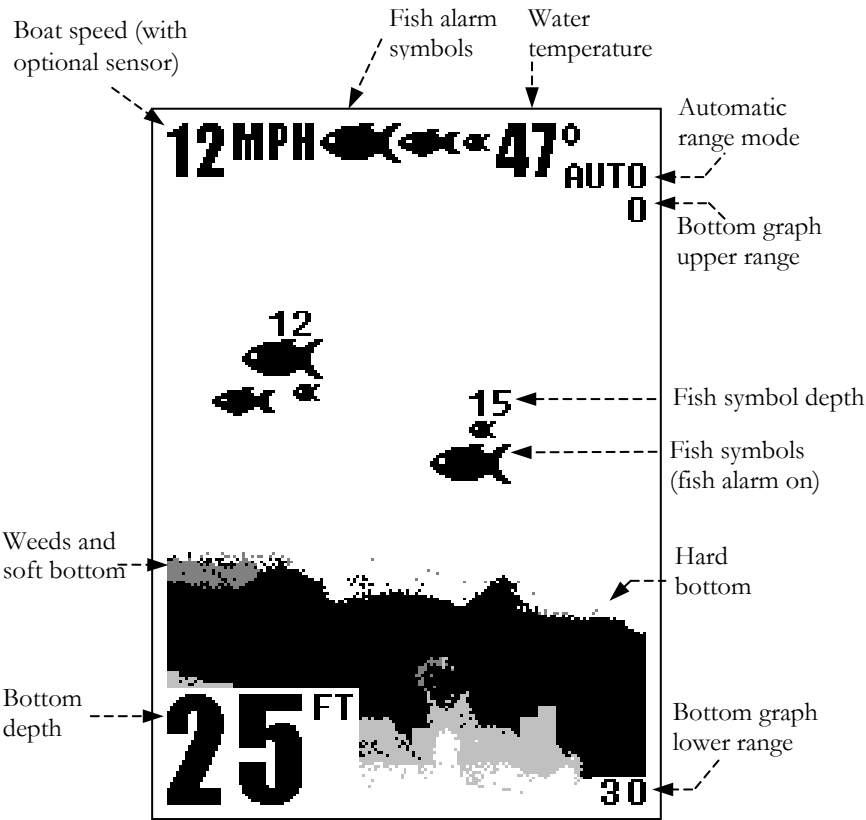


Figure 4. Bottom graph displayed in True View™ with fish alarm on

How Your 3100 Works

The 3100 uses active SONAR, short for Sound Navigation and Ranging, to locate and identify objects in the water. The transducer sends out short bursts of ultrasonic sound waves into the water and then listens for echoes to come back from objects and the bottom. The further away the object or bottom is, the longer it takes for the echo to return.

These ultrasonic waves “illuminate” the water, forming a beam that is strongest in the direction that the transducer is pointed (see Figure 5). Weaker side-lobes split off from the main beam and with enough gain can be used for finding fish as well. You can calculate the approximate diameter of the main beam on the bottom as the depth divided by three.

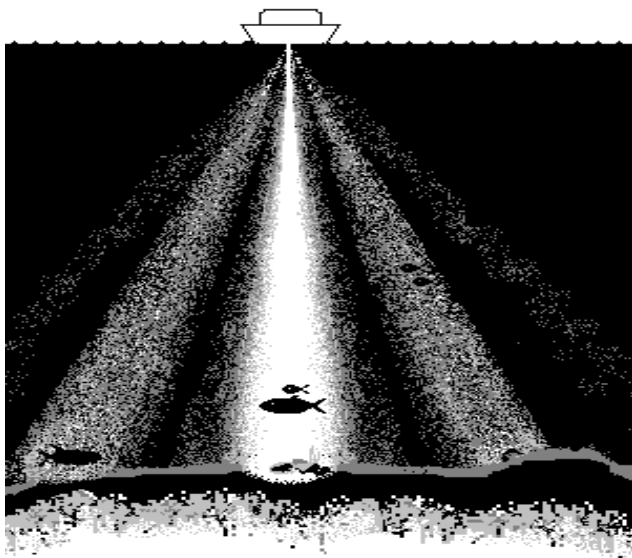


Figure 5. Bottom SONAR beam (cross-section)

Graph

The graph is created by drawing all of the echoes from a single burst in a vertical column on the display, with the echoes from deepest objects drawn lowest on the display. After all the echoes from the burst are drawn, the graph is shifted to the left and the process is repeated (see Figure 4).

Greyscale

The 3100 uses shades of grey to generally indicate the size or density of objects in the graph. In fact, it is the *strength* of the echo that determines how it will be shaded. Small fish and light weeds typically return weak echoes, whereas a hard bottom returns strong ones. This can be very useful when you want to know more about the areas you fish. The 3100 can display these grey shades in either the True View™ or Grey Line modes. For an explanation of how to select this mode, see page 11.

The True View™ display is natural and shows the weaker echoes in lighter shades and the stronger echoes in darker shades. A clear hard bottom will appear as a thick black area, while a soft or weed-covered bottom is usually thinner and displayed with grey on top of the black. Small fish and light weeds are shown in grey (see Figure 4). Strong thermal clines or large fish directly under the transducer may appear black.

Grey Line is used to more clearly define the bottom. In this mode, the strongest echoes are shown as a grey shade. A clear hard bottom will appear as a thin black line above a thick grey area, while a soft or weed-covered bottom will appear as a black area above a thinner grey. Small fish and light weeds will typically be shown in black. Strong thermal clines or large fish directly under the transducer may appear grey.

Fish

To view the natural echoes from fish and other objects in the water, turn the fish alarm symbols off (see page 10). Many fishermen have heard that an arch is a good way of determining fish, but other objects you troll across may also produce arches.

A better way of determining fish is to watch for subtle patterns on the graph. Solid horizontal lines across the screen are often fish hovering under the transducer. These lines may go up and down suggesting some movement if they are fish. Scattered clusters of pixels are often baitfish. Groups of diagonal lines are often bubbles rising steadily up from the bottom. As you get more familiar with the 3100 and the water that you fish in, you will pick out many other patterns as well.

🔊 **Note:** The size of the fish does not always correlate directly with the strength of the signal.

SPECIFICATIONS

Unit dimensions	6.5" x 7" x 2"
Power requirement max.	10.5-14V ¼ amp continuous, 1-amp peak
Display viewing area	3.1" x 2.3"
Display pixel matrix	240Vx160H
Bottom depth range	Up to 600 feet (with opt. 9° transducer)
Bottom frequency/cone angle	200Khz / 18°

Computrol, Inc. reserves the right to change specification without notice.

🔊 **Notice:** The bottom depth range specified above is under best conditions. No guarantee of maximum depth capability is made due to the unlimited types of waters in which the 3100 is used.

⚠ **Caution:** Facing the screen toward the sun for extended periods may cause the display to reach its upper temperature limit and turn black. If this occurs and you cannot adjust it lighter (see CONTRAST Menu on page 9), *immediately* cover the screen or turn it away from the sun.

⚠ **Caution:** The 3100 may not operate properly if the outside temperature is below 14°F (-10°C) or exposure to the sun or other heat sources causes the case to reach 140°F (60°C). Permanent damage will occur to the liquid crystal display if stored or used where the temperature is below -4°F (-20°C) or exposure to the sun or other heat sources causes the case to reach 158°F (+70°C). This type of damage is *not* covered by the warranty.

IF YOU ARE HAVING PROBLEMS

If you are having problems with the operation of your 3100, please try the suggestions in this section. Should all other remedies fail, please try using the reset settings feature (see page 12).

Problem: Unit won't turn on.

- Check the power cable installation (see page 3).
- Make sure that the unit is within the temperature limits (see page 15).

Problem: Unit beeps but the screen stays blank or black.

- The screen may be black and just too hot to work at all. In this case immediately cover the screen or turn it away from the sun.
- When first turned on, the screen may be dim with no visible information readable. Try adjusting the contrast (see page 9).

Problem: Unit does not pass self-test.

- Make sure that the power source has between 10.5-14V 1-amp and that both connectors are fully inserted into the back of the unit.
- If the test fails repeatedly, call our customer service number listed in the warranty.

Problem: No bottom or wrong bottom depth is found.

- Make sure the transducer is at least 6" deep in the water and in an area where no bubbles or turbulence are present.
- With your hand, rub the face of the transducer and clear off any air bubbles or debris.
- Check the ice fishing mode and surface clutter controls (see page 10).
- The bottom may be deeper than the 3100 can display.

Problem: Loses bottom at high speed.

- Make sure that the transducer does not come out of the water when the boat is on plane.
- Make sure that the transducer mounting is set up for high-speed operation (see Figure 1, and page 6).

Problem: No fish are displayed in the bottom graph.

- When looking for fish on the bottom graph in shallow water, remember that the transducer beam covers a limited area (see page 13).
- Try turning the Gain up and/or Surface control off (see page 10).

Problem: No speed or distance traveled reading (with optional speed sensor).

- The speed wheel may be jammed with weeds or sand. Make sure it can turn freely.

Problem: The bottom graph is speckled with too many marks.

- Some engine ignition systems may interfere with the 3100's operation. Aluminum boats can carry this interference throughout the hull. Confirm this by turning the engine on and off. Check the power connection (see page 3) and transducer cable routing (see page 8).
- Some pulse-width-modulated trolling motors may interfere with the 3100's operation. Confirm this by turning the trolling motor on and off. If possible, use a different power source from the trolling motor. Also try turning the Gain down and/or Surface control on (see page 10).

ACCESSORIES AND REPLACEMENT PARTS

BOTTOM LINE offers a full line of accessories and replacement parts. These items should be available where you purchased your 3100. If the dealer does not carry an item you want, you may be able to find it at www.bottomlinefishfinders.com.

BOTTOM LINE WARRANTY AND SERVICE POLICY

Bottom Line warrants that if the accompanying product (see exclusions below) proves to be defective in material or workmanship within one (1) year from the date of original retail purchase, Bottom Line will, at Bottom Line's option, either repair or replace same without charge (but no cash refunds will be made). This limited warranty may be enforced only by the first consumer user; all subsequent purchasers acquire the product "as is" without any benefit of this limited warranty.

Exclusions

This warranty does not apply in the following circumstances:

- When the product has been serviced or repaired by anyone other than Bottom Line or an Authorized Bottom Line Service Center.
- When the product has been connected, installed, combined, altered, adjusted or handled in a manner other than according to the instructions furnished with the product.
- When any serial number has been effaced, altered, or removed.
- When any defect, problem, loss, or damage has resulted from any accident, misuse, negligence, carelessness, or from any failure to provide reasonable and necessary maintenance in accordance with the instructions of your owner's manual.

We reserve the right to make changes or improvements in our products from time to time without incurring the obligation to install such improvements or changes on equipment or items previously manufactured.

Limitation of Implied Warranties And Exclusion of Certain Damages

We disclaim liability for incidental and consequential damages, for breach of any express or implied warranty, including any implied warranty of merchantability, with respect to this product. This writing constitutes the entire agreement of the parties with respect to the subject matter hereof; no waiver or amendment shall be valid unless in writing signed by Company. Some states do not allow the exclusion or limitation of consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights that vary from state to state.

Non-Warranty Repairs

Bottom Line products for which the warranty does not apply, due to any of the above exclusions or warranty period expiration, will be repaired for a charge. All such repairs carry a 90 Day Limited Warranty, subject to the exclusions and limitations stated above.

To Enforce Warranty or to Obtain Repairs After Warranty

Please contact us at (208) 846-9000, and we will either instruct you to return the product to the Company or, if outside the United States, refer you to an Authorized Service Center (this limited warranty is not enforceable outside of the U.S.). You must at your expense, including postage, shipping charges, insurance costs and other expenses, deliver, mail or ship product, together with proof of purchase, to the Company, or if outside the United states, to an Authorized Service Center. Please do not return the product to the company without our prior authorization. However, if the necessary repairs are covered by the warranty, we will pay the return shipping charges to any destination within the United States.

Serial # _____

Date of Purchase _____

Store Where Purchased _____

🔊 **Note:** Keep your Proof of Purchase and/or sales receipt for your records.

Return Address: Computrol, Inc.
499 East Corporate Drive
Meridian, Idaho 83642-3510
TEL (208) 846-9000
FAX (208) 887-2000
www.bottomlinefishfinders.com
www.cannondownriggers.com