

TFX128

Operations Manual



THANK YOU

Thank you for choosing Teleflex for your sonar fishfinder and depthsounder. Teleflex Marine has built its reputation by designing and manufacturing top-quality, thoroughly reliable marine equipment. Your Teleflex is designed for trouble-free use in even the harshest marine environment.

In the unlikely event that your Teleflex 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 Teleflex product. Also, to register your purchase and help us learn more about you, please fill out the included warranty registration card

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 personnel. 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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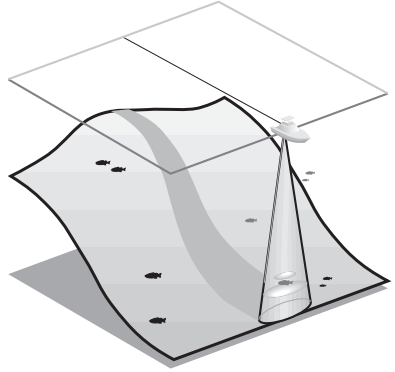
USING THE 128 SERIES

HOW SONAR WORKS

HOW SONAR WORKS

Your Teleflex 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 Teleflex 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 Teleflex 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 **128** is a single frequency, single beam unit, and generates a 20° symmetrical cone of sonar coverage at 200kHz. The 20° coverage shows excellent bottom detail with a greater depth capability than wider beams. The sonar return shows the most current information at the right of the screen and draws a history of the information as it scrolls across to the left.

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 128 SERIES

SIMULATOR OPERATION

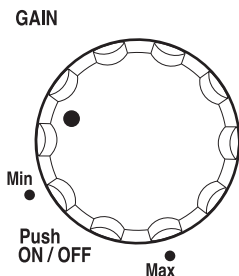
SIMULATOR OPERATION

All **128** Series fishfinders contain 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 fishfinder.

To use the simulator, with the unit off, press and hold the GAIN PUSH POWER / LIGHT knob for approximately three seconds* until you hear a continuous chirp. When in simulator operation, the **128** 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" occasionally flashes on the display indicating the information on-screen is not real sonar data.



FEATURE MEMORY

Many changes you make to the set-up or user options (see Control Functions) are retained in the unit's memory. This allows you to use the SIMULATOR mode to experiment with the various set-up options. Change to normal operating mode, make the same changes to the **128** settings, they are retained for the next time you use the **128**.

*A short push will turn the **128** ON in the normal operating state.

USING THE 128 SERIES

WHAT YOU SEE ON-SCREEN

Note: Settings are not retained when made in SIMULATOR MODE. Changes are retained in feature memory only when made when the unit is in the normal operating mode."

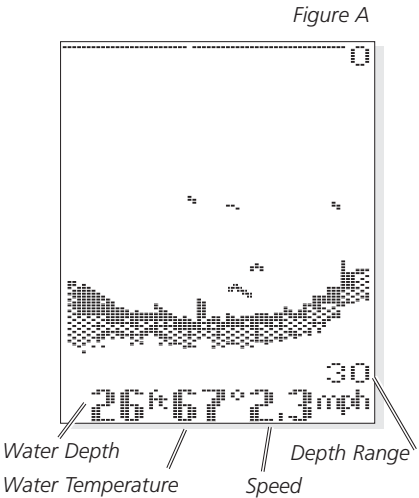
WHAT YOU SEE ON-SCREEN

Your **128** 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 **128** uses settings that were set at the factory. After initial use, the **128** will remember many of 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 whether the optional Speed/Temp accessory is installed. Figure A shows the default view when the Speed/Temp accessory is installed. Figure B shows the default view when the Speed/Temp accessory is not installed.



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

USING THE 128 SERIES

WHAT YOU SEE ON-SCREEN

DEPTH RANGE. The depth range is shown to the right of the screen. The upper number is 0 indicating the transducer position. 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.

When in Auto mode, the horizontal line at the top of the screen is the "zero line," representing the transducer location. 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.

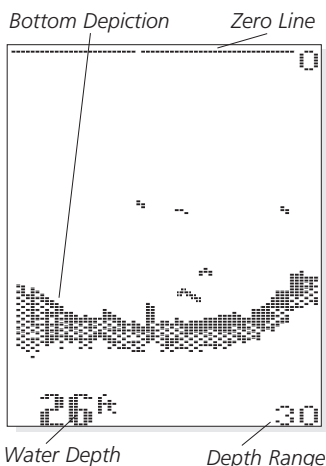
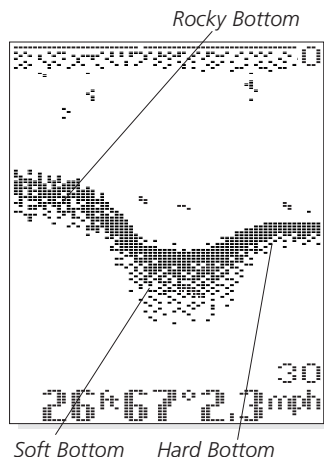


Figure B

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 **128** can automatically select 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.

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



USING THE 128 SERIES

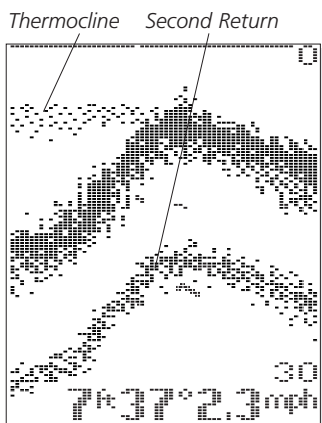
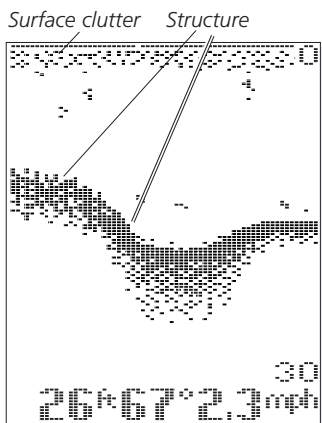
WHAT YOU SEE ON SCREEN

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.

STRUCTURE. Structure is defined as any object physically attached to the bottom. The sonar configuration of the **128** 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 **128** over a variety of known conditions and experiment with the user functions GAIN and the Chart Speed and FILTER Control Panels 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.



USING THE 128 SERIES

CONTROL FUNCTIONS

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.

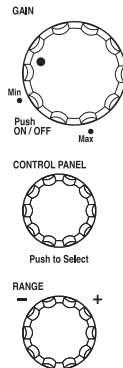
FISH ARCHES Schools of bait fish as well as individual fish are clearly visible on the 128 display. Bait fish appear as "clouds" having different shapes and sizes depending on the number of fish and boat speed. Individual fish appear as smaller black pixels often appearing as a



"fish arch." A fish arch forms as the fish moves through the sonar beam. Due to the transducer beam angle the distance to the fish decreases as it moves into the beam, and then increases as it moves out. When the chart window graphs this distance change, an arch appears. Boat speed, the Chart Speed setting and movement of the fish greatly affect the shape of the arch. When moving slowly, a fish creates an elongated arch. With the boat moving fast the arch appears shorter. A partial arch forms when the fish does not move through the entire cone angle.

CONTROL FUNCTIONS

The 128 uses a simple three knob/depress switch set for all user input. Press any knob and an audible "chirp" confirms if it can be used for control input. If a knob or depress switch has no function or is inappropriate for the situation, it will not beep and will not affect the present setting. If a knob can affect a setting but is operated/turned in the wrong direction an audible beep sounds to indicate the end of a selection range.



USING THE 128 SERIES

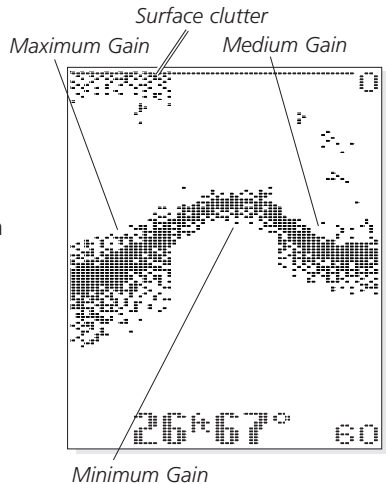
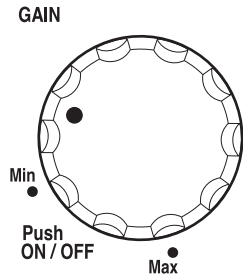
CONTROL FUNCTIONS

GAIN (Gain – PUSH Power/Light). The GAIN knob is used to do four main items: Turn the **128** on and off, adjust receiver gain, adjust the LCD panel backlight and enter simulator mode.

1. Pushing the GAIN knob powers the **128** up for normal operation with a quick push. When the unit is on, GAIN turns the unit off when depressed for several seconds.

2. The GAIN knob adjust the gain (sometimes called sensitivity) of the sonar receiver with rotation clockwise to increase and counter-clockwise to decrease gain. Adjusting the gain allows you to get the best image of the area you are interested in (see *Structure* page 6) whether it is the bottom with submerged trees, an area just above a ledge or thermocline. Adjusting gain down from a higher setting until noise and clutter is removed from the screen is a good initial setting. (See the Filter Control Panel pg. 15 for information on how FILTER affects sensitivity.) 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 gain higher or lower based on personal preference. The **128** has a full range of settings between MINIMUM and MAXIMUM. Increasing the sensitivity enables the unit to display the information from progressively smaller sonar returns. By decreasing the sensitivity bias the unit effectively filters small sonar returns.



USING THE 128 SERIES

CONTROL PANEL

In murky or muddy water, it is often helpful to reduce the gain. 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 gain since even the smallest sonar return may be of interest to the user.

3. Adjust the BACKLIGHT through three settings. With the **128** on, a second short push of the GAIN will turn on the Backlight at full brightness, another push will set the backlight at its dimmed setting. The third setting of Backlight OFF is set with another push. The backlight is very effective for low-light and nighttime operation. When the backlight is on, the **128** will consume more power than with the backlight off. This is important when using the **128** in a portable configuration powered by a separate battery, or when powering the unit from a trolling motor battery.

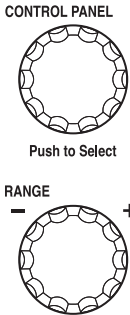
4. GAIN can also be used to go directly into SIMULATOR mode. To enter simulator, with the unit powered off, press and hold GAIN until multiple chirps are heard, indicating switching on in the SIMULATOR mode. (see page 3 for SIMULATOR operation.)

CONTROL PANEL. CONTROL PANEL displays a menu on-screen for adjustment. In normal operation, pressing the CONTROL PANEL Knob brings up a menu window with five items, Depth Range, Zoom, Depth Alarm, Chart Speed and Filter. Turn the CONTROL PANEL Knob counter-clockwise to move down through the selections, clockwise to move up. The selected menu is framed with a thicker line and also indicates with an arrow the direction or directions that the Range± knob can be turned to adjust selection setting. An audible error beep sounds to indicate end of selection range.

USING THE 128 SERIES

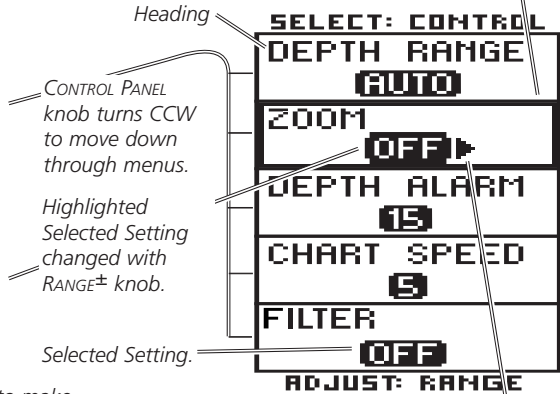
CONTROL PANEL

Push CONTROL PANEL Knob to show CONTROL PANEL. Rotate CCW to scroll down.



Rotate RANGE± knob to make change to setting.

Outlined heavier frame indicates active menu



Arrow indicates direction of available choices

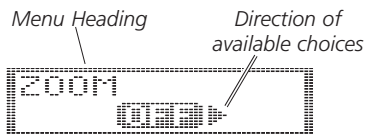
RANGE± KNOB. The RANGE± knob makes adjustments to menu functions. When a menu is selected, two things happen, the selected menu is bordered with a heavier frame and the current setting is made bolder with arrow or arrows indicating which direction or directions can effect the present Menu selection. An arrow to the left indicates counter clockwise rotation of the RANGE± knob can make changes to the current setting. An arrow to the right indicates clockwise rotation can make changes to the current setting. If both arrows are shown on a Menu, then either direction can be used to change a setting.

The RANGE Knob± often can be used when no menu is on-screen. In these situations, rotating the RANGE± knob affects the setting of the highest level function available. This is a short-cut to menu operation. In manual depth selection without Zoom, the RANGE± knob selects Depth Range. If Zoom is on and set to a manual selection, then Range makes changes to the Zoom Window Setting. If both Depth and Zoom are set to the Auto settings, then the RANGE± knob as no effect.

USING THE 128 SERIES

CONTROL MENUS

MENU LAYOUT. All five menus use the same basic layout. The heading at the top describes the menu function. The RIGHT ARROW and LEFT ARROW symbols to one or both sides of a current menu setting indicate which direction the RANGE \pm Knob can be turned to adjust Menu settings. Large changes to a current setting can be made with a quick rotation of the RANGE \pm Knob. Smaller changes to a setting can be made with a slower rotation.



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. Turn the RANGE \pm knob while the menu is selected to adjust the setting.

Some settings in one menu affect the settings available in another menu. See Zoom for further explanation.

CONTROL PANELS

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 location of the transducer. 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.



Manually set Depth Range

When set to AUTO the 128 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' of water, the 0–30' range would be selected). This provides the best display resolution and therefore the best target separation possible.



Depth Range set to AUTO

USING THE 128 SERIES

CONTROL MENUS

Depth Range can be adjusted manually. To change, push CONTROL PANELS/ Push to select the CONTROL PANEL Menu. Select DEPTH RANGE with rotation of the CONTROL PANELS knob, Adjust using the RANGE± knob

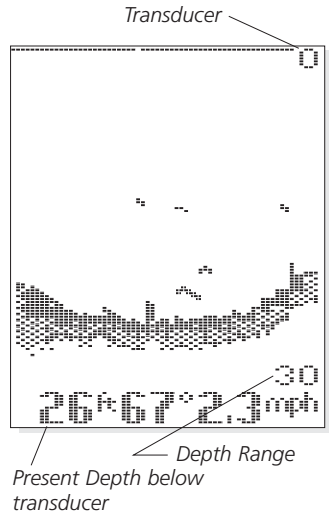


The manual setting enables you to adjust the current depth range setting. The unit no longer adjusts the Depth Range to the most appropriate range for bottom display.

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 manual Depth Range control, you can view sonar information from the area near the surface in great detail. With ZOOM set to OFF, the RANGE± knob will adjust the Range setting when viewing the Sonar screen.

To return to automatic Depth Range control, press the CONTROL PANEL Knob, Select the Depth Range menu and adjust it to the AUTO setting using the RANGE± knob.



USING THE 128 SERIES

CONTROL MENUS

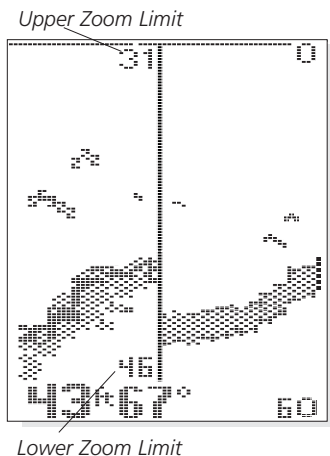
Zoom. Zoom is similar to Depth Range because it controls the range of information displayed on screen. Zoom, however, allows selection of ranges beneath the surface so any area of water between the surface and the bottom can be enlarged to provide more detailed information. By using the full height of the 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'.

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.



USING THE 128 SERIES

CONTROL MENUS

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 RANGE± knob to move this range. The upper number can never be less than 0 (the transducer location), 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. Use the RANGE± knob to move the Zoom Window up and down. Top and bottom Zoom depths are shown at the top and bottom of the Zoom window.

To disable Zoom, press the CONTROL PANEL Knob, select the Zoom Menu, use the RANGE± to select the OFF setting. Press the CONTROL PANEL Knob again to return to the sonar window.

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

DEPTH ALARM. The 128 contains an audible alarm to warn you of shallow water depths.

The alarm is adjustable to depths of 3' to 99'. 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.



The Depth Alarm setting is retained when the 128 is turned off.

Remember that Depth is measured from the transducer location which may not be the lowest part of your craft.

CHART SPEED. Chart Speed controls the rate at which the graphic information moves across the display. There are 5 possible

speeds; the fastest rate (5) is the factory setting. Keep in mind that the closer the update rate matches your boat speed, the more accurate is the graphic depiction of the terrain beneath your boat.



USING THE 128 SERIES

CONTROL MENUS

Adjust the setting using the RANGE± knob to select the desired update rate. The Chart Speed setting is remembered when the unit is powered off.

FILTER. Filter provides an advanced level of control over the amount of detail visible on-screen and the sensitivity of the unit. You can choose the setting that works best for your style of use.

With Filter set to **OFF**, the **128** displays increased detail, showing more thermoclines, structure, fish and even your bait when it falls within the sonar cone. However, this extreme sensitivity requires you to optimize the installation of your unit and transducer so that “noise” generated by a moving boat is not picked up by the fishfinder.



With Filter set to **ON**, excessive clutter often caused by interference from other fishfinders, your boat’s engine, or from noise generated by the hull at high speeds is reduced in the display. This provides a cleaner image on the display in most cases.

With the Filter menu selected in the CONTROL PANEL window, use the RANGE± knob to select the setting for your boat. When finished, press CONTROL PANEL to display the sonar screen.

MAINTENANCE AND WARRANTY

MAINTENANCE

MAINTENANCE

Your **128** is designed to provide years of trouble free operation with virtually no maintenance. Follow these simple procedures to ensure your **128** 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.
- 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 hot water. 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 **128** in a closed car or trunk—the extremely high temperatures generated in hot weather can damage the electronics.

MAINTENANCE AND WARRANTY

TROUBLESHOOTING

TROUBLESHOOTING

Do not attempt to repair the **128** 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 Teleflex technicians.

Many requests for repair received by Teleflex involve units that do not actually need repair. These units are returned “no problem found.” If you have a problem with your **128**, use the following troubleshooting guide before calling Customer Support or sending your unit in for repair. The **128** 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.

Check the power connection to the **128**. 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.

Ensure the cables are properly installed into the collector plug and the collector plug is properly seated into the **128**.

MAINTENANCE AND WARRANTY

TROUBLESHOOTING

2. There is no transducer detected.

If, at power up, there is no depth display and only a line is made from top right to left your 128 may not be getting a signal from the transducer. First turn the 128 on in SIMULATOR MODE to check for power and processing ability. Then, ensure that an appropriate transducer connector is positioned correctly in the collector plug is properly seated into the 128. The 128 will work with the standard single beam transducer.

Finally, 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 shallower than what is needed to display the bottom. Also, in very deep water, it may be necessary to increase the GAIN setting to maintain a graphic depiction of the bottom.

If you are using a transducer switch to connect two transducers to the **128**, 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 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.

MAINTENANCE AND WARRANTY

TROUBLESHOOTING

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

The **128** 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 **128** 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. Check the input voltage with a volt meter while operating the engine at various speeds to confirm input voltages.

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

The **128** will not operate on input voltages below 10 VDC. Check the input voltage at lower engine speeds for under voltage.

MAINTENANCE AND WARRANTY

WARRANTY

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

You are seeing noise or interference caused by one of several sources. Noise 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" from the prop. At higher speeds use the FILTER selected to ON to reduce ambient noise.

TELEFLEX ONE YEAR FULL WARRANTY

First year repairs (from original date of purchase) on your **128** 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 Teleflex trade name are not covered by our warranty. **The customer is responsible for shipping charges to Teleflex.** Teleflex 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. Teleflex 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 Teleflex 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 shipping 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 SUPPORT

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If you have any questions, call our Teleflex Customer Support Hotline:

1-800-747-9329

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

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.

**Teleflex
Service Department
108 Maple Lane
Eufaula, AL 36027
USA**

SPECIFICATIONS

Operating Frequency	200kHz
Power Output	250 Watts (RMS) 2000 Watts (Peak to Peak)
Area of Coverage	20° at -3 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	In-Dash or Gimbal
Unit Size	6 ³ / ₄ "H x 6 ¹ / ₄ "W x 4 ¹ / ₄ "D
Transducer (Standard)	TZ160HS
Transducer Cable Length	20'
Depth Ranges	15', 30', 60', 120', 180', 240', 360', 480', & 600'
Zoom Ranges	7 ¹ / ₂ ', 15', 30', & 60'

