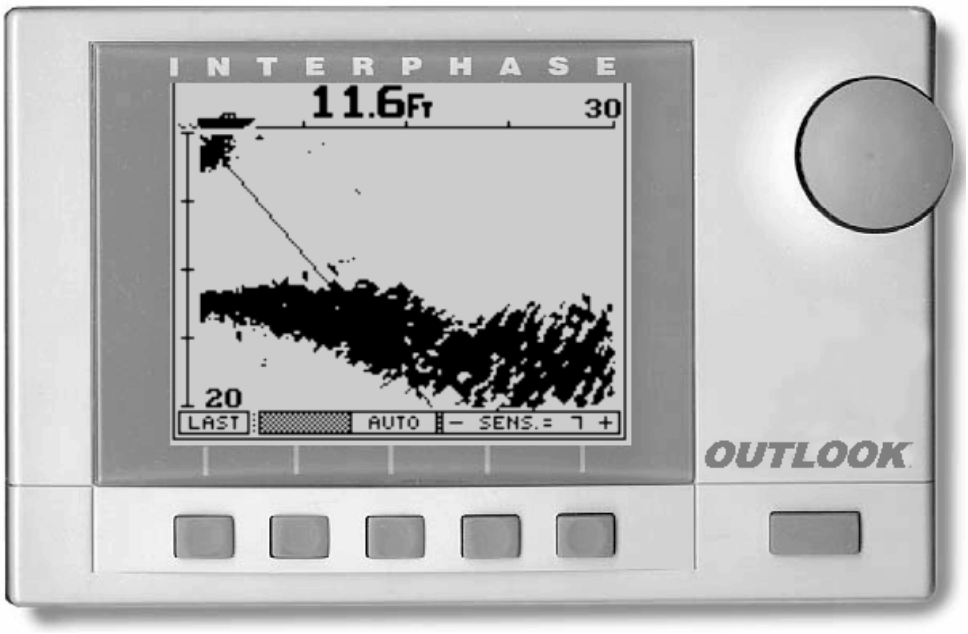
INTERPHASE

OUTLOOK™



OPERATION MANUAL

To Our Customer:

Thank you for choosing the **Interphase Outlook** Forward Scanning Sonar. Throughout the development of this fine product, we have been primarily concerned with creating a unit that offers the best possible value for your money. Selection of features, ease of use, superior performance and outstanding reliability were the benchmarks upon which all important design decisions were made. We feel proud of the **Outlook** Forward Scanning Sonar and your satisfaction is very important to us. To this end, we welcome any comments or suggestions that you might have in regard to this equipment.

It is very important that you complete and return the **WARRANTY REGISTRATION CARD** within 15 days of purchase so that your unit may be protected under the warranty.

Sincerely,

INTERPHASE TECHNOLOGIES, INC.

Publication # = OUTLOOK 2.2 - DOM
Interphase Part# = 25-1052-000

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WARNING

Navigation based solely on one method or one instrument should never be practiced. While the **Outlook** can be quite useful in showing underwater structure and changing bottom conditions both below and in front of your vessel, there are many situations and conditions which can cause erroneous or distorted readings.

In addition, there are many situations that can cause "blind spots" in the **Outlook's** field of view including the presence of temperature inversion layers (thermoclines), water turbulence, and high concentrations of suspended particles in the water.

While the **Outlook** can be considered as a useful aid to navigation, it should never be the **only** means of navigation.

IMPORTANT NOTICE

Since the **Outlook's** Forward Looking technology is revolutionary, there is a strong possibility that we will develop many new and exciting features in the future. We would like to make sure we can send you information about these new features and enhancements.

Please fill out and return the Warranty Registration Card immediately. This is our only method to keep in contact with you and we may want to advise you of future enhancements to your **Outlook**.

If future changes or improvements are made, software upgrades will be available for a nominal charge.

General Information

Thank you for your selection of the **Interphase Outlook** Forward Scanning Sonar. The **Outlook's** ruggedly built, compact design makes it ideal for installation on nearly any boat. It will display water depth, bottom conditions and submerged objects such as fish, or objects in your path, on its high resolution display. The **Outlook** is available with either a transom or thru-hull scanning sonar depth transducer.

The **Outlook** allows operation in your choice of nine languages: English, French, Italian, Spanish, German, Danish, Finnish, Swedish, or Greek. Power-off memory saves language, depth range, gain and contrast settings, screen advance speed and location in screen menu.

To ensure that you receive the maximum benefits available from the outstanding features of the **Interphase Outlook**, please carefully follow the steps outlined in this manual. An instructive demonstration simulator has been designed into the **Outlook** and we highly recommend that you spend some time using the demo mode prior to actual use of the unit. We also recommend that you read this entire manual before attempting to either install or operate your **Outlook.**

Warranty Information

Interphase provides a limited warranty on the **Outlook** Forward Scanning Sonar which is printed on the inside rear cover of this manual. We recommended that you save all packing materials so that if you should need to send in the unit for repair, it can be fully protected. Should you experience a problem with your **Outlook**, first refer to the **Troubleshooting** section (Page 31) of this manual. Most common problems and their solutions are described here. If problems persist, call **Interphase Product Support** at **(831) 477-4944**. We will be happy to try to assist you, and if required, we will give you instructions on how to quickly get your set repaired.

The enclosed warranty registration card must be completed and returned to **Interphase** within 15 days of purchase so that your unit may be protected under the warranty. Failure to return the warranty card may cause unnecessary delays in processing your unit for warranty repair.

Principle of Operation

The **Outlook Forward Scanning Sonar** uses a proprietary and patented phased array acoustic technology first developed for marine use by **Interphase Technologies**. Known as "phased array ultrasound technology", its capabilities have been proven in the military and medical industries for many years. The amazing video images provided by medical ultrasound equipment are familiar to most people and clearly demonstrate the technology's ability to show highly defined images in a "real time" or "live action" mode. **Interphase** has taken this same technology and modified it for use in the marine market.

Most present day fish finders/ depth sounders all work on a principle developed during W.W. II, called SONAR, where acoustic pulses are used to detect the presence and range or distance to an underwater object. During the 1950's, several devices which used sonar principles were developed and marketed to fishing and boating enthusiasts to detect the distance to the bottom (depth) and to indicate the presence of any intervening submerged objects - such as fish.

An acoustic array is a group of piezoelectric ceramic elements that are precisely sized and spaced. Each element will send and receive acoustic pulses, as when used in more conventional single element depth sounders. However, when all elements in the array are sending or receiving acoustic energy at the same time, the entire array behaves like a single larger element with one important difference: the ability of the array to concentrate its acoustic energy in different directions, depending on the different "phasing" of the signals applied or received by each element. Depending on the signal phasing of the array, acoustic beams can be directed in an almost unlimited number of directions. For example, using an 8 element phased array transducer, the **Outlook** is capable of steering the acoustic beam in any of 60 different directions. Conventional fixed-beam technology would require the use of 60 different elements to duplicate this capability. The resulting transducer would be much too large and costly to be of any practical use.

Since the acoustic beam in the phased array is steered electronically, requiring no moving parts, it can be quickly and reliably scanned and re-scanned over a large area. When displayed, the changing information between subsequent scans takes on an almost animated quality - for example, showing movement of underwater targets such as fish or rapidly changing bottom conditions.

Award Winning Technology

For its pioneering work in developing Phased Array Scanning Sonar, **Interphase Technologies** won the prestigious ***IMTEC INNOVATION AWARD***.

The **Outlook's** Forward Looking Scanning Sonar is based on this same award-

When operating, the **Outlook** converts a small amount of electrical current from your battery into ultrasonic sound pulses, which are then fed to the phased array transducer. These acoustic pulses travel out from the transducer in a cone shaped pattern, called the cone angle. When the sound pulse strikes an underwater object, it is reflected back (echo return), received by the transducer and converted back into small electrical impulses. These impulses are amplified, then displayed as an image on the LCD screen.

The strength of the echo, the depth of the object, and the angle of the transducer's beam all affect how the image appears on the display. Other factors which affect the image include boat speed relative to the movement and position of the underwater target and the number of objects reflecting pulses back to the **Outlook**.

Please Note:
Learning to properly interpret scanning sonar takes both patience and experience, but once mastered, the **Outlook** can offer tremendous operational advantages over conventional fixed-beam depth sounders. It is also important to realize that while the **Outlook** shows the bottom in both the forward and the conventional downlooking mode, the presentations are really quite different. The forward scan shows a view as the beam "sweeps" across the bottom, while the conventional downlooking view shows a history of repetitive soundings packed tightly together.

Installation

Display Unit

The compact size of the **Outlook** display unit allows for easy installation in almost any vessel. To get maximum performance and life from your unit, the following guidelines should be considered when selecting a mounting location:

1) Select a location where the unit is protected from excessive temperatures. Heat is one of the worst enemies of electronic components, and will accelerate component aging, thereby reducing the trouble-free life of your **Outlook**.

2) Mount the display in a location where it will be convenient to route the power cord and transducer cable.

Power connection

Connect the two-pin plug on the end of the power supply cable to the power supply jack located at the rear of the main display unit. Connect the red wire to the positive terminal and the black wire to the negative terminal of your boat's 12 VDC battery.

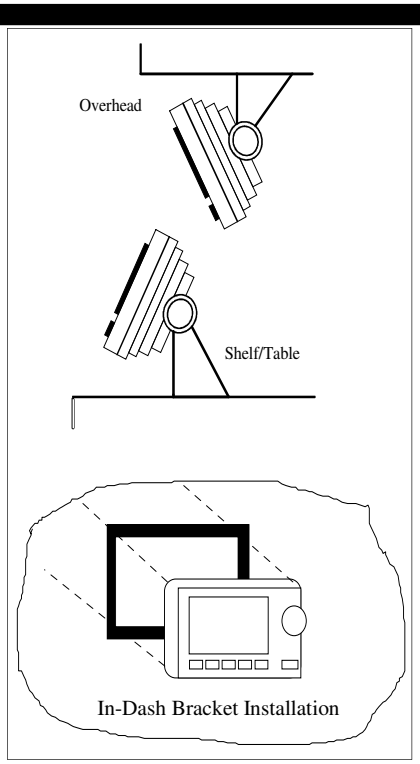
To minimize electrical interference, carefully route the power cable so that it does not run parallel or close to the transducer cable, engine, refrigeration, bilge pump or any other critical wiring.

IMPORTANT: The **Outlook's** 12 VDC power leads should go directly to the boat's battery, distribution board, or breaker panel. Instability of the display may result if the unit has to share leads with other electrical systems aboard your boat.

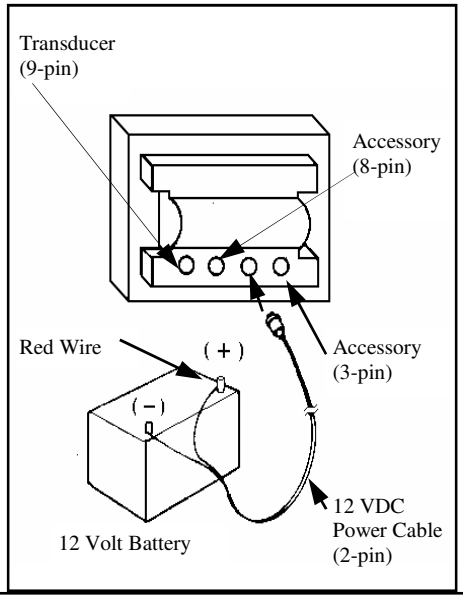
Wiring for Power and Transducer Connectors

The correct pin-out wiring sequences for the power and transducer connectors are shown at right. DO NOT SHORTEN THE TRANSDUCER CABLE. If a transducer cable longer than the 34' length supplied with your unit is needed, please contact your **Interphase** dealer. A 30-foot scanning sonar transducer extension cable is available. (P/N 04-0014-008)

DANGER: Removal of any connector, disassembly of transducer, shortening of any cable or use of any cable other than that supplied by **Interphase** will void your warranty. NO EXCEPTIONS

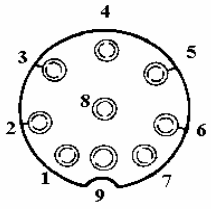


Optional In-Dash mounting bracket available.
Interphase part # 17-0054-008 required.



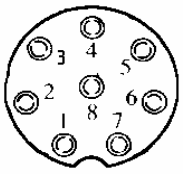
Cable Connectors

(view from front of female plug)



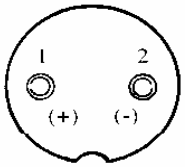
9 Pin Transducer:

1 White	1st element
2 Brown	2nd element
3 Orange	3rd element
4 Yellow	4th element
5 Green	5th element
6 Blue	6th element
7 Violet	7th element
8 Gray	8th element
9 Shield	Ground/Return



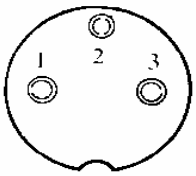
8 Pin Accessory

1	N/C
2	N/C
3	N/C
4	N/C
5	N/C
6	N/C
7	N/C
8	N/C



2 Pin Power Connector

1	+12 vdc
2	- (Ground)



3 Pin Accessory

1	N/C
2	N/C
3	N/C

N/C = No Connection

Selecting the Transducer Configuration for your Boat

Keep in mind the primary rule for transducer operation. This is: the transducer can function as long as it has an unobstructed forward view and has smooth flowing non-aerated water surrounding it.

The first line of inquiry should be about the boat. Transom mounted transducers are intended for low speed boats with external props. Boats with inboard motors and boats that regularly exceed 40MPH cannot use transom mounted transducers. Inboard motors create aeration and excess turbulence that prevent the transducers from operating properly. I/O motors where the prop is aft of the transom do not create this situation. Be careful that the driveshaft of the I/O does not block the forward horizontal scan. Boats that exceed 40MPH run a risk of having the transom mounted transduers torn free of the transom. The transom mounted transducers are not designed to be used at these speeds.

In addition, the transom mounted transducers are mounted on kick-up brackets. This allows the brackets to kick up at about 35-40MPH. This is intended to allow the transducers to kick-up if they strike an object, or to be pulled up when trailering a boat. Once kicked up, the transducers must be manully reset in order to function.

Thru-hull transducers are for boats that exceed 40MPH and /or have inboard motors. Transducer placement depends on boat size, speed, hull configuration and sonar application. On displacement hulls, the transducer is generally located 1/3 aft of where the bow meets the water line. This is the farthest forward the transducer should ever be mounted. It is important that the transducer be below turbulent aerated water created by the bow.

Special Thru-Hull Mounting Considerations

On sailboats with a fin keel, the transducer is most often placed at the leading edge of the keel and sometimes faired into the keel. As this location may be where the sling rests when hauling the boat, the transducer may be placed on either side of the hull with the foremost face of the transducer even with the leading edge of the keel. Alternatley, the transducer may be placed forward of the keel ahead of the lifting strap location. This should not be ahead of 1/3 aft of where the bow meets the waterline.

On planing hulls the transducer is typically placed near the transom. This is to provide smooth flowing water at the greastest speed. However, most planing hull boats create transducer aeration when on plane regardless of transducer location.

It should be noted that thru-hull transducers can effect boat performance in two important ways. The first concern is cavitation created by the transducer that causes reduced engine performance by disrupting water flow around the propeller. This is smoothed out by the hull in some boats, but on planing hulls with the transducer near the transom, the hull is not able to clear the cavitation. The second concern is uneven drag on high-speed boats. This may occur when the thru-hull transducer is mounted far off of the centerline of the boat. At low speeds and on large boats the effect is negligible. On smaller boats at high speeds the drag can effect the steering. The effect increases as the boat's speed rises. Boats with trim tabs can usually trim this out, but boats without trim tabs may feel a pulling sensation toward the transducer side of the boat.

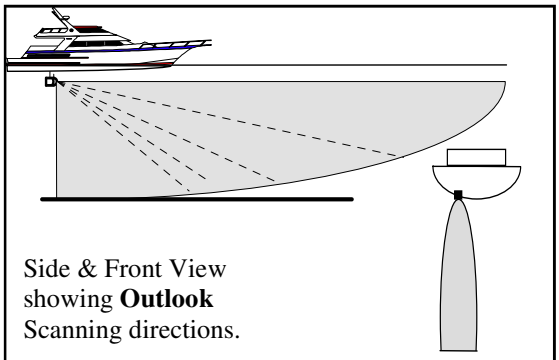
A less intuative mounting location for the thru-hull transducer on a planing hull is on the centerline just forward of midship. The goal in this mounting is to place the transducer so that it is out of the water at planing speed. As most transducers are aerated at planing speeds, this removes the transducer from the water flow preventing cavitation and steering problems. Most applications for forward scanning sonar occur when the boat is at low non-planing speeds, including fishing and navigating hazardous waters. Under these speed conditions the transducer is in the water.

On trailered boats, be certain that the mounting is such that the boat does not rest on the transducers. This could result in damage to the transducer and/or boat hull. Explore possible mounting locations while the boat is on the trailer.

Transducer Installation

The **Outlook** comes standard with either a transom mount or thru-hull style forward scanning transducer.

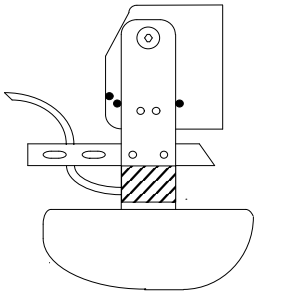
The **Outlook's** transducer contains an 8 element ceramic array in its front nose area. The array is positioned so that it can scan an ultrasonic beam from straight ahead to directly below the boat. The **Outlook** has an amazing amount of capabilities, but it can not perform magic. It can not see through objects such as your boat's hull and can not be installed internally. Therefore, it is important to position the transducer so that it has as clear a view as possible of the water directly below and ahead of your boat, as indicated at right.



Side & Front View showing **Outlook** Scanning directions.

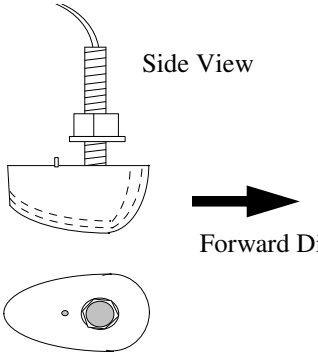
The scanning transducer must be positioned properly so that it scans in the proper direction (i.e. from in front of the boat to the bottom below). The sketch at right shows the proper orientation for both the transom mount or the thru-hull transducer. Note that on the transom mount transducer, the blunt rounded side must point forward, and on the thru-hull transducer, the more blunt area must point forward.

Transom Mounted Transducer



Forward

Thru-Hull Transducer



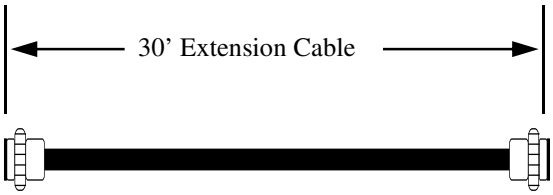
General Considerations

DO NOT CUT OR SPLICE YOUR PHASED ARRAY TRANSDUCER CABLE OR REMOVE THE 9-PIN CONNECTOR BECAUSE THE SYSTEM PERFORMANCE MAY BE SERIOUSLY DEGRADED. THIS ACTION WILL VOID YOUR WARRANTY. NO EXCEPTIONS.

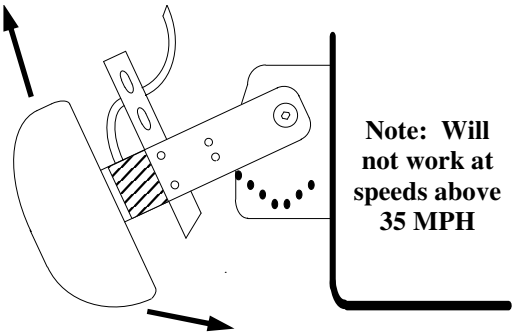
If you need a longer length cable than comes with the transducer (30'), then purchase the optional 30' extension cable, **Interphase** Part # 04-0014-008. It is recommended that only one extension cable be used as additional extensions will decrease the effective power and depth range.

In addition to the above, the following considerations should be observed:

1) Choose a location where there is the least amount of acoustic noise, air bubbles or turbulence caused by the boat's movement. The transducer should not be located nearby or especially directly behind the propeller.



Transom Mount Bracket in Released Position



Suggested materials required for installation:

- Variable speed electric drill with a chuck capacity of 10mm (3/8") or larger.
- Hole saw or spade bit 19 mm (7/8") for transom hole to route cable and connector
- Chamfer bit or 6 mm (1/4") drill bit
- Drill bit No. 28 or 4 mm (9/64")
- Drill bit 3 mm (7/64")
- Marine bedding/sealing compound

2) Choose a location where the transducer can be mounted so that it will be level to the water's surface and will not be tilted to either side. Otherwise the transducer will not scan from the surface ahead to directly beneath the boat.

3) The transducer must always remain submerged, regardless of the speed of the boat and should not be mounted where it could be damaged by underwater obstacles or when loading on a trailer.

4) **DO NOT** locate the transducer in the extreme bow of the boat where it will be subject to intense turbulence as the boat pounds through the water.

5) **DO NOT** locate the transducer directly behind any hull protrusion which will cause the water to be turbulent when it reaches the transducer or which will obstruct the transducer's forward looking view. For displacement-hull power and sail boats, the thru-hull installation is usually required.

6) **DO NOT** force the cable by pulling on it. This may cause damage to the internal transducer wiring.

DANGER: DO NOT allow any solvents, i.e. gasoline, acetone, to come in contact with the transducer or head unit as this may dissolve the plastic material.

Transom Transducer Kick-Up Bracket

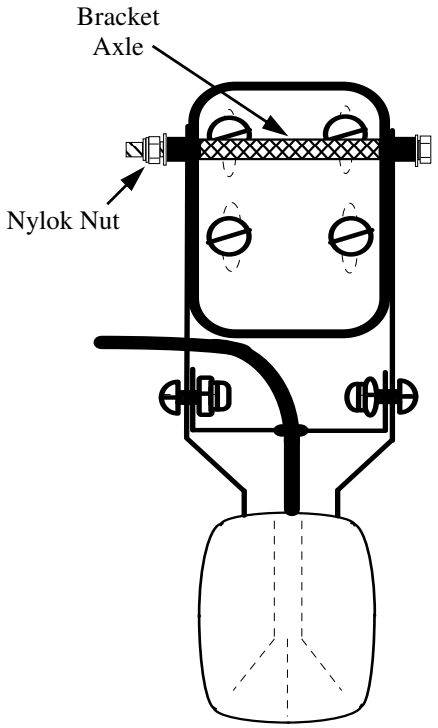
The transom transducer is attached to the boat with a heavy-duty stainless steel kick-up bracket to provide protection against impact**.** When the transducer strikes an object, or the water force exceeds the resistance of the bracket, the transducer automatically kicks up and becomes non-operational. The bracket does not automatically reset at lower speeds. The transducer must be manually returned to its operational position.

The transducer is designed to kick up at speeds between 35 and 40MPH (30-35 knots). We do not recommend transom mount transducers on boats that regularly exceed 35MPH (30 knots). **Boats that exceed 40MPH (35knots) cannot use transom mounted transducers, but must use thru-hull transducers.**

Special Note: The kick-up feature is designed as a safety consideration to prevent the transducer from being removed from the boat due to impact or excessive speed. The kick-up bracket is not designed for repeated kick-up

or to be pulled up manually during loading and unloading from boat trailers. Tests have shown that the bracket can kick-up as many as 30 times before there is a negative effect on the bracket. Repeated kick-up will cause the transducer to kick-up at progressively lower speeds. Excessive kick-ups can cause the transducer bracket to fail. Brackets that fail due to repeated kick-up are not covered under warranty.

If the transducer must be kicked up for installation, boat service or loading, the nylok nut on the end of the bracket axle can be loosened. Tighten the nut to 50 inch pounds of torque before operating the boat.



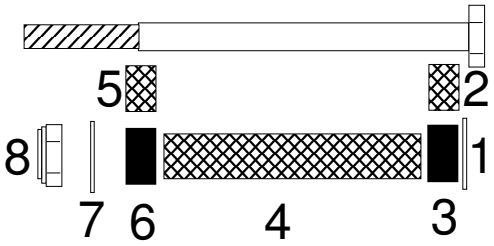
Kick-up Bracket Replacement Parts

If during installation parts are somehow lost are damaged, they can be replaced as follows:

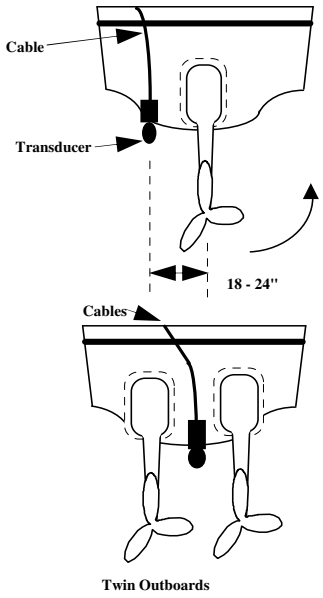
Part# 17-0088-008 - Spray Shield Kit - Includes: Spray Shield, four Mounting Bolts and Nuts, Rubber Grommet and four Large Mounting Screws.
Part# 17-0089-008 - Transom Transducer Hardware Kit - Includes: Complete Bracket Axle Assembly and four Large Mounting Screws.
Part# 17-0056-008 - Kick-Up Bracket Assembly - Includes: Complete Bracket Axle Assembly, four Large Mounting Screws and the Stainless Steel Mounting Bracket.

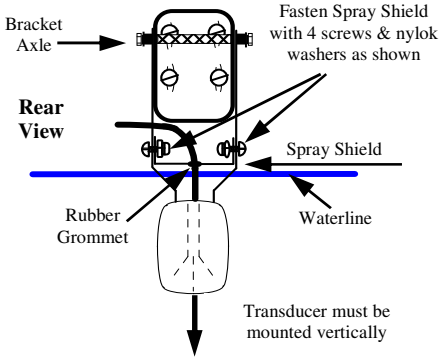
Bracket Axle Assembly

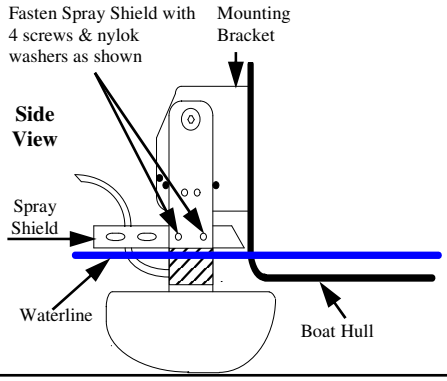
On some boats it will be neccessary to remove the Bracket Axle during installation. See the diagram to the left and instructions below for details on assembling the axle.
1. Place one stainless steel washer onto the axle against the hex end.
2. Place one small stainless steel spacer against washer.
3. Slide two urethane spacers over the small steel spacer.
4. With the transducer bracket in place, align the long stainless steel spacer with the mounting holes of the mounting bracket and slide the axle in place through the spacer.
5. Place one small stainless steel spacer against the transducer bracket.
6. Slide two urethane spacers over the small steel spacer.
7. Place one stainless steel washer onto the axle against the urethane spacer.
8. Place the nylok nut onto the threaded end of the axle and tighten to 50 inch pounds. If you do not have a torque wrench, tighten until the nut will not turn easily. The stainless steel spacers should prevent over-tightening.



Transom Mount Locations







Transom Mounting Location

The main source of vessel acoustic noise is the propeller. It is very important to position the transducer to minimize noise pickup and provide as clear a view as possible of the water ahead of the boat. Study the hull shape of the vessel carefully to determine the best transducer mounting location. To achieve optimal operation the transducer should be mounted in a spot which:

* Minimizes acoustic noise reception.
* Minimizes the chance that aerated water will flow across the transducer's frontal nose area.
* Optimizes the transducers view of the area ahead and directly below the boat.

The transducer can be installed on either side of an outboard or inboard/outboard engine, or between twin outboards. For single engine installations, normally 18" to 24" outboard of the propeller center line is acceptable and the down stroke side of the propeller is preferred. Choose a location where water flow is smoothest. For dual engine installation, just off the center line is usually acceptable.

Because the transducer rotates back and upwards when the bracket releases, it must be mounted in a location where there is sufficient clearance and headroom to allow the full release.

Attaching the Transducer and Spray Shield to the Bracket

Locate the Stainless Spray Shield inside the transducer's stainless mounting ears. Make sure spray shield is orientated as shown in sketch on the left. Then, assemble the stainless kick-up bracket to the transducers using the 4 screws, washers and lock nuts provided. The bracket arms must be mounted outside the stainless steel mounting ears of the transducer. Do not fully tighten the lock nuts at this time.

Position the transducer so that it is perpendicular from side to side and make sure the rounded shaped area is pointed towards the front of the boat.

Mounting the Transducer to the Boat

After you have selected the optimum mounting location and have assembled the mounting bracket to the transducer, mount the bracket onto the hull as shown on the right.

Make sure to position the transducer so that it is level in the fore and aft direction and so it will look straight down. Check the location of your boat's waterline and position the flat top surface of the transducer so that it is parallel to the waterline as shown at left.

Note: If the transducer is not mounted so that its fore and aft direction is parallel to the surface, then the forward looking display will be distorted and flat bottoms will appear to be slanted upwards or downwards. After mounting the transducer and actually using the **Outlook** on the water, you may need to readjust the transducer's mounting for optimum performance.

Thru-Hull Transducer Installation

The thru-hull transducer is the recommended choice for larger boats with in-board engines. Thru-hull mounting is usually required on larger power and sail craft in order to find a mounting location free of forward looking hull obstructions. The **Outlook** must have a clear view of the water ahead as it can not magically see through obstructions such as the vessel's hull. Please read the following carefully before starting the thru-hull installation.

Normally, thru-hull installations are performed by a professional in a boat haul-out facility. We suggest you seek professional assistance before attempting to mount this transducer.

Selecting the Best Location

The best location to mount the thru-hull transducer will vary with the type of boat. Try to find a location with the smallest dead rise angle to make installation easiest.

a. On **displacement hulls** (sailboats, trawlers, etc.) locate the transducer about 1/3 aft along the waterline. Generally this provides the best compromise between obtaining aeration-free water and minimizing propeller noise. The **Outlook's** transducer can not see through aerated water and water near the bow and near the keel can be quite aerated. Aeration of the transducer can be minimized by keeping the transducer mounted away from the keel and by not mounting too far forward.

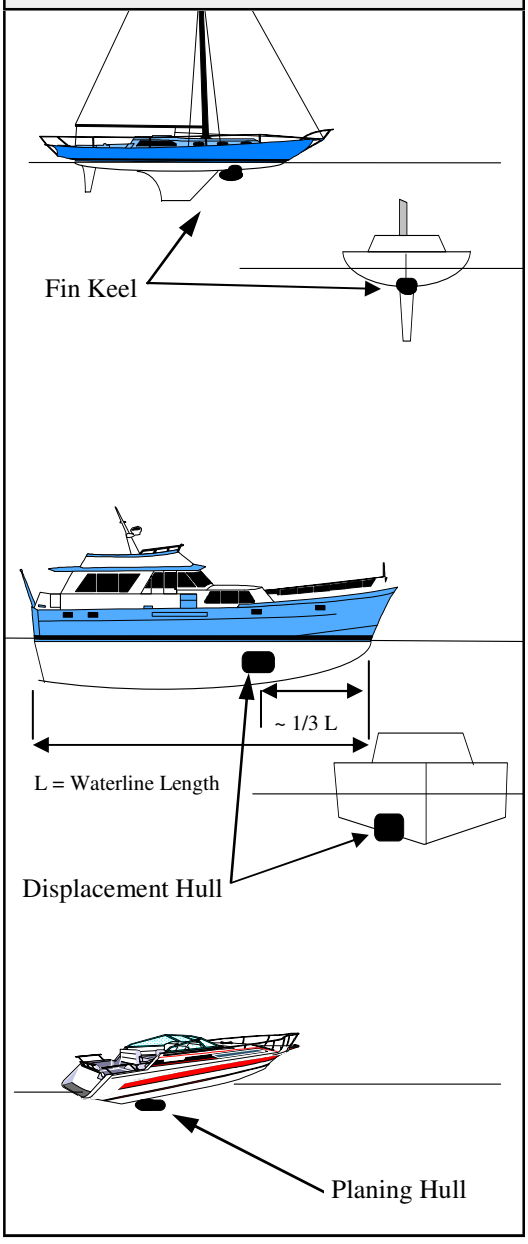
b. On **sailboats**, the transducer should be mounted where the acoustic beam will not be shaded by the keel. A spot forward of a fin keel is usually best. Try to find an accessible spot with a minimum dead rise angle.

c. On **planing powerboat** hulls, the transducer should be mounted well aft and close to the keel to insure that the transducer is in contact with the water at higher boat speeds.

On I/O's, transducer mounting close to the engine usually yields good results.

On inboards always mount the transducer well ahead of the propeller(s). Turbulence from props can seriously degrade performance. (Thru-hull installation is recommended.)

Suggested Thru-Hull Transducer Locations



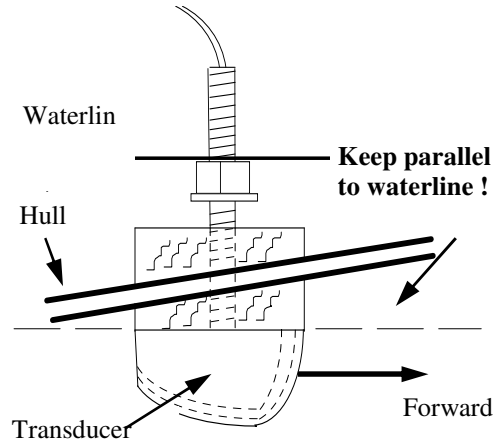
MOLDED FAIRING BLOCK

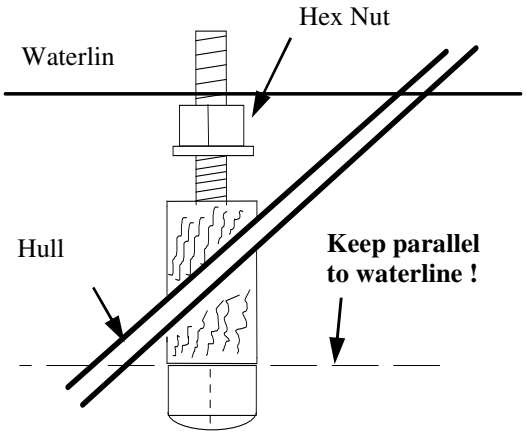
If your installation requires a fairing block, you may either have one made locally, or purchase a molded plactic unit from Interphase or your Interphase distributor.

For this transducer, the molded Fairing Block Part Number is:

42-2004-000

Mount Transducer so it is Vertical





d. Mount the transducer on the side of the hull where the propeller is moving downwards. The upward motion of the propeller generates pressure waves and pushes bubbles up against the hull.

DO NOT install a bronze transducer housing directly into an aluminum or steel hull because electrolytic corrosion will occur. Consult your boat-yard for information on stainless or plastic sleeves.

IMPORTANT:
1) Make sure the water flow across the thru-hull transducer is bubble and turbulence free at all speeds if good performance is to be achieved.
2) Make sure the transducer has an unobstructed view of the water ahead and below the boat.
3) On displacement-hull power boats, the transducer should be mounted relatively close to the center line of the hull.
4) Mount the transducer in a place which has reasonable access from inside the vessel since the transducer's bronze nut will require tightening from inside the hull.

Because the **Outlook** scans a 12 degree beam from the surface ahead to directly below the boat, it is important to make sure that the transducer is installed so that it will scan in a vertical direction and not off to either side. The transducer must be mounted so that it's bronze stem is as perpendicular to the water line as possible. If necessary, use a fairing block to properly position the transducer.

Use of a Thru-hull Fairing Block

Nearly all vessels have some dead rise angle at the transducer mounting location. If the thru-hull transducer were mounted directly to the hull, the sound beam would be tilted off the vertical at the same angle as the dead-rise. Most thru-hull installations will require a fairing block to insure the transducer is mounted properly.

A fairing block is typically made of teak or mahogany wood or plastic and should be glued between the transducer and hull (both inside and outside) to insure that the transducer's mounting shaft is perpendicular to the water's surface. Make the fairing block as smooth as possible, and not bigger than the transducer's face, to minimize possible turbulence (see below).

After cutting the fairing block, trial fit the block to the hull. It is very important that the flat top surface of the transducer be parallel to the water. Because of the skill required, we suggest that your professional boatyard provide the fairing block.

Installing the Thru-hull Transducer

1) Drill a 1/8" pilot hole from inside the hull to assure access to tighten the housing nut and clearance for the transducer cables. If there is any hull irregularity near the mounting location, it may be desirable to drill from the outside.

2) Use a 1-1/16" hole saw and drill the hole from the outside of the hull. Sand or clean the area around the hole, inside and outside to insure that the sealing compound will adhere properly to the hull. Select a marine grade adhesive sealant, such as 3M 5200, and use according to the instructions.

3) Remove the bronze hex nut from the housing and cable.

4) Uncoil the transducer cable and thread it through the hole into the inside of the hull. **DANGER: DO NOT** apply tension to the transducer cables as this may sever internal connections.

5) Apply a 1/8" thick layer of sealant on the upper flat surface of the transducer, bronze alignment pin and fairing block (if used).

6) From the outside of the hull, push the housing into the 1" hole. Twist the housing slightly to squeeze out excess sealant. Carefully confirm that the transducer is aligned so that the round front end is pointed directly toward the front of the boat.

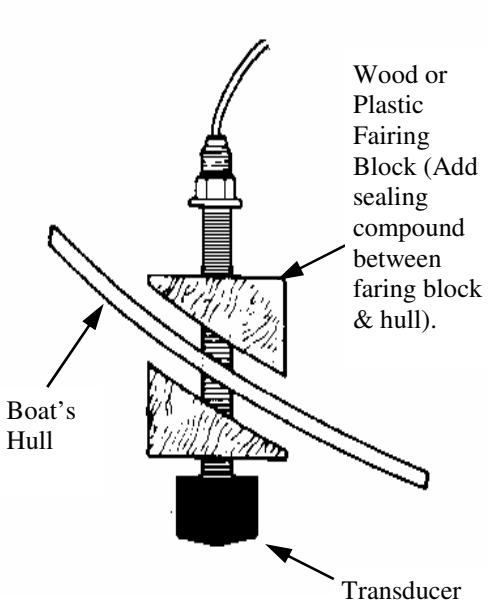
7) Install and tighten the bronze hex nut (allow for swelling in wooden hulls).

8) Remove excess sealant from the outside to assure smooth water flow over the transducer.

DANGER: Wood hulls and fairing blocks will expand after the boat is put back into the water, so it is important that the transducer be only hand-tightened until the wood fully expands. Otherwise the wood fairing block may crack.

DANGER: Be sure to check for leaks when the boat is placed in the water. Allow at least 24 hours after installation for any leak to appear.

DANGER: If the boat is kept in saltwater it is recommended that the transducer be coated with an anti-fouling paint. **USE ONLY WATER BASED ANTI-FOULING PAINT. DO NOT USE KETONE BASED PAINTS.** Ketone based anti-fouling paint will attack the plastic materials used in the transducer.



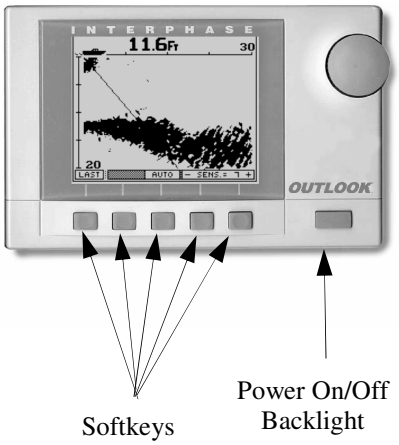
OPTIONAL SPEED/TEMPERATURE TRANSDUCERS

INTERPHASE PART #	DESCRIPTION
T1-0200-021	Transom mount S/T transducer
T1-0200-027	Thru-hull mount S/T transducer
04-0009-008	30' S/T Extension Cable

Both the transom and thru-hull S/T transducers are separately installed. The transom mount S/T transducer can be used with the thru-hull depth only transducer if desired. The 30' S/T transducer cable and the depth only transducer cable both plug directly into the back of the display unit.

To order, call your local **Interphase** dealer, or **Interphase direct** at **(831)4 77-4944**.

Interphase Outlook



Short-cut

In this manual you will find instruction on how to change all adjustable settings by using the "soft keys". However, any setting adjustment can be done (when the appropriate menu selection is made) by turning the control knob.

Settings which can be adjusted by using the control knob are:

Range
Alarm
Contrast
Sensitivity
Zoom

LCD screen contrast can be changed any time while in the **Main Menu** simply by turning the control knob.

Basic Operation

The **Outlook** has been designed to be as easy to learn and operate as possible. The raised push-button keys provide a tactile feel to each operation and the **Outlook** responds with an audible beep each time a key is pressed. All keys necessary for operation of the unit are on the front panel. The **Outlook** uses a unique approach called "soft keys" along the bottom of the display. These five keys are labeled by the LCD display and are controlled by the unit's software, thus the name "soft keys".

In addition, a large front panel rotating knob eliminates the need for multiple button pushes while making gain, depth range, display contrast and many other adjustments. The knob provides easy and quick adjustments while giving the user a familiar style of operation.

Power/Backlight Key

Press the "**Power/Backlight**" key located at the lower right of the unit to turn the **Outlook** on. The unit will respond with an audible beep when it turns on. Pressing this key again turns the backlight on and off, each time accompanied by a beep. To turn the **Outlook** off, press this key and hold it down for several seconds until the unit goes off.

Simulator/Demo Mode

Your **Outlook** includes a built-in **DEMO** simulator program which makes it easy to practice with the unit and to get a feeling for its many features before actually using it in real situations on the water. We highly recommend you run through this section on operation of the **Outlook** with the **DEMO** mode activated to first learn basic feature controls. The **DEMO** mode can be started from the **SETUP** menu as described in the following section.

Cone Angle & Area Covered to Side

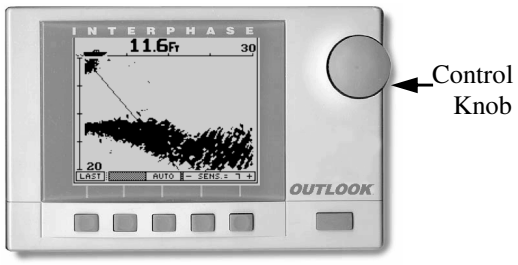
The **Outlook's** Cone Angle is approximately 12 degrees. The Chart at right shows the approximate width of the cone at different distances from the boat. Although 50% of the acoustic radiation is concentrated within this cone, 50% is also outside the cone which permits the **Outlook** to detect targets typically up to twice the cone angle, (i.e. 24 degrees). This means, for example, that at 500 feet the **Outlook** will typically be able to see targets across a 210 foot width (105 feet each side of center). See figure at far right.

Getting Started

Turning the Outlook On

To turn the **Outlook** on, press the Power/ Backlight Key located on the lower right corner of the unit one time. The unit should sound a beep and the display should be illuminated. Press the left button until the **Main Menu** appears as shown below.

Interphase Outlook

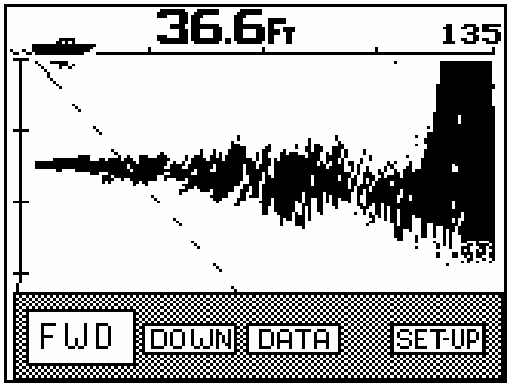


The Main Menu

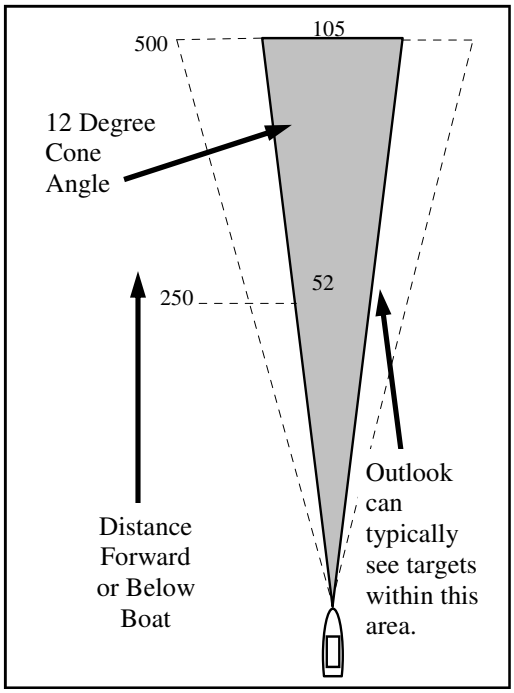
From the **Main Menu** you can see that the Outlook has four basic display modes or **Views**. They include:

- **FWD** (Full Screen Forward View)
- **DOWN** (Full Screen Conventional Downlooking View)
- **DATA** (Split Screen View with Large Digit Detph on left and Forward scanning display on right.)
- **SETUP** (Full Screen Set-Up View)

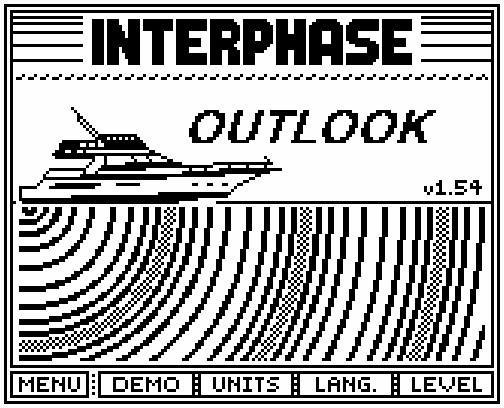
OUTLOOK'S MAIN MENU



Each of these views along with a sub-menu which will allow you to change the range, sensitivity, etc. can be selected by pressing the button below the desired menu selection. To return to the Main Menu just press the left button labeled **MENU**. When first turned on, the **Outlook's** internal memory automatically sets the starting view to the last one you used before turning off the power.



Width of 12 Degree Acoustic Beam



Set-Up View

The **Outlook** includes a **SET-UP** View where the **DEMO** program can be activated, the units of measure and language can be selected and the display contrast can be adjusted. The **Contrast** can be adjusted by turning the **Control Knob** cockwise to darken, counter clockwise to lighten. The **Outlook's** internal backup battery will remember all settings for future use.

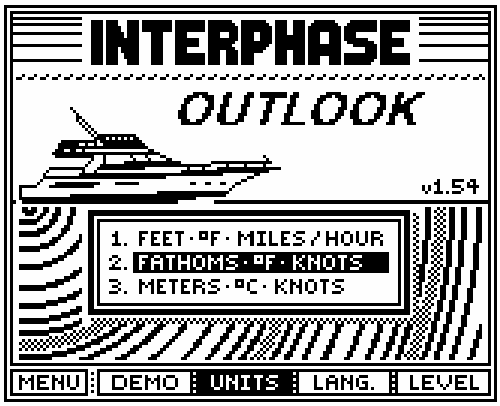
From the **Main menu** press the button below **SET-UP** to put the display into the **SET-UP** View. The display should appear similar to the picture at left.

Demo Program

We highly recommend you initially operate the **Outlook** in the **DEMO** mode to familiarize yourself with the many advanced features of the **Outlook**. When using the **SET-UP** view, press and hold the soft key below **DEMO** until the unit beeps twice and the word **DEMO** on the display changes to reverse video as shown at left. This will activate the simulation program. The unit will automatically cycle through a simulated demonstration of its many features. At any time, you can press any key to gain control of the **DEMO** program to make your own selections and adjustments. If you do not press any button for about 45 seconds, the unit will automatically resume cycling through the different demo features on its own.

The pictures shown in the **DEMO** mode are representations of what you might see on your **Outlook**. In actual use the picture you will get can vary significantly depending on depth, bottom and water conditions, the speed of your boat and many other factors (see ***Interpreting The Outlook's Forward Display***, page 26).

To exit the **DEMO** program either turn the **Outlook** off and back on again, or press the **"DEMO"** soft key again.



Select Units of Measure

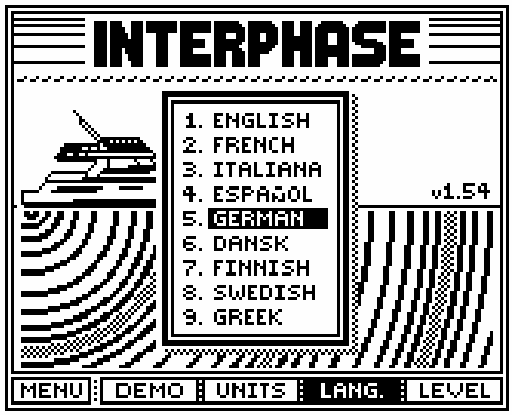
The **Outlook** starts with the last units of measure selected. By pressing the button indicated on the display, you can use the large front panel knob to choose between U.S., Nautical and Metric units. Rotate the front panel knob to select (highlight) the type of display units desired. Once selected, press any button to save your selection and exit. The current choice is displayed each time the **"UNITS"** soft key is pressed.

The choices and their settings are as follows:

Feature	U.S.	Nautical	Metric
Depth/Range	Feet (Ft.)	Fathoms (Fa)	Meters (M)

Select Menu Language

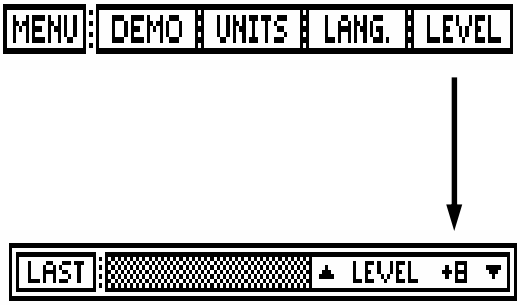
The **Outlook** allows the selection of 9 operating languages; English, French, Italian, Spanish, German, Danish, Finnish, Swedish and Greek may be chosen. To select the operating language, press the button labeled "**LANG.**". A display window as shown at right will pop up on the screen showing the available languages and the one currently selected. Use the large front panel knob to change (highlight) the language selection. Once selected, press any key to save your selection and exit.

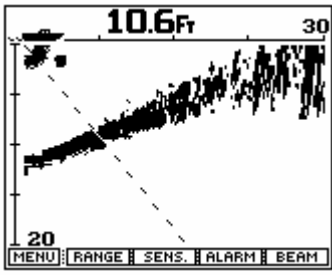


Transducer Level Adjustment

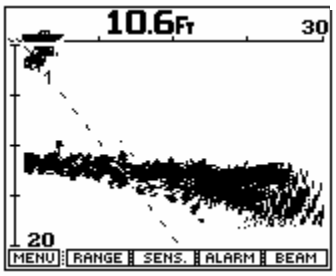
The **Outlook** also includes an adjustment to compensate for transducer installation problems, especially thru-hull installations, where the transducer is not perfectly vertical to the water's surface. This problem can be caused by improper installation, or by changes in the boats fore/aft weight.

When the boat is over a known level bottom, the forward display should show a level line. If the bottom display is slanted upward or downward (as in the pictures at right), Press the button labeled "**LEVEL**" in the **SET-UP** View as shown at right above. In the **LEVEL** menu, notice the number which indicates the relative amount of correction in degrees. It is possible to adjust +/- 15 degrees. Positive numbers will tend to make the bottom slope upwards and negative numbers will make the bottom slope downwards. After making the adjustment, go to the forward display and verify the correction. Once adjusted, the **Outlook's** memory will retain the setting.

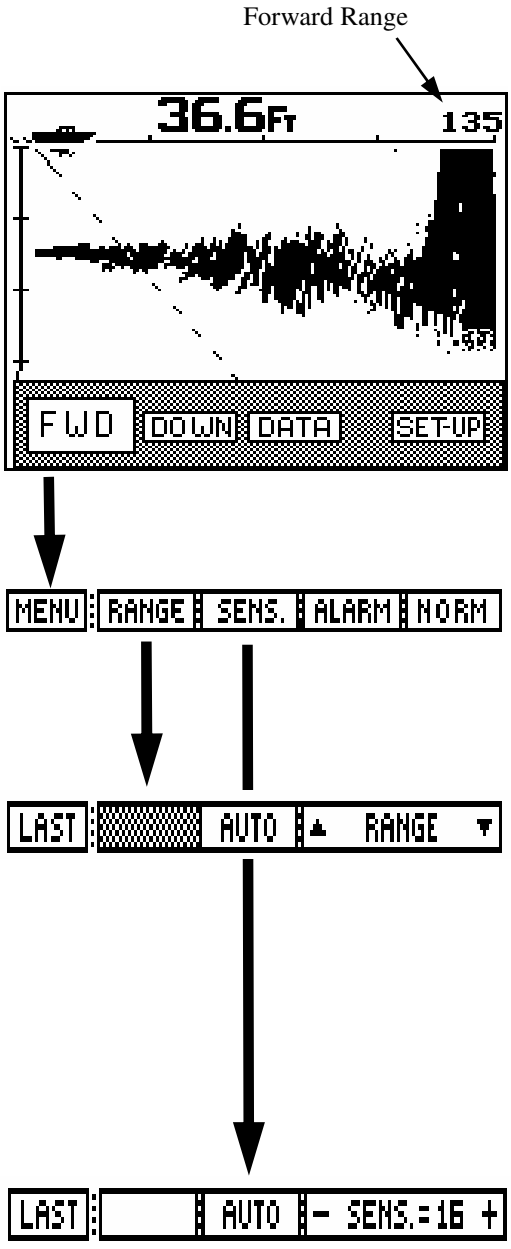




A known level bottom, but display slopes upwards. Correct by adjusting **LEVEL** control in direction of negative numbers.



A known level bottom slopes downwards on display. Correct by adjusting **LEVEL** control in direction of positive numbers.



Forward View (Full Screen)

While in the **Main Menu** press the leftmost button labeled "**FWD**" to view a full screen forward looking display. At the top left of the screen the current depth beneath the boat is shown in digital numbers.

Your display menus should appearas on the left. Notice that both the downward depth and forward ranges are shown by the digital numbers at the bottom left and the top right side of the LCD screen. These numbers will change as different ranges are selected, either automatically or manually.

Range Adjustment

Press the button labeled "**RANGE**" to bring up the Range Adjustment soft key menu as shown at left. Press the button labeled "**AUTO**" if you would like the **Outlook's** internal microprocessor to automatically select and adjust the range as bottom conditions change. To manually adjust the range press either the range button labeled "⬆" or "⬇", or rotate the large knob. If you make a manual depth adjustment, the **AUTO** range mode is turned off and will remain off until the button labeled **AUTO** is again selected. Note: when in the **AUTO** mode, the soft key labeled **AUTO** will be shown in reverse video (white on black). To return to the main forward looking menu, press the left soft key labeled "**LAST**".

Note: The Auto Mode will only work if the Outlook can find the bottom. If the depth is greater than 400 feet or if the water is full of bait or otherwise turbulent the Outlook will not work in the Auto mode.

Sensitivity Adjustment

Press the soft key labeled "**SENS.**" to bring up the choices available for adjusting the **Outlook's** receiver sensitivity. Press the button labeled "**AUTO**" so that the word **AUTO** is shown in reverse video (white letters on a black background) if you would like the **Outlook** to automatically adjust its sensitivity for changing conditions. To manually adjust the sensitivity, either press the softkey labeled "**- Sens**" or "**Sens.+**" or rotate the front panel knob. Note that the softkey shows a number which indicates the relative sensitivity being used (+1 to +32). To exit the sensitivity menu and save your adjustments simply press the soft key labeled "**LAST**" to return to the main forward looking menu.

Alarm Adjustment

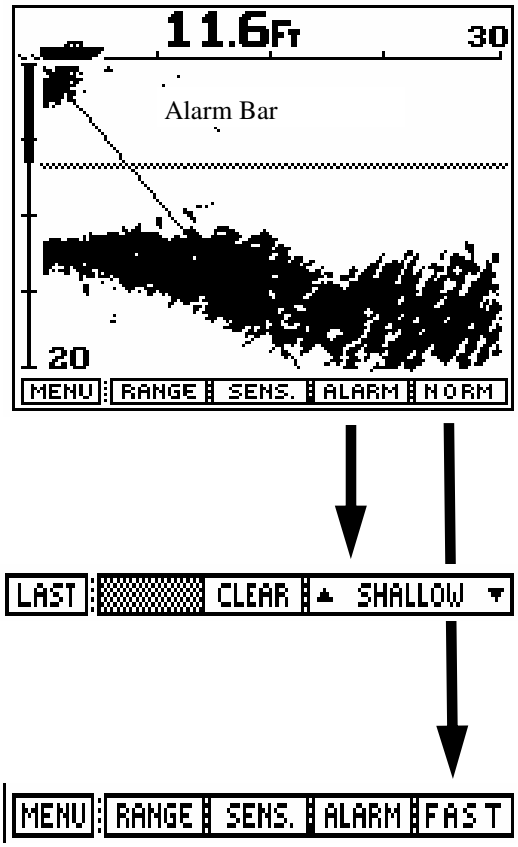
In the forward looking display or view, a shallow alarm may be adjusted to sound an alarm for targets which are shallower than the alarm setting.

To adjust or clear the alarm setting, press the soft key labeled "**ALARM**" As either the up or down keys are pressed and

held down, or the large knob is rotated, a vertical bar on the left side of the screen (just below the boat icon) will move to show the area covered by the depth alarm. In addition, a horizontal line will appear across the display. Whenever a solidly displayed target appears at the same depth as that covered by the alarm bar, the audible alarm sounds to warn you of underwater targets or changing bottom conditions. This alarm is a display alarm, targets must be visible on the display in order to be detected by the alarm. For example, if the Outlook's forward range is only set to 100 feet, it will not see targets at distances beyond 100 feet. (**Note**: the horizontal line will disappear a few seconds after the alarm is adjusted)

The Shallow Alarm is often used to alert the user to shallowing bottom conditions and the presence of underwater submerged targets, and when activated, will sound a rapid beeping.

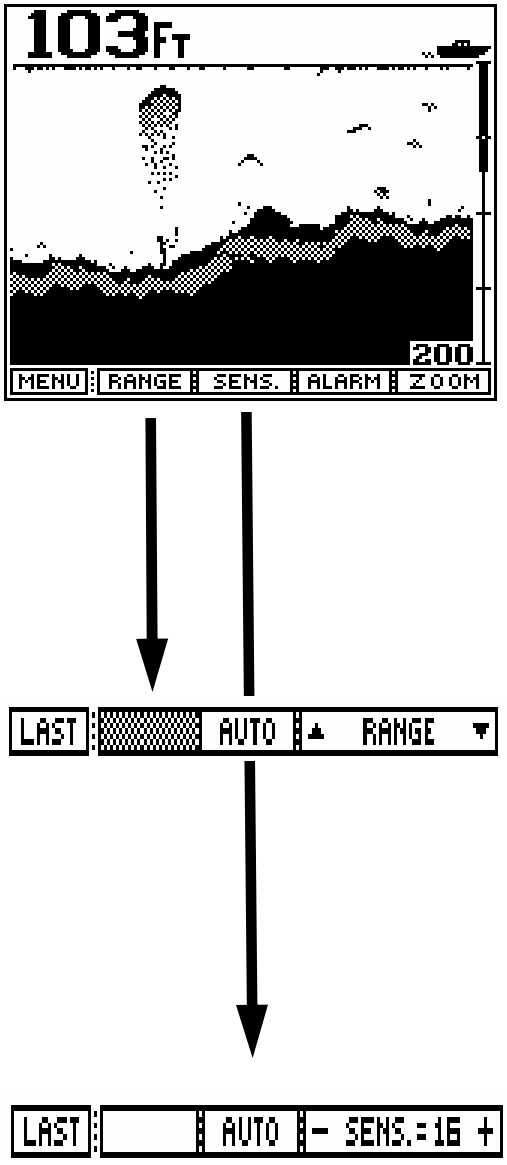
Press the "**CLEAR**" soft key to clear the alarm you previously set.



Scanning Speed (Resolution)

In it's normal scanning mode **NORM**, the **Outlook** will send out 60 forward beams and will alternate between a forward beam and the down-looking beam. In the **FAST** position, only 30 beams will be used and the **Outlook** will send 5 forward scanning beams for every down-looking sample.

Use the **FAST** mode to get a faster picture update. The resolution of the display decreases in this mode, but the picture update is much faster than in the **NORM** mode.



Down View (Conventional down looking)

The **Outlook's** phased array transducer can be electronically steered to look directly below the boat. In this mode the **Outlook** LCD display will show a picture exactly like conventional fixed beam down-looking fish finders. When in this mode, the **Outlook** offers a full range of sophisticated features which are found on advanced conventional depth sounders such as split screen zoom, bottom lock, a shallow depth alarm, and bottom hardness (white-line).

From the **Main menu** select the **DOWN** button to bring up the menu showing the features and adjustments for this view. The display should be similar to that at left.

Range Adjustment

Press the button labeled **RANGE** to bring up the Range Adjustment soft key menu. Press the button labeled **AUTO** if you would like the **Outlook's** internal microprocessor to automatically select and adjust the depth range as bottom conditions change. To manually adjust the depth, press either the range button labeled "⬆" or "⬇". If you make a manual depth adjustment, the **AUTO** range mode is turned off and will remain off until the button labeled **AUTO** is again selected. Note: when in the **AUTO** mode, the soft key labeled "**AUTO**" will be shown in reverse video (white on black). To return to the main forward looking menu, press the soft key labeled "**LAST**". (To return to the **Main menu** press the soft key labeled "**MENU**")

Sensitivity Adjustment

Press the soft key labeled "**SENS.**" (for sensitivity) to bring up the choices available for adjusting the **Outlook's** receiver sensitivity. Press the button labeled "**AUTO**" so that the word **AUTO** is shown in reverse video (white letters on a black background) if you would like the **Outlook** to automatically adjust its sensitivity for changing conditions. To manually adjust the sensitivity, press the button labeled "**- Sens**" or "**Sens.+**" to increase or decrease the receiver gain. Note that the soft key shows a number which indicates the relative sensitivity being used (+1 to +32). When you choose to manually adjust the sensitivity, the **Outlook** turns off the **AUTO** sensitivity mode and it will remain off until the **AUTO** soft key is again selected. Note: when **AUTO** mode is turned on the word will be displayed in reverse video (white letters on a black background). To exit the sensitivity menu and save your adjustments simply press the soft key labeled "**LAST**" to return to the main forward looking menu.

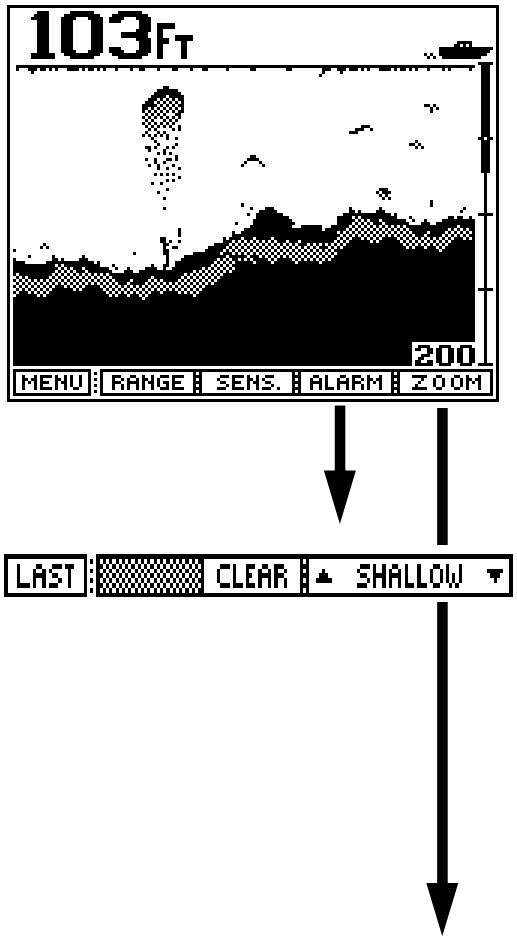
Hardness (White-Line)

The shaded area on this bottom display will give you an indication of the bottom hardness. On a soft muddy or sandy bottom the shaded area will be thinner and on a hard rock bottom it will be thicker.

Alarm Adjustment

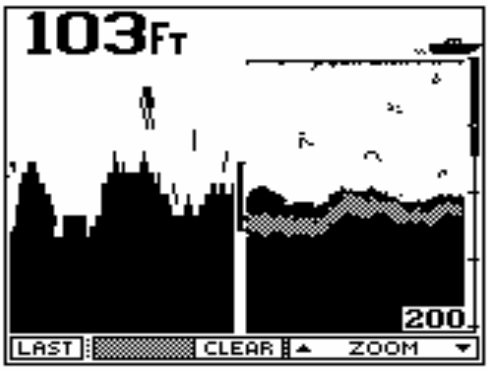
In the down looking display or view, a shallow alarm can be set. To adjust or clear the alarm setting, press the soft key labeled **ALARM** . As either the "⬆" or "⬇" keys are pressed and held down, or the front panel knob is rotated, a vertical bar on the right side of the screen (just below the boat icon) shows the area covered by the depth alarm. Whenever a solidly displayed target appears at the same depth as that covered by the alarm bar, the audible alarm sounds to warn you of underwater targets or changing bottom conditions.

The **Shallow Alarm** is often used to alert the user to shallowing bottom conditions and the presence of underwater targets and can be even be used to detect the presence of fish beneath the boat.



Zoom & Bottom Track & Bottom Lock (Split Screen displays)

When using the **Down** display (conventional down looking view), the **Outlook** can also display a split screen high resolution zoom of any 25% of the depth range, or can show a split screen **Bottom Track** or **Bottom Lock** display. The high resolution **Zoom** is very useful when looking for extra detail on the bottom or in areas above the bottom. Because the **Outlook** uses an **Interphase** unique 4X over-sampling technique, the zoom actually shows more data than the non-zoomed picture. Fishermen have long used the bottom locking features when fishing over a rocky bottom or when fishing in rough surface conditions. In the **Bottom Track** mode, a zoomed view of the bottom is shown on the left side of the split screen display. Regardless of changes in bottom depth, the left side tracks it and keeps the zoomed bottom picture in view. In the **Bottom Lock** mode, the bottom is forced to appear as a straight horizontal line across the bottom of the left side of the LCD while any targets close to the bottom are displayed above the bottom line. Over rough bottoms or in rough conditions, this feature is extremely useful to eliminate rapidly changing bottom depths from the display and to show only suspended targets close to the bottom.



Press the soft key labeled "**ZOOM ⬆**" to activate the split screen high resolution zoom function. The left side of the LCD screen now shows the zoomed area, while the right side continues to show the conventional depth display. Hold down the "**ZOOM ⬇**" soft key (or rotate the front panel knob) and notice the vertical bar moving downward in the center of the display which shows the depth area that is being "zoomed". By using the "**ZOOM ⬆**" and "**ZOOM ⬇**" soft keys, you can zoom in on particular depth areas. The Zoom feature expands any 25% section of the current depth range on the left half of the screen, or effectively magnifies the section selected by the zoom bar by 400%.

If you move the zoom bar all the way to the bottom of the display, the **Bottom Track** and the **Bottom Lock** features can be activated.. When the **Bottom Track** feature is activated, the Zoom Bar changes to a thin bar extending from the top to the bottom of the display. Pressing the "**ZOOM ⬇**" button once more activates the **Bottom Lock** feature. When in **Bottom Lock,** the Zoom Bar changes to a thick vertical line extending from the top to the bottom of this display. Move the zoom bar up to return to the regular zoom operation and turn Bottom Lock off. Moving the zoom bar all the way to the top of the display turns the Zoom off and returns you to full screen bottom history.

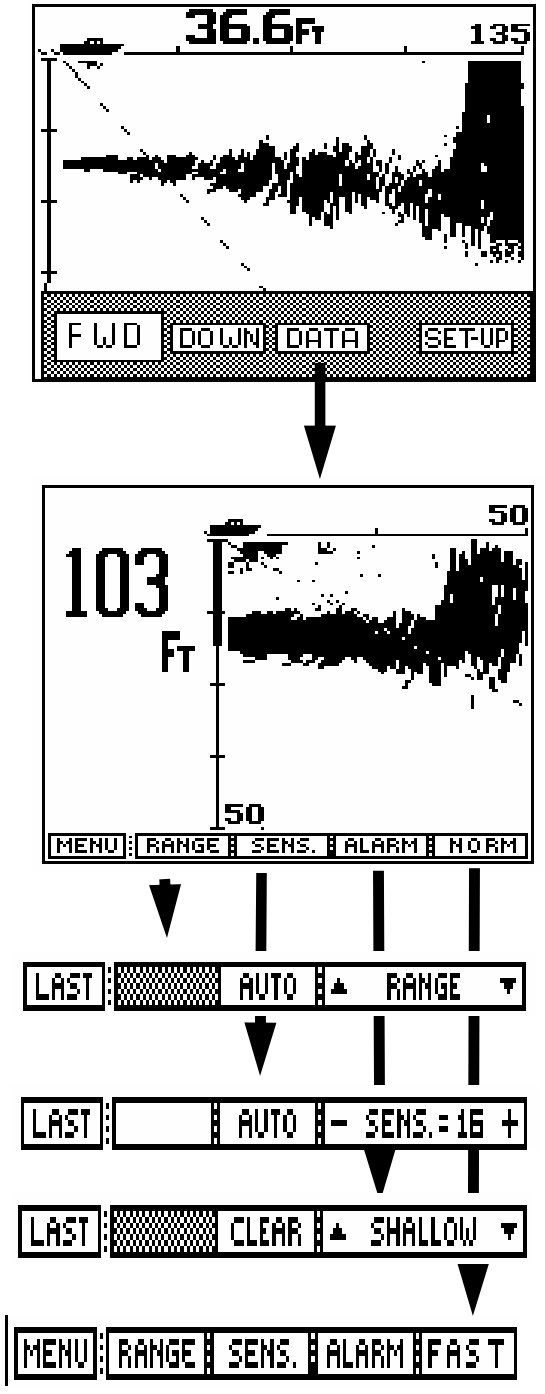
NOTE: To return to a full screen and exit the split screen zoom or bottom track mode, you must carefully move the zoom bar to the top of the display until it disappears. This can sometimes be confusing because the Advantage remembers all settings and will remain in the split screen zoom or bottom track mode until you exit this mode as described above.

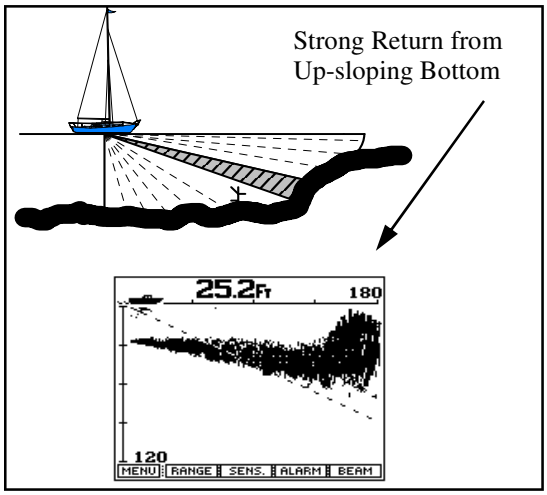
Data View

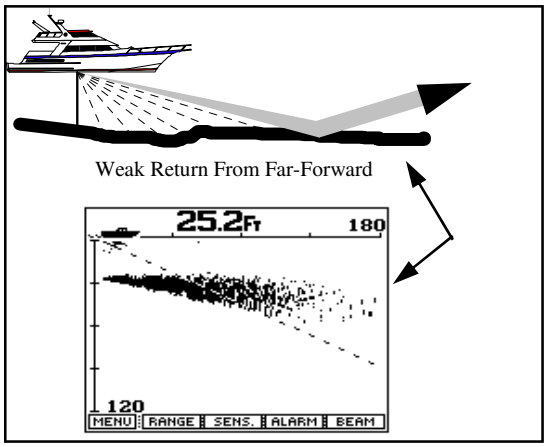
From the **Main menu**, press the soft key labeled **DATA** to see a split screen display with large depth digits on the left and a forward scanning view on the right. The large digital digits show the digital depth directly beneath the boat

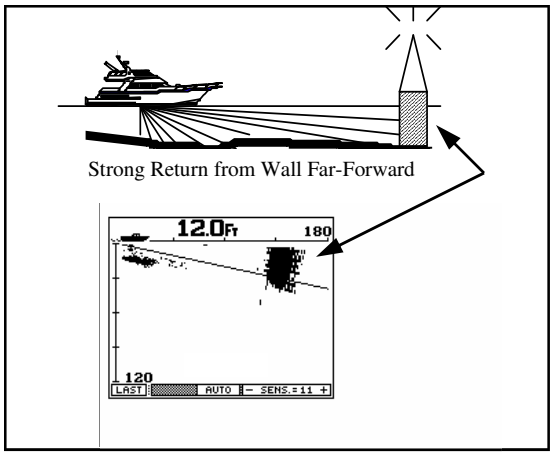
Notice that the menu in the **DATA** view is exactly the same as in the **FWD** view. You can adjust the **RANGE**, **SENSITIVITY**, set an **ALARM**, or select the **NORM** or **FAST** scanning modes in the same way that you can in the full screen **FWD** mode.

Please refer back to the **FWD** section (page 20) for a full description of how to make these adjustments.









Interpreting The Outlook's Forward Display

The Interphase **Outlook** provides a display which shows acoustic echo returns from the underwater area beneath and ahead of the vessel. The Phased Array Transducer steers an acoustic beam over a 90 degree arc. As the **Outlook** steers the beam to different positions, it transmits a pulse of energy and then waits a defined period of time (depending on the range selected) to receive any return echoes. As the energy from this acoustic beam strikes underwater objects or the bottom, a small portion of the energy is reflected as an echo back to the transducer. When the echo is received at the transducer, it is converted into a small electrical signal and processed for display on the **Outlook's** LCD.

Since the **Outlook** knows the direction in which it sent the transmit pulse and the time it took to receive the return echo, it can determine the location of the object or bottom that created the return echo. As the **Outlook** sequentially steps the acoustic beam from the bottom to the area ahead of the vessel, the LCD display shows a continuously updated display of the return echoes in their approximate position in relation to the vessel.

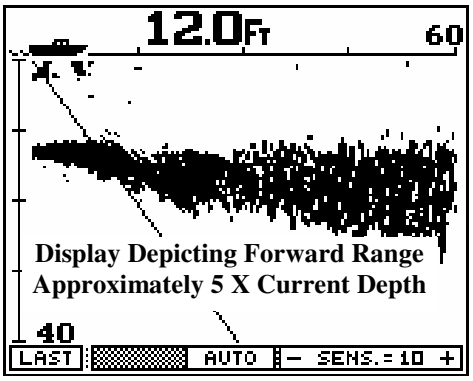
Because the LCD display is only showing the acoustic echoes that are returned to the transducer, it can not show forward bottom conditions that are hidden from its field of view or are hidden due to obstructions in the acoustic beam's path through the water. In addition, smooth bottom conditions far forward of the vessel are difficult to see as very little of the acoustic energy is reflected back as an echo. See the sketch at left.

Bottoms that are rough and rocky or are sloping upwards will reflect more acoustic energy back to the transducer and will show up better far-forward of the vessel than bottoms that are very smooth or slope downward. However, even though the bottom may be smooth and does not show up far forward, large obstructions (sea wall, large rocks, underwater shelves, etc.) will typically send back strong echoes that can be seen far forward, as the sketch at left indicates.

Distance Forward

Under typical conditions, the **Outlook** will show level or shallowing bottom contours for a distance forward of between 4X to 6X the depth below the transducer. Obstructions in the water, such as walls, mud banks, etc. may be seen at much greater distances, subject to the depth below the transducer and the 600 ft. maximum forward range.

Besides the bottom conditions, water conditions will also affect the **Outlook's** performance. For example, surface chop, temperature inversion layers (thermoclines) and muddy water may degrade performance.

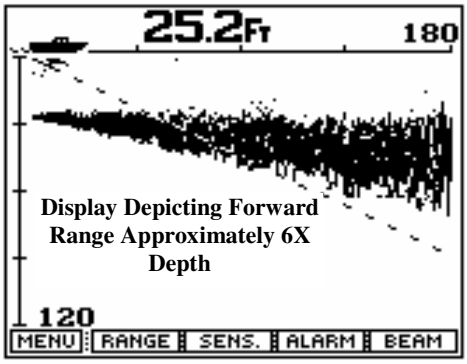


Display Depicting Forward Range Approximately 5 X Current Depth

Noise and Sensitivity Adjustments

The **Outlook** features an **AUTO** sensitivity feature where it continuously adjusts the sensitivity to achieve the optimum picture quality. The sensitivity can also be adjusted manually to allow for a reduction in sensitivity to minimize the effect of screen noise, or to increase the sensitivity to show weaker targets.

In the forward scanning modes, the sensitivity setting is especially important as too little sensitivity will cause a loss of far forward bottom readings and too much sensitivity will cause an increase in screen noise and a possible display of unwanted transducer sidelobe readings.

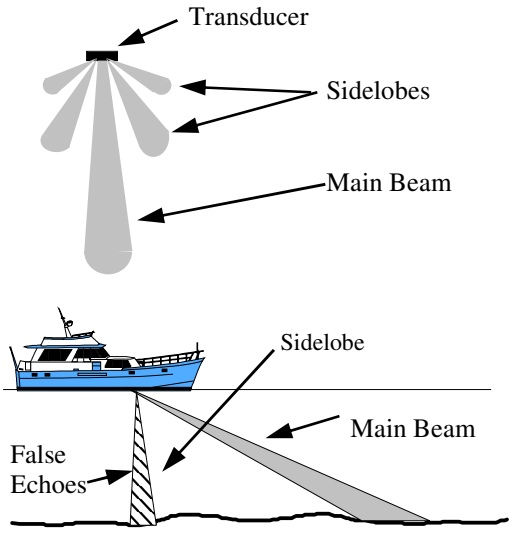


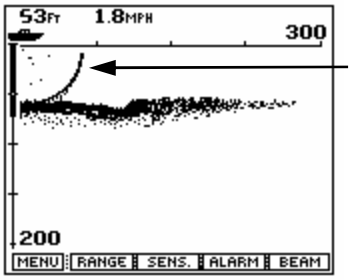
Display Depicting Forward Range Approximately 6X Depth

Transducer Sidelobe Effect

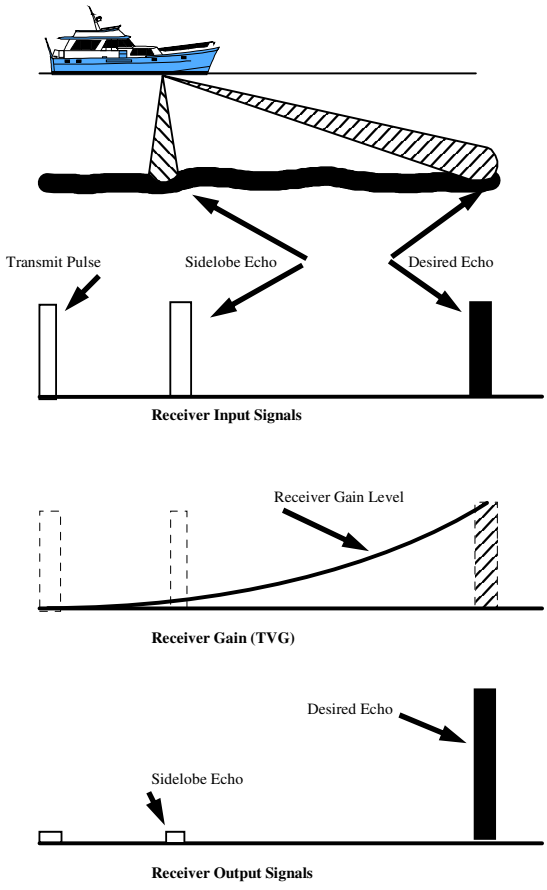
The **Outlook's** transducer, like all acoustic transducers, does not form a perfect beam of acoustic energy. Some of the acoustic energy is contained in an area called the sidelobes. In conventional downlooking depthsounders, the sidelobes create little problem except to distort the size of the actual beam angle; however, in scanning sonars they can create echoes that are not placed on the LCD screen in their proper position (also known as false echoes).

As the **Outlook** sends off its acoustic beam in a specific direction, it assumes that any return echoes are within the main beam. However, if the sidelobe energy (which is not within the main beam) strikes a large object (i.e. the bottom) and creates a strong return echo, the **Outlook** has no way of knowing that this "false" echo was not created by the main beam and will go ahead and show it on the display as if it was located within the main beam. The most typical display of the sidelobe echoes appears as an arc at the same distance as the bottom depth , and in the worst case, from the bottom below to the surface ahead. After using the **Outlook** in different situations, with different gain settings, you should become proficient in identifying the bottom echoes caused by the transducer's sidelobes.





"False" Bottom Echoes Caused by Sidelobe Returns.



How Time Variable Gain Helps Reduce Sidelobe Effects

To minimize the sidelobe effect, sensitivity should be reduced.

However, in some situations, you may want to ignore the sidelobe effect and increase the sensitivity to achieve a better display of the bottom far-forward of the vessel.

TVG (Time Variable Gain)

As the acoustic signal travels through the water it is attenuated in strength and also loses strength because the signal is being spread over a larger and larger area. For this reason, distant targets appear weaker than close targets - even if both targets of identical size.

The **Outlook's** receiver circuit includes a Time Variable Gain (TVG) feature where the receiver's gain is controlled by the microprocessor and increases in value as the depth or forward range increases. This feature tends to compensate for the weakening of the signal at large distances as the receiver's gain will be increased as the signal gets smaller. It is also helpful in minimizing sidelobe problems as shown in the diagram at right.

In the sketch, a boat is shown with the main transducer beam aimed far forward. However, the sidelobe beam is also striking the shallow bottom directly beneath the boat. Both the desired echo (the one from the far forward beam) and the sidelobe echo will reach the receiver as shown in the graph just beneath the boat. Note that the transmit signal, the sidelobe echo and the desired echo have been arbitrarily shown as the same size.

The diagram just below shows how the TVG on the receiver changes with distance (or time). The farther the target from the boat, the larger the receiver gain. Finally, the bottom diagram shows the output of the receiver after amplification with the TVG feature. Note that the TVG has reduced the sidelobe echo compared to the desired echo.

FREQUENTLY ASKED QUESTIONS

How wide is the scanning beam?

*The phased array scanning beam on all **Interphase** scanning sonar operates with a 12 degree cone angle beam. This means that the diameter of the beam at 100' is about 15' wide. The transducer operates at approximately 200 kHz. The beam has many unique characteristics which allow increased resolution as well as increased ranges.*

How powerful (watts) are the Phased Array Sonar units from Interphase?

*Phased Array Sonar does not operate in the same way that traditional marine sounders work. **Interphase** has combined high-tech software with ultrasound technology from the medical field and newly released military ultrasound technology. **Interphase's** ultrasound technology is now pending patent approvals. It operates on approximately 420 watts (RMS tested at the transducer or 3,200 watts peak to peak) but is channeled through eight (8) separate elements and the signal is phased via our software.*

IMPORTANT NOTE: All sonar sounders, if more than 200 watts RMS, have a limited use in shallow water (less than 10' from transducer to bottom). In most cases, the need to see forward occurs when traveling from deeper to shallower depths. Forward scanning is possible but limited when the water is less than 10' deep. Some clutter on the screen will occur in shallow environments.

What type of transducer is needed and what does it look like?

*The transducers for both **Outlook** are available in transom or thru-hull configurations. If you are operating an inboard, you must use the thru-hull. Remember that you are measuring ahead from the transducer, therefore, placing it as far forward as possible will provide you with greater forward range.*

The thru-hull transducers are slightly smaller than a tennis ball and extremely hydrodynamic (they pass through water in a streamlined fashion).

The transom transducers are mounted on a stainless steel kick-up bracket in order to minimize the possibility of damage if striking a floating object. The transom bracket will 'kick-up' at speeds in excess of 30 knots. Therefore, if you intend on using the forward scan at *high speed, you will need to consider a thru-hull transducer.*

How far ahead will I be able to see?

*In most cases, forward scanning with the **Outlook** is approximately six (6) times farther ahead than the depth of water. For example, if you are in 15' of water, you can see about 90' ahead of the transducer. The range is limited to 600' forward and 400' in depth.*

Typically, if you are attempting to see great distances ahead, only targets but not the bottom will appear beyond 300 feet ahead, because a flat bottom with no targets (rocks, wrecks, fish, etc.) will be stealth or invisible to sonar pulses at great distances. A rocky bottom or approaching hazard will normally show up clearly on the display, even far ahead.

Maintenance

The **Outlook** Forward Scanning Sonar has been designed to provide reliable, trouble-free performance for years. Follow the maintenance tips below to ensure that your **Outlook** remains problem free.

1) Keep your **Outlook** clean and dry. Occasionally wipe unit off with a damp cloth, but be careful not to scratch the lens covering the LCD screen. For stubborn dirt, use a mild soap and a damp cloth. NEVER USE SOLVENTS SUCH AS PAINT THINNER, ACETONE, OR GASOLINE TO CLEAN YOUR **Outlook.**

2) Occasionally clean the face of the depth transducer (sensing surface) and carefully remove any marine growth. Use a mild detergent, or 220 grit sandpaper, or crocus cloth to remove stubborn growth.

3) If the in-line fuse is blown, replace it with a 2 amp fuse. NEVER REPLACE WITH A HIGHER AMP RATING ! If the fuse continues to blow, check the polarity of your 12 VDC power source. If the polarity is correct, check with the **Technical Service Department** at **(408)477-4944**.

4) In order to protect your transducer from water damage, paint it with one of the following brands: Interlux-UltraCoat, Fiberglass Bottom Coat, Super Bottom Coat; Pettit-UniPoxy; Rule-Super KL, Gloss Dura Poxy. **DO NOT** use a solvent based paint.

5) DO NOT allow any solvents, i.e. gasoline, acetone, to come in contact with the transducer or head unit as these may dissolve the material.

Troubleshooting Guide

If you are experiencing trouble with your **Outlook**, please refer to the following checklist:

PROBLEM	**SOLUTION**
Unit will not turn on.	Check fuse, battery voltage and power connections. Also, check for continuity through the in-line fuse holder.
Unit beeps but no picture appears on the screen.	Check your connections to the battery. Check for corrosion on the battery terminals or on the wiring connections on a fuse block or buss bar.
Unit blows fuses.	Wiring is reversed or there is excessive current from the battery. The red wire should be "+" (positive) and have continuity with pin #1 on the female side of the power supply lead.
Loses picture at speed.	Adjust the transducer angle or placement. Make sure that the transducer is installed in the area which has the least amount of water turbulence.
LCD darkens in sunlight after prolonged use.	Overexposed to sunlight - provide shading for display.
Screen is full of noise, or has dots running through it.	Reduce your gain setting and review the section on interference.
Bottom slopes up/down	Adjust the transducer angle.
Digital water depth not working.	Increase your gain, and check that you are in the proper depth range.

Interference Problems

Interference can come from several sources. The most common of these are:

1) Other nearby depth sounders operating at the same frequency.
2) Radiated interference from the boat's electrical system (alternator, distributor and spark plugs) or from nearby equipment that radiates electrical noise.
3) Conducted interference usually occurs when the **Outlook** shares a 12VDC power lead with other noisy equipment (i.e.; bilge pumps, motors, refrigeration systems, autopilots, etc.)

Interference caused by nearby depth sounders operating on or near the same frequency as the **Outlook** will typically appear as "rabbit tracks" that march up and down the screen. Reducing the gain will help minimize this problem.

Radiated interference caused by the boat's engine can usually be identified by observing the **Outlook** with both the engine running and turned off. If the interference disappears when the engine is turned off, it is safe to assume that the engine is the source of the interference.

This type of interference can usually be eliminated by using the same techniques used in the automotive industry to eliminate interference to car radios, CB's, etc. The following actions may be required:

1) Reduce the Gain setting to minimize interference.
2) Make sure your boat uses resistor type spark plugs and plug wiring.
3) Install a suppressor on the center lead of the distributor.
4) Install an alternator filter to smooth the alternator's output signal.

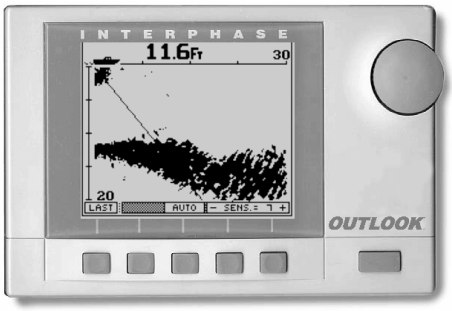
Interference may also be caused by radiation from other nearby equipment and can be detected by turning off all other equipment and observing the **Outlook** display as each suspected source is turned back on. This type of interference can usually be eliminated by moving the **Outlook** away from the source and checking to ensure that the interfering source is properly grounded.

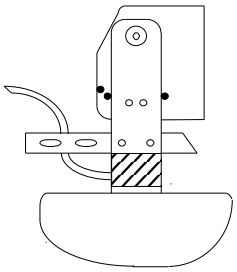
Interference causing the display to be unstable, to pulsate or periodically change size is usually caused when another piece of equipment shares the same 12 VDC power leads from the battery. This problem is especially severe when equipment requiring large current surges (i.e.; autopilots, refrigerators, or bilge pumps) share the same power leads. Minimize this type of interference by running the **Outlook's** 12VDC power leads, or those of the interfering equipment, directly to the battery.

Alternately, you may find it helpful to install a separate dedicated power supply battery that is used only to run your electronic gear (e.g.; fishfinders, VHF radios, radar units, etc.). If your unit shuts off during low voltage situations, such as when cranking your engine starter, you may want to install an isolator switch with an "A/B" type of battery system. An "A/B" system allows you to run your electronic gear on one battery, while the starter and alternator are hooked up to the other battery.

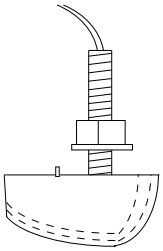
Your authorized marine electronics dealer is familiar with the methods of reducing electrical interference and is qualified to assist you should a problem persist.

Specifications

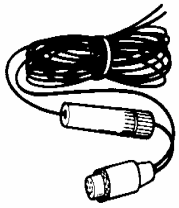




Scanning only
Transom Transducer
Part # T1-I200-025



Scanning only
Thru-Hull Transducer
Part # T1-I200-026



12 VDC Power
Supply Cable
Part # 04-0001-008

Display Type:	128 x 160 pixels; 20,480 total pixel Super Twist LCD
Depth Ranges:	18 overlapping depth ranges, 0 - 20 to 0 - 400 feet
Forward Ranges:	18 overlapping forward ranges, 0 - 30 to 0 - 600 feet
Transmit Frequency:	200 kHz
Zoom Ranges:	Variable Zoom allows 25% of depth range to be displayed across the entire screen.
Pulselength and Sounding Rates:	Automatically optimized for selected range.
Transmitter Power:	Over 400 watts RMS (3,200 watts peak to peak)
Power Requirements:	10.5 to 16 VDC, less than 0.5 Amp.
Dimensions:	7.5”W x 5.5”H x 3.5”D
Standard Equipment:	Display unit, 12 VDC power cable with in-line fuse, mounting bracket with knobs, operation manual and depth transducer w/ 30’ cable.

How to Obtain Service

If you feel your set is not operating properly, first refer to the sections of this manual on **Troubleshooting** and **Interference Problems**. This information solves the most common problems. If problems persist, please call **Interphase Technical Service** at **(831)477-4944** or send your unit in with the information below filled out.

If you do need to return your set, send it to the following address:

Service Department
Interphase Technologies, Inc.
2880 Research Park Drive, Suite 140
Soquel, CA 95073

In addition, to speed your repair please fill out the following, tear this page out of the manual (or photocopy it), and tape it to your unit for our technicians to review. For fastest warranty service, include a copy of your purchase receipt to verify the purchase date.

RETURN TO: _____
(Your Name)

_____
(Street Address - No P.O. Boxes Please)

_____
(City) (State) (Zip)

Daytime Telephone: (_____) _____
Evening Telephone: (_____) _____

Model: **Outlook** Serial #:_____

Purchase Date _____/ _____/_____

Type of transducer: Transom mount _____ Thru-Hull _____ Other _____

Please describe the problems you are having with the unit in as much detail as possible in the space below. Please use another sheet of paper if necessary.

_____

_____

_____

_____

_____

_____

Interphase Technologies, Inc.
5 Year Limited Warranty

Any unit that fails during the first year of the warranty period will, at **Interphase'** option, be repaired or replaced at no charge to the customer provided it is returned to **Interphase**, freight prepaid with **proof of date of purchase** and a description of the malfunction. Repair or replacement during the warranty period will not extend the basic warranty period.

From the second through the fifth year, **Interphase** will, at its option, repair or replace defective units for a fixed fee. This fee will be set at the beginning of each year. More information about the fixed rate repair fee is available by calling Interphase at (831) 477-4944 or visit our website at: www.interphase-tech.com.

This warranty does not apply to an **Interphase** product that has failed due to improper installation, misuse, or accident, nor does it apply to products which have been repaired or altered outside the **Interphase** factory.

Transducers, GPS antennas and Radar Antennas are subject to extreme conditions beyond control of the manufacturer and **Interphase**. Due to these conditions, the warranty on these components is limited to one year against defects in workmanship or materials. The fixed fee for years two through five of the warranty does not apply to these components. Any costs incurred with transducer or antenna replacement are specifically excluded from this warranty other than the cost of the components themselves.

This warranty does not include incidental or consequential damages and **Interphase** disclaims any liability for any such damages. All implied warranties, if any, are limited in duration to the above stated one year warranty period. Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages, therefore, the above limitations may not apply to you.

The completion and return of the enclosed Warranty Registration Card is a condition precedent to the warranty coverage. Owner must provide proof of date of purchase in order for warranty to be valid.

This warranty gives you specific legal rights which may vary from state to state and province to province. This warranty is limited only to the original purchaser of the unit.