
INTERPHASE PC/VIEW/180™



OPERATION MANUAL

To Our Customer:

Thank you for choosing the **Interphase PC/View** or **PC/180** 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 are proud of the PC/180 Forward Scanning Sonar and your satisfaction is very important to us. We welcome any comments or suggestions that you might have about this equipment. You can reach us by phone at: 831-477-4944, fax at: 831-462-7444, or by e-mail at comments@interphase-tech.com

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.

Thank You Again,

INTERPHASE TECHNOLOGIES, INC.

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Contents

1 Introduction	6
General Information	6
Warranty Information	6
Unpacking and Inspection	7
2 Installing PC/180	8
Transducer Installation	9
The Transducers	9
Forward Direction	10
Selecting the Best Location	10
Using the Fairing Blocks	11
Thru-hull Mounting	13
Acoustic Interface Module Installation	13
3 Installing PC/View	14
Transducer Installation	14
General Considerations	15
Transom Transducer Installation	16
Selecting a Location	16
Attaching the Bracket	16
Mounting the Transducer	17
Forward Direction of the Transducer	18
Thru-Hull Transducer Installation	18
Selecting a Location	18
Using a Fairing Block	19
Thru-Hull Mounting	20
Acoustic Interface Module	21
4 Software Installation	22
5 Quick Start	24
Running PC/View/180	24
Defaults	25
Demo Mode	25
Beam Width	25

6 Basic Operation	26
Getting Started	26
The Toolbar	26
The Status Bar	26
Operating Modes	27
Demo Mode	27
Real-Time Mode	27
Setting System Parameters	28
Parallel Port Address	28
Transducer Mount Corrections	28
Level Adjustment	28
PC/180 Align Adjustment	28
PC/180 Keel Offset	29
PC/View Alignment Adjustment	30
PC/View Keel Offset	30
Displays	30
Setting Color and Units	32
VERT: Vertical Scan Display	32
HORZ180: Horizontal Scan Display	33
PC/View HORZ: Horizontal Scan Display	33
DOWN: Downlooker Display	34
VSPLIT: Vertical Split-Screen Display	34
HSPLIT180: Horizontal Split-Screen Display	35
PC/View Horizontal Split-Screen Display	35
Depth Window	35
Adjusting the Gain and Range	36
Gain Adjustment	36
Range Adjustment	37
Using the Alarm	38
Adjusting the Viewing Area	38
Sector Width and Steer	38
Scan Mode and Method	39
Vertical Scan	39
Horizontal Scan	40
Zoom	40
Adjusting the Depth Tracker	41
Surface Masking	41
Threshold	41
Saving Data with Screen Capture	43

7	Advanced Operation	44
	Working with NMEA Navigation	44
	Logging Depth	45
	Using the Diagnostics	47
8	Interpreting Displays	48
	Principles	48
	Interpreting the Vertical Display	48
	Forward Imaging Capabilities	49
	Transducer Sidelobe Effects	49
	Interpreting the Horizontal Display	50
	Imaging the Bottom	50
	Special Situations	51
	Forward Imaging Capabilities	51
9	Reference	52
	Theory of Operation	52
	Sonar Basics	52
	Phased Array Technology	53
	Maintenance	55
	Troubleshooting Guide	55
	Interference Problems	60
	Specifications	61
	PC/View Transducer Options	62
	PC/180 Transducer Configuration	62
	How To Obtain Service	63
	Index	64
	Warranty	67

1 Introduction

NAVIGATION WARNING

Nautical navigation is a critical element in the safety and success of each open-water boating experience and should only be performed by experienced navigators.

While the PC/View/180 product is a useful navigation aid, it should **never** be relied upon as the **only** means of navigation. It is prudent to use more than one proven instrument and more than one accepted method in support of navigation decisions.

USING THIS MANUAL

This manual contains operating instructions for both **PC/View** and **PC/180**. While these two products share many features, some features are specific to **PC/180** only. Features specific to **PC/180** are highlighted in **GREY TEXT**.

Award Winning Technology

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

PC/View & **PC/180** Forward Looking Scanning Sonar is based on this same award-winning technology.

General Information

Thank you for choosing the **Interphase PC/View/180** Dual-Axis Forward Scanning Sonar. The **PC/View/180** has been designed to work with your on-board PC and will display water depth, bottom conditions, fish and other submerged objects and debris, all on your computer's high resolution color display.

The **PC/180** combines a 90-degree vertical scanning sector with a horizontal scanning sector that covers the full 180 degrees in front of your vessel. **PC/180's** two-transducer configuration has the added advantage of avoiding any potential acoustic shadowing created by a deep keel. This is because the port half of the horizontal scan is accomplished using a transducer mounted on the port side of the keel while the starboard half of the horizontal scan is accomplished using a transducer mounted on the starboard side of the keel.

To insure that you receive the maximum benefits available from the outstanding features of the **Interphase PC/View/180**, this manual includes a detailed guide to the use and interpretation of the system's modes and displays. An instructive demonstration mode has been designed into the **PC/View/180** to familiarize you with the unit's features. In addition, the **Quick Start** chapter gives you the necessary information to get **PC/View/180** software up and running as quickly as possible. Please read the **Installation** chapter carefully before attempting to install **PC/View/180** on your vessel.

Warranty Information

Interphase provides a **Limited Warranty** on the **PC/View/180** Forward Scanning Sonar. Please read this warranty (reprinted at the back of this manual) and closely follow its terms and conditions should your **PC/View/180** require repair. It is highly recommended that you save all packing materials so that, in

the unlikely event that you must return your PC/View/180 for repair, it can be fully protected.

Should you experience a problem with your PC/View/180, first refer to the Troubleshooting section (p. 55) of this manual. Most common problems and their solutions are described here. If problems persist, call **Interphase Technical Service** at **(831) 477-4944**. We will be happy to assist you, and if required, we will give you instructions on how to get your unit serviced.

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.

IMPORTANT NOTICE

Please fill out and return the Warranty Registration Card immediately. This is our only method of contacting you should new features and enhancements become available for your PC/View/180.

During the first year of your warranty, any software upgrades will be free of charge, and after the warranty period has expired, software upgrades will be available for a nominal charge.

Unpacking and Inspection

When unpacking your PC/View/180, the following items should be in the package. Please notify your Interphase dealer immediately if any items are missing.

Standard Equipment

Description	Part Number
Acoustic Interface Module	06-2000-000
	X1-VIEW-180
Parallel Cable, 10' length	04-1035-000
12VDC Power Supply Cable	04-0001-008
PC/View Software CD	52-1002-001
PC/180 Software CD	53-1003-000
PC/View/180 Operation Manual	25-4011-000

Transducer Options

Two Transom Transducers

200 kHz Vertical Scan	T1-0200-025
200 kHz Horizontal Scan	T1-0200-028
(2) Kick-up Brackets w/spray shield	17-0055-008

Two Thru-Hull Transducers

200 kHz Vertical Scan	T1-I200-026
200 kHz Horizontal Scan	T1-I200-029

Single Thru-Hull Transducer

200 kHz Horizontal/Vertical Scan	T1-I200-032
Installation of the PC/180 can be divided into two separate tasks, described in separate sections in this chapter:	



Acoustic Interface Module



PC/View/180 Software



12 VDC Power Cable

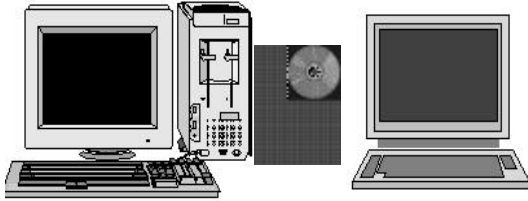


10' Long Parallel Cable

PC/180 Transducers

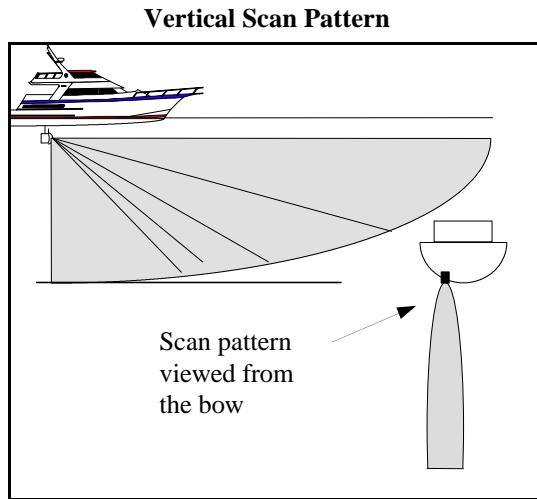
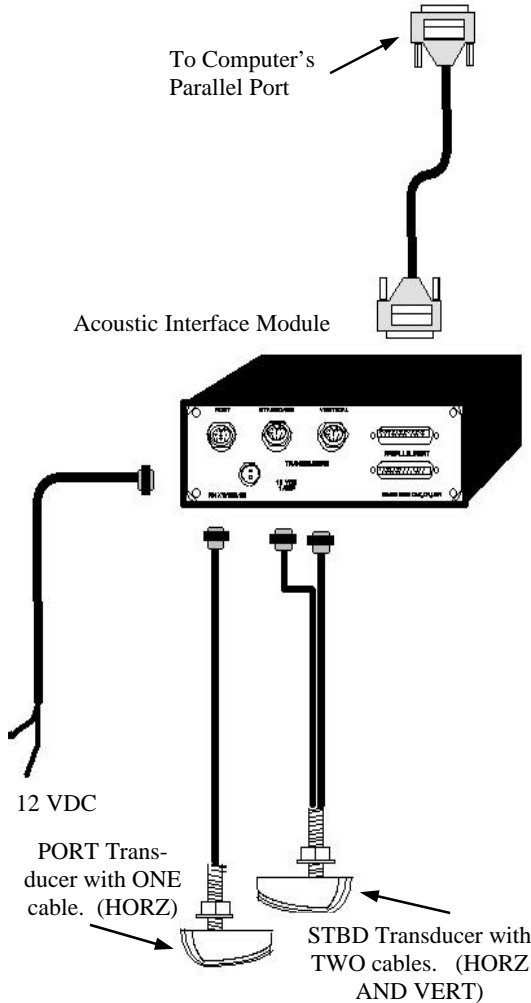
200kHz Horiz/Vertical Scan (stbrd)	T1-0200-034
200kHz Horizontal Scan (port)	T1-0200-033

2 Installing PC/180



- 1) Location and Installation of the **Transducers**
- 2) Installation of the **Acoustic Interface Module**

The schematic diagram at left shows a typical installation of the PC/180 using an on-board desktop or laptop PC.



Transducer Installation

The PC/180 uses three 8-element phased transducer arrays (a total of 24 elements) configured in two separate through-the-hull (thru-hull) transducers. The port side transducer includes a single horizontally scanning array and the starboard side transducer includes a horizontally scanning array and a vertically scanning array. The arrays are “potted” in a smooth-surfaced plastic material that is acoustically transparent. **DO NOT allow any solvents (i.e. gasoline, acetone) to come in contact with the transducers as this may dissolve the plastic housing.**

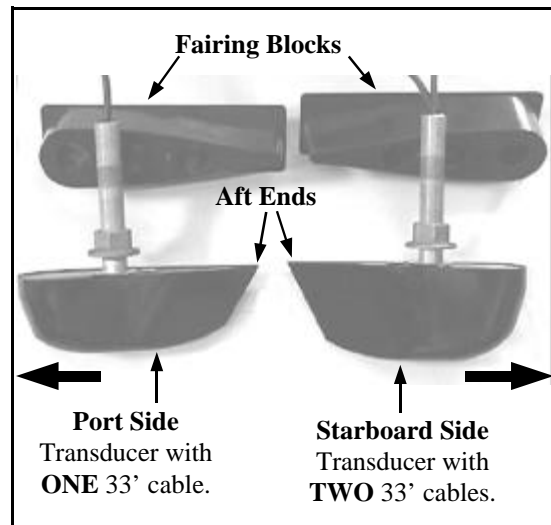
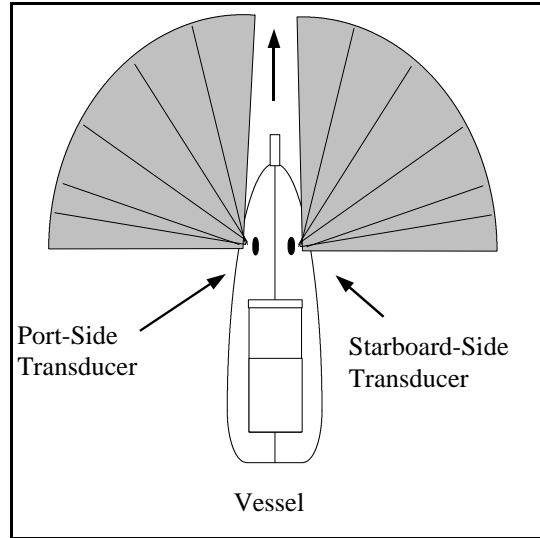
Proper performance of your PC/180 is very dependent on a good transducer installation and normally, thru-hull installations are performed by a professional in a boat haul-out facility. We strongly suggest you seek professional assistance before attempting to mount these thru-hull transducers.

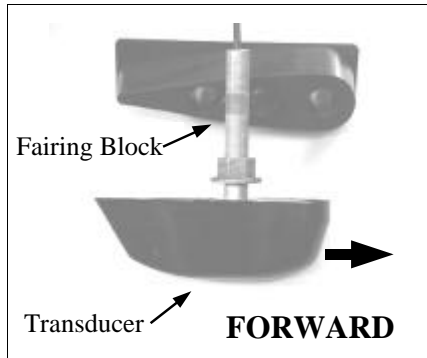
The Transducers

The two PC/180 transducers are designed to be mounted on opposite sides of the vessel’s keel. Although similar in appearance, the two transducers operate differently and it is important that they be mounted on the proper side of the vessel’s keel. Mount the **Port-Side** transducer on the port side of the keel (the left side of the hull, looking forward from the stern), and mount the **Starboard-Side** transducer on the starboard side of the keel (the right side of the hull, looking forward from the stern).

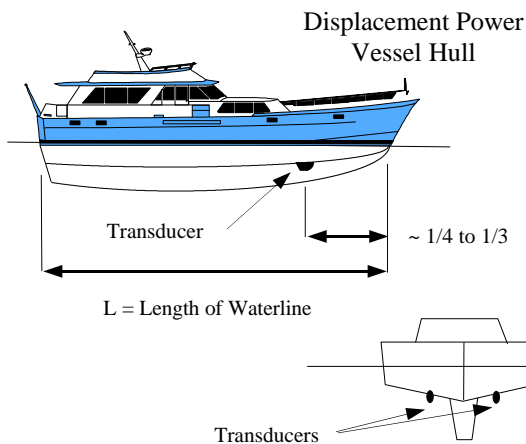
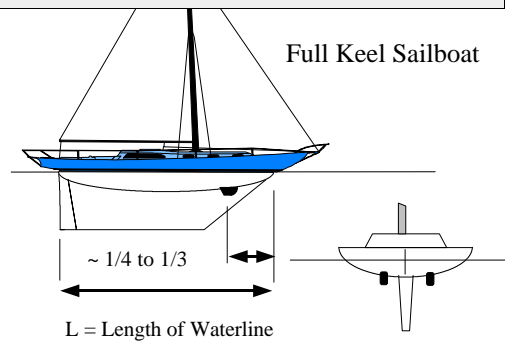
The Port and Starboard transducers can be identified, as shown in the diagram at right, by the fact that the Starboard-side transducer is slightly larger and has two cables compared to the Port-side transducer’s single cable. In addition, each cable has a small label approx. 6” from the connector which identifies it as the PORT HORZ, STBD HORZ or STBD VERT. (Horz stands for Horizontal direction and Vert stands for vertical direction.)

180 Degree Horizontal Scan Pattern





Typical Thru-Hull Transducer Locations



Forward Direction

The orientation of the mounted transducers is critical to the performance of the PC/180. Note that the more blunt, rounded end of each transducer should be pointed forward. The angled, more narrow ends should be pointed aft as shown in the figure at left.

Selecting the Best Location

The best location to mount the thru-hull transducer will vary with the type of boat. In order to simplify the installation, attempt to find a location with a small dead-rise angle.

- 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. Water near the bow and near the keel can be quite aerated. Since the PC/180's transducer can not see through aerated water, it is best to mount the transducer midway between these two areas.
- b. 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. Unfortunately, mounting the transducers well aft limits the maximum forward range in front of the vessel's bow. However, the transducers must be in the water to work and if they are mounted too far forward on a planing hull they will often lose contact with the water. In this situation, the PC/180 can only be used at slower vessel speeds which do not result in planing operation.

DO NOT install a bronze transducer housing directly into an aluminum or steel hull because electrolytic corrosion will occur.

Transducer cables will need to be routed to the Acoustic Interface Module. If you need transducer cable lengths greater than the standard 30' length, order three 30' extension cables (Interphase Part # 04-0014-008).

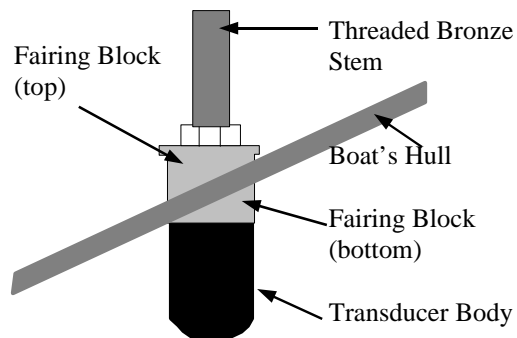
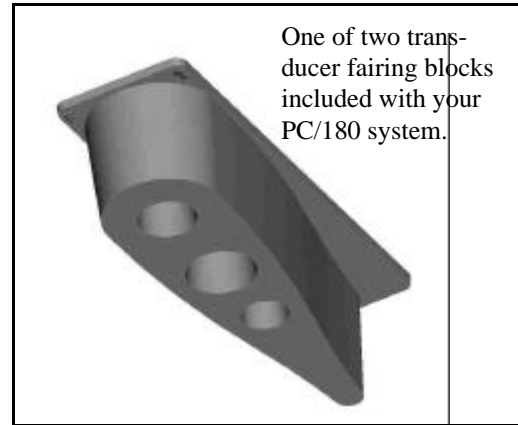
Using the Fairing Blocks

Nearly all vessels have some dead-rise angle at the transducer mounting location. If the thru-hull transducers were mounted directly to the hull, the sound beam from the transducer would be tilted off the vertical at the same angle as the dead-rise and would cause errors in the interpretation of the displayed picture. To correct this situation, most thru-hull installations will require the use of fairing blocks to insure that the transducer is mounted in the proper orientation..

Two custom-molded fairing blocks for the PC/180 transducers have been included with your system to make installation as simple as possible.

Measure the dead-rise angle of the hull at the selected mounting location and cut the block to a shape that fits the exact contour of the hull. After cutting the fairing block, trial-fit the block to the hull. The upper part of the block should be inside the hull and the lower part of the block should be outside the hull to clamp the assembly in place as shown in the diagram at right.

It is very important that the flat top surface of the transducer be parallel to the water. Because of the equipment and skill required, we suggest that your professional boatyard cut the fairing blocks and install the transducers.



Tools Required for Transducer Installation:

- ◆ Variable speed electric drill with a chuck capacity of 10 mm (3/8") or larger.
- ◆ Hole saw or spade bit 19 mm (1") 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

Note: Make sure your tooling is sharp and of the correct diameter before proceeding.

****WARNING****

Do not cut or splice your phased-array transducer cables or remove the 9-pin connectors. Doing so will seriously degrade the performance of your PC/180 and VOID YOUR WARRANTY.

WARNING

DO NOT apply tension to the transducer cables as this may sever internal connections.

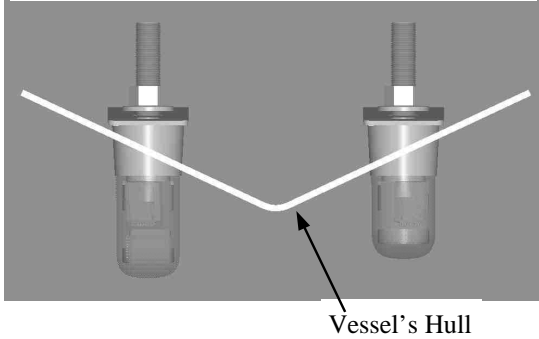
NOTE: If you need longer transducer cable lengths, purchase the optional 30' extension cables (Interphase Part #04-0014-008). Three extension cables will be required.

Thru-hull Mounting

Take the following steps to mount each 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 selected mounting location, it may be desirable to drill from the outside.
- 2) Use a 1" 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 bedding/caulking compound and use according to the instructions.
- 3) Remove the bronze hex nut from the housing and cables.
- 4) Uncoil the two transducer cables and thread them through the hole to the inside of the hull. Apply a 1/8" thick layer of sealant on the upper flat surface of the bronze housing and fairing block (if used).
- 5) From the outside of the hull, push the cables and housing into the 1" hole. Twist the housing slightly to squeeze out excess sealant. **Carefully confirm that the transducer is aligned so that the blunt rounded end (the front) is pointed directly toward the front of the boat.**
- 6) Install and tighten bronze hex nut (allow for swelling in wooden hulls). **Do not over-tighten nut.**
- 7) Remove excess sealant from the outside to assure smooth water flow over the transducer.
- 8) Route the cables back to the PC/180 Acoustic Interface Box. If possible, avoid running the cables alongside of antenna cables or other sensitive wiring.

**Completed Installation
View From Front of Vessel Looking Aft.**



IMPORTANT NOTE

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 attacks the plastic transducer material.

WARNING

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.

WARNING

Wood hulls will expand after the boat is put back into the water. If you have a wood hull, the transducer should only be hand-tightened until the wood fully expands. Otherwise the wood fairing may crack.

Note: Signals transmitted through adjacent cables can interfere with one another. Route sensitive cables and antennas so that they do not run adjacent to or parallel to one another.

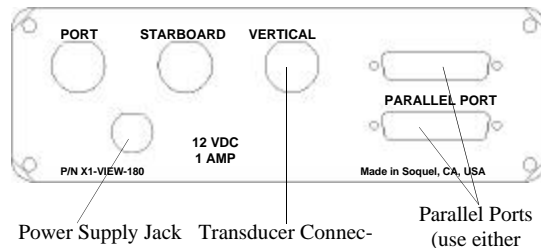
**Acoustic Interface
Module Installation**

The black box that came with your PC/180 is called the Acoustic Interface Module (AIM). It houses the transmitters and receivers that communicate with the transducers. The AIM must be connected to the parallel port of the on-board computer, to the transducers and to a 12VDC power source.

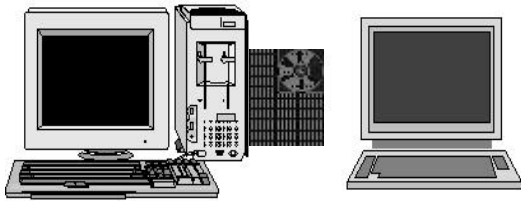
- 1) Select a location to mount the AIM. Keep in mind that the unit must be protected from moisture and extreme temperatures. Also, you will need to route the 10' parallel cable, the power cord and transducer cables to the location that you choose.
- 2) Connect the two-pin plug on the end of the power supply cable to the power supply jack on the back panel of the AIM. To minimize electrical interference, carefully route the power cable so that it does not run parallel to, or close to the transducer cable, engine, refrigeration, or any other critical wiring. Connect the red wire to the positive terminal and the black wire to the negative terminal of your boat's 12VDC battery.
- 3) Connect one end of the parallel cable to the connector labeled PARALLEL PORT on the back panel of the AIM. Connect the other end to the parallel port on your computer.
- 4) Connect the three transducer cables to the matching ports on the back panel of the AIM:

<u>Cable label</u>	<u>Panel label</u>
PORT HORZ	PORT
STBD HORZ	STARBOARD
STBD VERT	VERTICAL

Acoustic Interface Module Back Panel



3 Installing PC/View



The diagram at left shows a typical installation of the PC/View using an on-board desktop or laptop PC.

In this chapter, the PC/View installation procedures have been divided into two major sections;

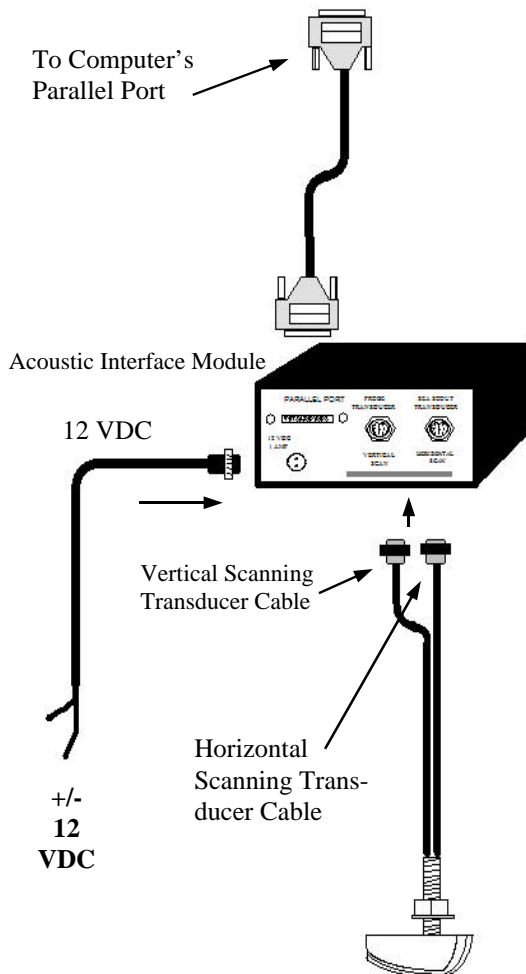
- 1) Location and Installation of the **Transducer(s)**
- 2) Installation of the **Acoustic Interface Module**

Transducer Installation

The PC/View can be ordered with one of several transducer configurations; two transom mount transducers, two bronze thru-hull transducers, a special single bronze thru-hull transducer, or with no transducer (if you already have an Interphase scanning transducer installed).

The PC/View uses two 8-element phased transducer arrays (a total of 16 elements). The arrays are “potted” in a smooth-surfaced plastic material that is acoustically transparent. **DO NOT allow any solvents (i.e. gasoline, acetone) to come in contact with the transducer(s) as this may dissolve the plastic housing.**

In the single thru-hull configuration all 16 elements are enclosed in a single transducer. For transom-mount applications two transducers are required, each containing an 8-element array. One of the 8-element arrays is positioned to scan vertically from straight ahead to directly below the boat, while the other array is positioned to scan forward horizontally from side to side. When the two thru-hull configuration is chosen, each transducer contains an 8-element array. One is positioned for vertical scanning and the other for horizontal scanning.

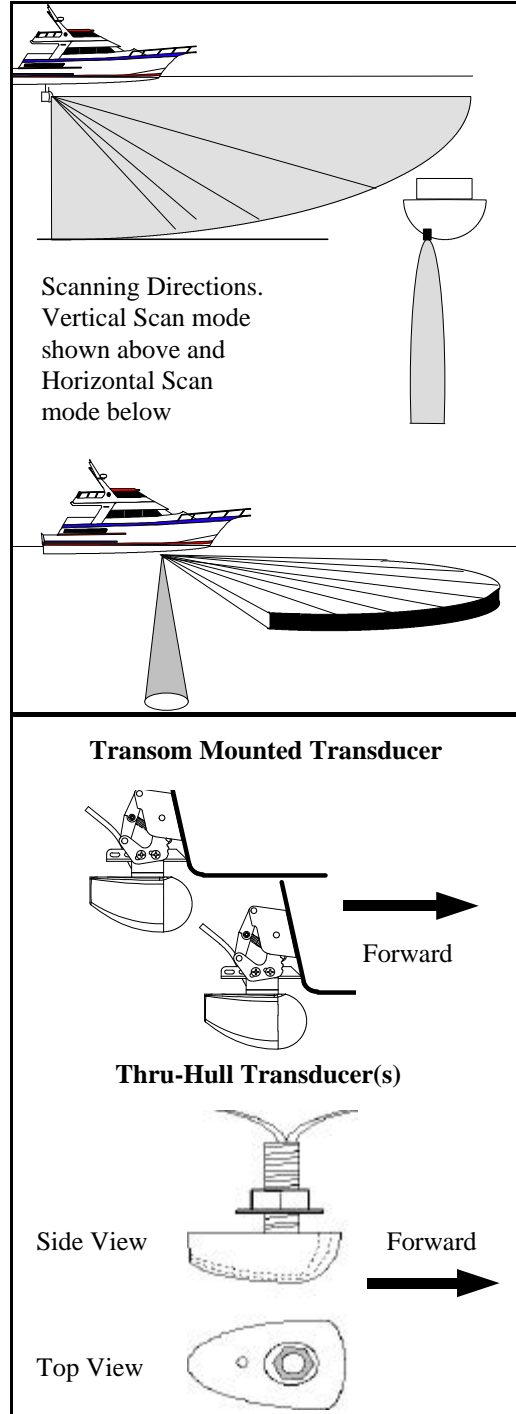


General Considerations

The orientation of the mounted transducer(s) is critical to the performance of the PC/View. The lower diagram at right shows the proper orientation for both the transom-mount and thru-hull transducer(s). **For all three types of transducers, the broader, rounded or blunt side must point forward.**

It is also important to think carefully about the location of the transducer(s) before proceeding. Consider the following:

- 1) The transducer(s) should be located where there is the least amount of acoustic noise, air bubbles or turbulence caused by the boat's movement. The transducer(s) should not be located near or especially directly behind the propeller.
- 2) The transducer(s) must be mounted so that it will be level with the water's surface and will not be tilted to either side.
- 3) The transducer(s) must always remain submerged, regardless of the speed of the boat.
- 4) The transducer(s) should not be mounted where it could be damaged by underwater obstacles or when loading the vessel on a trailer.
- 5) **DO NOT** locate the transducer(s) in the extreme bow of the boat where it will be subject to intense turbulence as the boat pounds through the water.
- 6) **DO NOT** locate the transducer(s) directly behind any hull protrusion which will cause the water to be turbulent when it reaches the transducer(s) or which will obstruct the transducer's forward looking view. For displacement-hull power and sail boats, the thru-hull installation is usually required.
- 7) Transducer cable(s) will need to be routed to the Acoustic Interface Module. If you need transducer cable lengths greater than the standard 30' length, order **two** 30' extension cables (Interphase Part # 04-0014-008).



****WARNING****

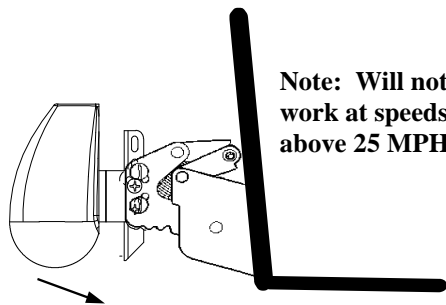
Do not cut or splice your phased-array transducer cables or remove the 9-pin connectors. Doing so will seriously degrade the performance of your PC/View and VOID YOUR WARRANTY.

Tools Required for Transducer Installation:

- ◆ Variable speed electric drill with a chuck capacity of 10 mm (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

Note: Make sure your tooling is sharp and of the correct diameter before proceeding.

Transom Mount Bracket in Released Position



Transom Transducer Installation

The transom transducers are attached to the boat with heavy-duty stainless steel kick-up brackets to provide protection against impact at speeds up to **25-30 MPH**. When the water force exceeds this setting, the transducer automatically kicks up and becomes non-operational.

Selecting a Location

To achieve optimal performance, the transducers should be mounted in a location which:

- * Minimizes acoustic noise reception.
- * Minimizes the chance that aerated water will flow across the front of the transducer(s).
- * Optimizes the transducers view of the area ahead and directly below the boat.

The transducers can be installed on either side of an outboard or inboard/outboard engine, or between twin outboards. Choose a location where water flow is the smoothest. Refer to the diagram at right.

Because the transducers rotate back and upwards when the brackets kick up, they must be mounted in a location where there is sufficient clearance and headroom to allow the full kick-up.

For **single-engine** installations, choose a location 18" to 24" outboard of the propeller center line and, preferably, on the down-stroke side of the propeller.

For **dual engine** installation, choose a location just off the center line of the vessel.

Attaching the Bracket

Position the spray shield inside the transducer's mounting ears. Make sure the spray shield is orientated as shown in the diagram at far right.

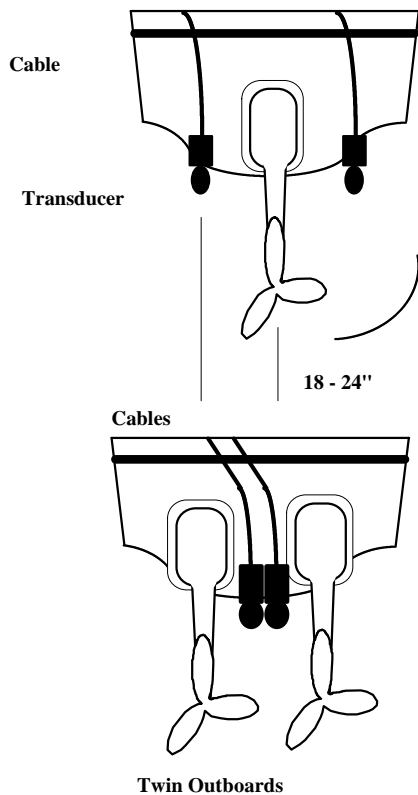
Attach the kick-up bracket to the transducer using the 4 screws, washers and lock nuts provided. The bracket arms must be mounted outside the mounting ears of the transducer. Do not fully tighten the lock nuts at this time.

Mounting the Transducer

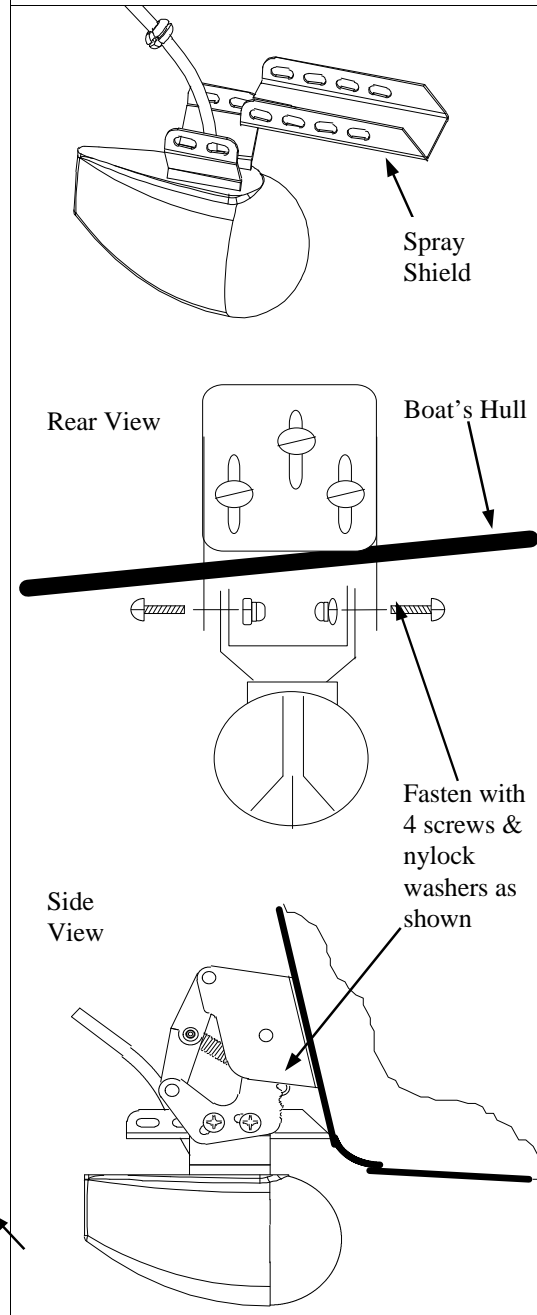
After you have selected a mounting location and attached the mounting brackets to the transducers, position each transducer-bracket assembly so it is level in both the fore-aft and port-starboard directions. Check the orientation of your boat's waterline and position the flat top surface of the transducer so that it is parallel to the waterline as shown on the following page.

Mount the bracket on the hull as shown in the diagrams at right and on the following page. Once the transducer is properly positioned, tighten the lock nuts.

Transom Mount Locations



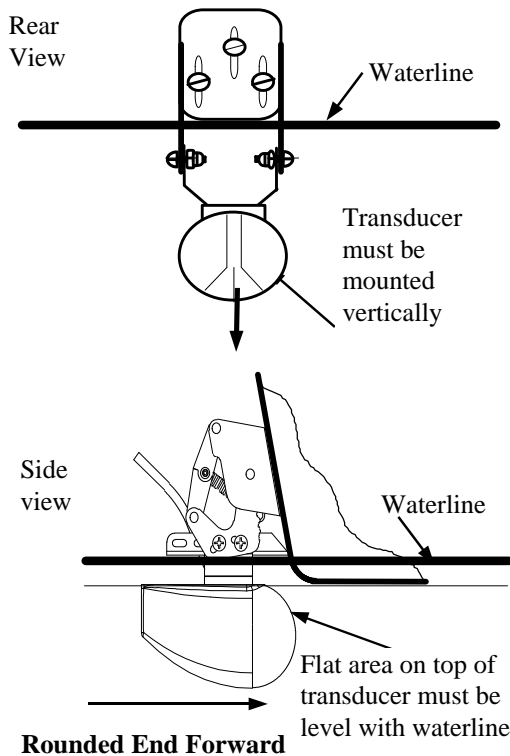
Attach Transducer and Spray Shield to Bracket



It is important to note that if the vertical scanning transducer is not mounted so that the fore and aft direction is parallel to the surface, then the forward-looking display may be distorted where flat bottoms appear to be slanted upwards or downwards. After mounting the transducer and actually using the PC/View on the water, you may need to readjust the transducers' mounting for optimum performance.

Refer to the discussion of Transducer Mount Corrections on page 28-30.

Mount Transducer So it Will Scan Properly



NOTE

The flat top of the transducer must be parallel to the water line. This will not necessarily be parallel to the boat's hull.

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. PC/View must have a clear view ahead, as it can not 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 and we recommend that you seek professional assistance before attempting to mount this transducer.

Selecting a Location

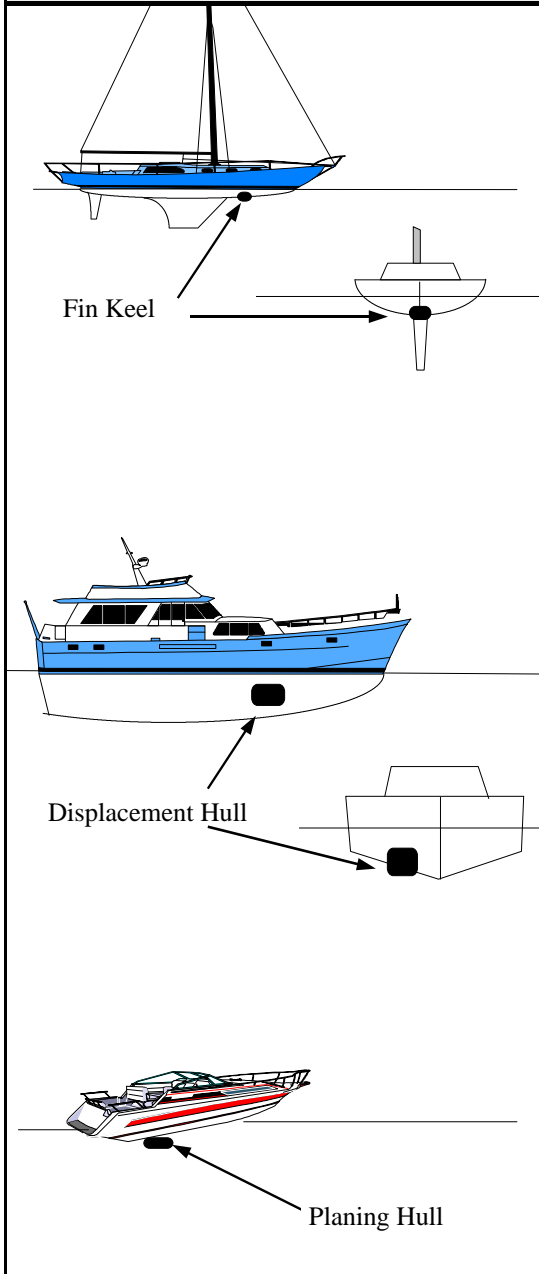
The best location to mount the thru-hull transducer will vary with the type of boat. **Try to find a location with the smallest dead rise angle.**

- 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. Water near the bow and near the keel can be quite aerated. Since the transducer can not see through aerated water, it is best to mount the transducer between these two areas.
- 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.
- 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 inboard/outboard boats, 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.

- 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.

Suggested Thru-Hull Transducer Locations



IMPORTANT:

- 1) Make sure the water flow across the thru-hull transducer is free of bubbles and turbulence 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.

The transducer must be mounted so that its bronze stem is as perpendicular to the water line as possible. If necessary, use a fairing block to properly position the transducer.

Using a 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, mahogany, or plastic and should be glued between the transducer and the hull (both inside and outside) to provide a level mounting surface for the transducer and retaining nut. Make the block as smooth as possible, and not bigger than the transducer's face, to minimize turbulence.

IMPORTANT: After cutting the fairing block, trial-fit it to the hull. The flat top surface of the transducer must be parallel to the water surface.

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

For the **single thru-hull transducer**, the molded Fairing Block Part Number is: **42-2005-000**

Thru-hull Transducer Mounting

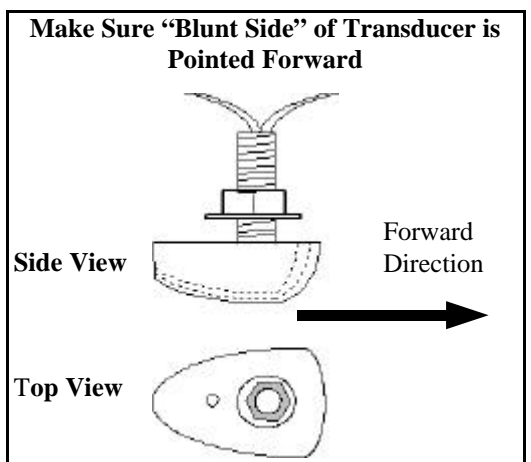
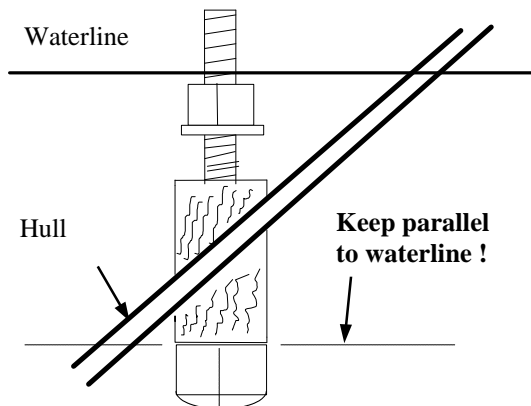
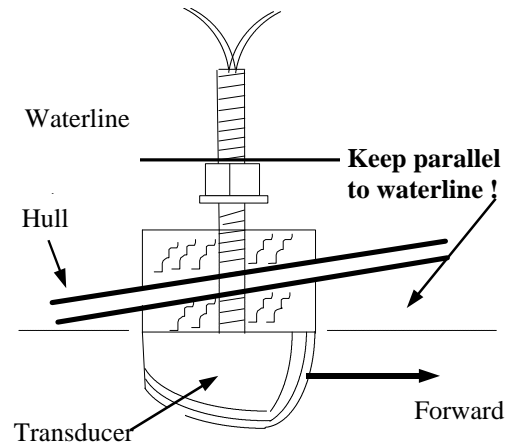
Take the following steps to mount the thru-hull:

- 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 selected mounting location, it may be desirable to drill from the outside.
- 2) Using a 1-1/16" hole saw, 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 bedding/caulking compound and use according to the instructions.
- 3) Remove the bronze hex nut from the housing and cables.
- 4) Uncoil the two transducer cables and thread them through the hole to the inside of the hull. Apply a 1/8" thick layer of sealant on the upper flat surface of the bronze housing and fairing block (if used).
- 5) From the outside of the hull, push the cables and housing into the 1" hole. Twist the housing slightly to squeeze out excess sealant. **Carefully confirm that the transducer is aligned so that the blunt rounded end (the front) is pointed directly toward the front of the boat.**
- 6) Install and tighten bronze hex nut (allow for swelling in wooden hulls). **Do not over-tighten nut - especially if a wooden fairing block is used as it will expand in water.**
- 7) Remove excess sealant from the outside to assure smooth water flow over the transducer.

WARNING

DO NOT apply tension to the transducer cables as this may sever internal connections.

Mount the Transducer so it is Vertical



WARNING

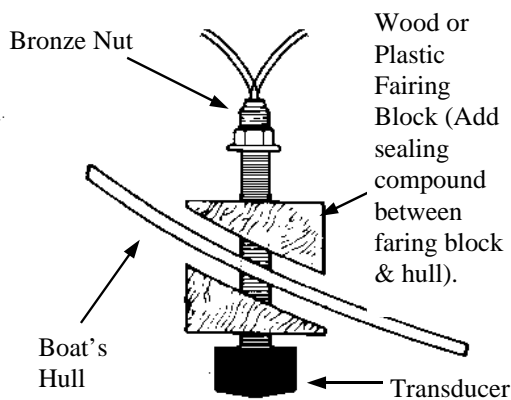
DO NOT install a bronze transducer housing directly into an aluminum or steel hull because electrolytic corrosion will occur.

WARNING

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.

IMPORTANT NOTE

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.



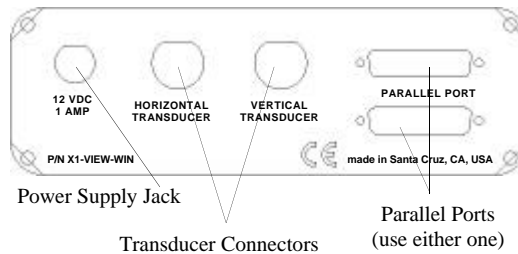
Acoustic Interface Module Installation

The black box that came with your PC/View is called the Acoustic Interface Module (AIM). It houses the transmitters and receivers that communicate with the transducers. The AIM must be connected to the parallel port of the computer, to the transducers and to a source of 12 VDC power.

- 1) Select a location to mount the AIM. Keep in mind that the unit must be protected from moisture and extreme temperatures. Also, you will need to route the 10' computer parallel cable, the power cord and transducer cables to the location that you choose.
- 2) Connect the two-pin plug on the end of the power supply cable to the power supply jack on the back panel of the AIM. Connect the red wire to the positive terminal and the black wire to the negative terminal of your boat's 12 VDC battery.
- 3) Connect one end of the parallel cable to the connector labeled PARALLEL PORT on the back panel of the AIM. Connect the other end of the parallel cable to the parallel port on your computer.
- 4) Connect the two transducer cables to the matching ports on the back panel of the AIM:

Cable label	Panel label
HORZ	HORIZONTAL TRANSDUCER
VERT	VERTICAL TRANSDUCER

Acoustic Interface Module Back Panel



4 Software Installation



PC/View/180's Operating Software is located on a CD which has been included with your system.

NOTE

If you encounter any difficulty running the program in LIVE mode, consult the Troubleshooting Guide located near the back of this manual.

Software Installation

The PC/View/180 software includes a group of program files and a demonstration data set. These files will all be automatically copied to your computer's hard disk during installation.

The total size of the PC/View/180 installation is about 3 MegaBytes. We recommend that you make sure that there is at least 10 MegaBytes of free space on your hard drive before you begin the installation. If you plan to save screen-captured images, you will need additional space. We recommend beginning with a minimum of 20 MegaBytes of free space.

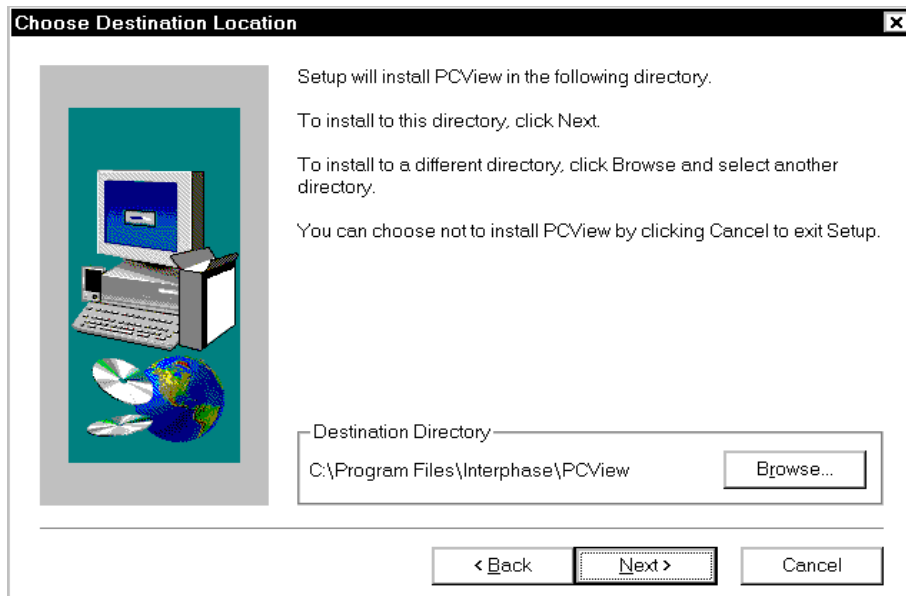
PC/View/180 will run only on a computer with Microsoft™ **Windows NT, 95, 98, 2000** or **XP**. This is because PC/View/180 is a 32-bit program which uses true multi-tasking and, thus, requires a 32-bit operating system. Take the following steps to install PC/View/180 on your computer:

- 1) Exit all programs that are currently running.
- 2) Insert the PC/View/180 CD into your computer's CD ROM drive.
- 3) The program should automatically install when loaded into the CD drive. If it does not auto-install, you can install the program from the Start Bar. Select Run. Browse to find *Setup.exe*. Click on the OK button to begin the installation.
- 4) Follow the Setup instructions in each dialog box that is displayed. Click the Next button to accept the defaults.

The second dialog box (shown at right) will prompt you to accept the default destination folder for the PC/View/180 files or select a different folder. The default destination folder: C:/Program Files/Interphase/PC/View/180

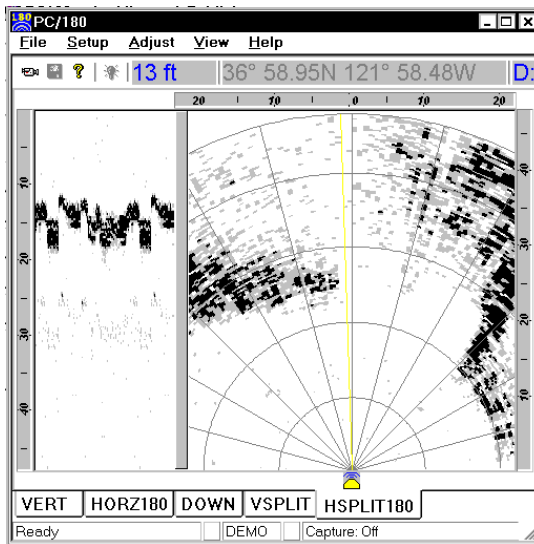
The third dialog box will prompt you to select a destination for the PC/View/180 icon in your Windows Start Bar.

- 5) The Setup program will prompt you to restart your computer after it has completed the installation. You do not have to restart your computer immediately but you must restart it before you can run PC/View/180.
- 6) Remove the CD from your CD drive and store it in a secure place.



5 Quick Start

Running PC/View/180



To start the PC/View/180 system, turn the Acoustic Interface Module power switch **ON**. Then run PC/View/180 by clicking on the Windows Start Bar. Select Programs and PCView/180. Click on the *PCView/180* icon. Alternatively you can click on the Windows Start Bar, select *Run* and type in the path and name of the PC/View/180 program: (C:\Program Files\Interphase\PCView\PCView.exe). Lastly, if you have placed the PC/View/180 icon on your desktop, you can double-click on the icon to activate the program.

Each time you run PC/View/180, you will be prompted to agree with the Warranty Terms and acknowledge that you have read the Navigation Warning. After you have read this agreement once, the appearance of the box will serve as a reminder of the limitations of navigation aids. Use the scroll bar to move through the text then click on the *I Agree* button to run PC/View/180.

If all components have been installed and all cables are connected, and the Acoustic Interface Module is on, PC/View will immediately begin to collect and display data. Take the following steps to adjust PC/View for basic operation:

- 1) Set defaults as described below. Be sure that Auto Gain and Auto Range are off.
- 2) Select a display (see p.30).
- 3) Select a range setting that is slightly greater than your current water depth (see p.37).
- 4) Adjust the gain by first turning it down until no imagery is visible on the display. Increase the gain until you begin to see noise, then decrease the setting by one (see p.36).

Parameter	Menu	Default	Type
Auto-Screen Capture	File	Off	Hard
Color	Setup	Normal	Soft
Units	Setup	Feet	Soft
Surface Masking	Setup	Off	Hard
Depth Threshold	Setup	Normal	Hard
Auto Gain	Adjust	Off	Hard
Gain	Adjust	32	Soft
Auto Range	Adjust	Off	Hard
Range	Adjust	25 Feet	Soft
Alarm	Adjust	Off	Hard
Sector Width	Adjust	180 Degrees	Soft
Sector Steer	Adjust	90 Degrees	Soft
Scan Mode	Adjust	Normal	Soft
Scan Method	Adjust	Swept	Soft
Zoom	Adjust	Off	Soft

Defaults

The default settings for many of the PC/View/180 features are shown in the table at left. Hard defaults are always reset when you exit the program. Soft defaults are recommended settings for general operation. If you are running PC/View/180 for the first time, it will start with the default settings as shown at left. Change the settings by selecting the appropriate command from the specified menu.

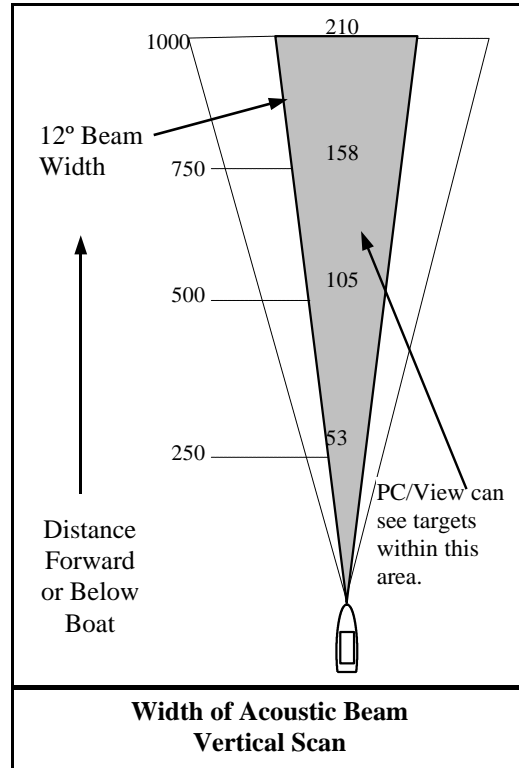
Demo Mode

PC/View/180 includes a built-in Demo mode which will display the stored data that was installed with the software. Demo mode will automatically be started if the system's parallel cable is not connected to the Acoustic Interface Module during start-up. Running in DEMO mode will allow you to practice and to get a feeling for PC/View/180's many features before using the system in real situations.

Beam Width

PC/View/180's Beam Width is approximately 12 degrees in both the vertical and horizontal scan modes. The diagrams at right and below show the approximate width of the vertical and horizontal scanning beams at different distances from the boat. PC/View/180 will generally image features within the shaded areas.

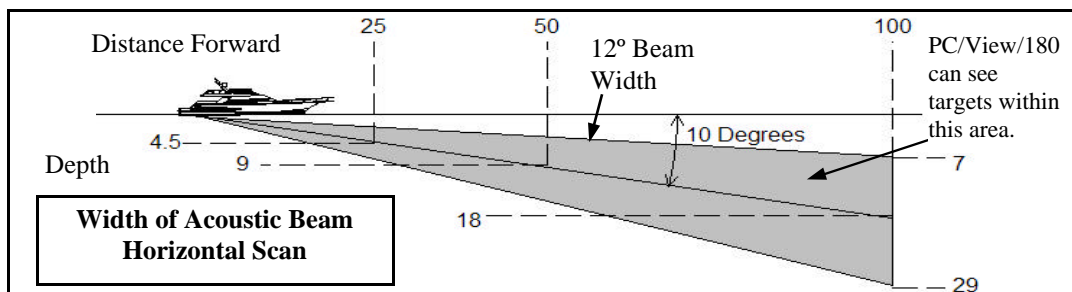
The horizontal scan is oriented approximately ten degrees down from horizontal (see diagram below). Thus, the depth to the center of the beam is approximately 18 percent of the distance from the boat.



TIP

The width of the 12-degree main beam is approximately 1/5 of the distance from the boat.

EXAMPLE: At 200 feet forward of the boat, the end of the acoustic cone is approximately 40 feet in diameter.



6 Basic Operation

Getting Started

This chapter will help you to learn the modes of operation and the basic features of the PC/View/180 system. For more experienced users, this chapter can be used as a reference. Read Chapter 5 Quick Start to learn how to start the PC/View/180 software.

PC/View/180 is a Windows application with a standard Windows menu structure. The PC/View/180 screen includes a data display window as well as the Toolbar and the Status Bar.

The *Toolbar* and *Status Bar* can be toggled on or off via the View Menu.

The Toolbar

The Toolbar enables quick access to features which are used often including:

- *Screen Capture*, which saves the current screen to the hard disk (see p.43),
- *About PC/View/180*, which displays the software version number, and
- *Alarm Reset*, which turns off the depth alarm after it has been triggered (see p.38).

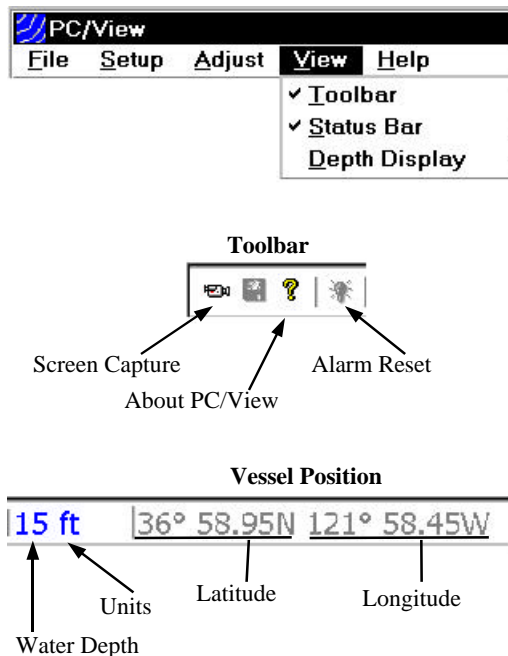
The Toolbar also includes two digital data displays including:

- *Depth* beneath the transducer calculated by PC/View/180 with the current units, and
- *Vessel Position* information if it is available (e.g. 38° 58.95N 121° 58.49W; refer to the discussion of NMEA navigation input in Chapter 7 Advanced Operation).

The Status Bar

The Status Bar displays current information about PC/View/180 operation including:

- *Status Message*,
- *Ping Light*, which alternates between red and green on consecutive pings,



- *Mode*, Real-time or Demo,
- *Capture Light*, which flashes blue during a screen capture, and
- *Capture Status*, showing the screen capture schedule and remaining hard disk space.
- *Cursor Position*. Depending on which display is active, the cursor position will include range (R), bearing (B, negative to port, positive to starboard) and/or depth (D). When the cursor is outside of a data display area, the position box displays the current range and gain settings (e.g. Rnge=25ft; Gain=20).

Operating Modes

PC/View/180 operates in one of two modes: Demo and Real-time. If all components have been installed, all cables are connected and the Acoustic Interface Module is on when you start the software, PC/View/180 will immediately begin to collect and display data in Real-time Mode. If PC/View/180 does not find the Acoustic Interface Module, the software will initiate Demo Mode. Use the File Menu to switch between Demo Mode and Real-time Mode.

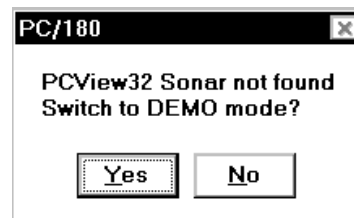
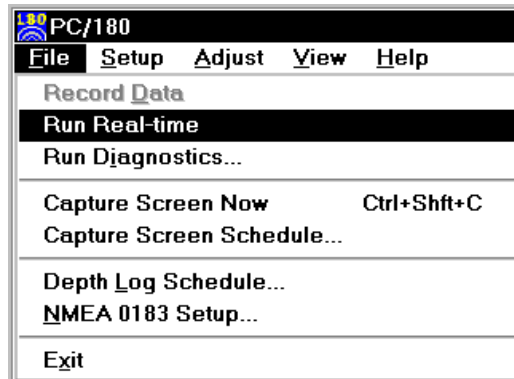
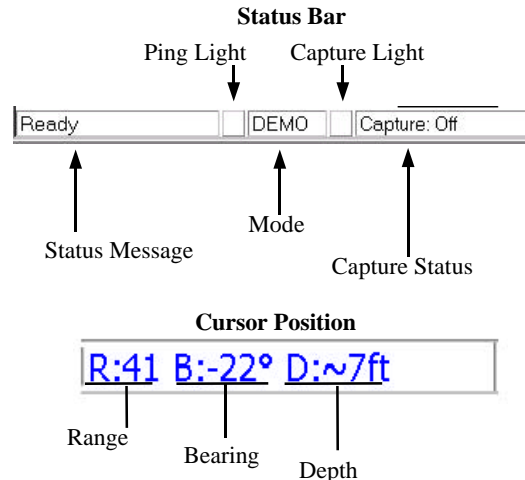
Demo Mode

In Demo Mode, PC/View/180 will continuously display the demo data that was installed with the software. PC/View/180 will look for the demo data in a folder called 'Data' in the PC/View/180 program folder. If the program does not find the demo data, the display window will remain blank.

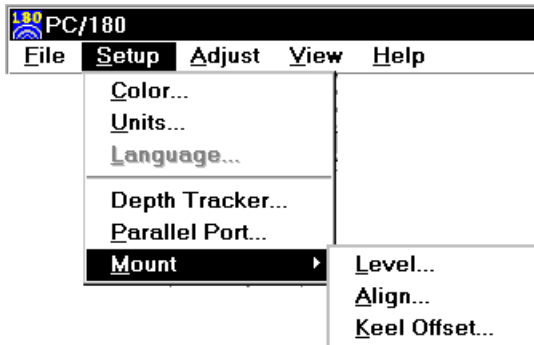
With the exception of Gain adjustments, all PC/View/180 features are fully functional in Demo Mode. However, when running in Demo mode, be sure the range is on the lowest setting. Higher range settings will simply compress the data in the display.

Real-time Mode

When Real-time Mode is selected, PC/View/180 will attempt to find the Acoustic Interface Module. If the attempt is unsuccessful, PC/View/180 will prompt you to return to Demo Mode.



Setting System Parameters



There are several system parameters that you will usually need to set only once. Set these parameters using the Parallel Port and Mount commands on the Setup menu.

Parallel Port Address

PC/View/180 must know the address of the parallel port on your computer to which you will connect the Acoustic Interface Module. The default parallel port address is 0x378. If you do not know what the parallel port address is, *do not change it*. Your parallel port address is most likely 0x378.

If you know that you are using a parallel port with an address other than 0x378, select *Parallel Port...* from the Setup menu and choose the correct address from the pull-down menu. The other two most common parallel port addresses are 0x278 and 0x3BC.

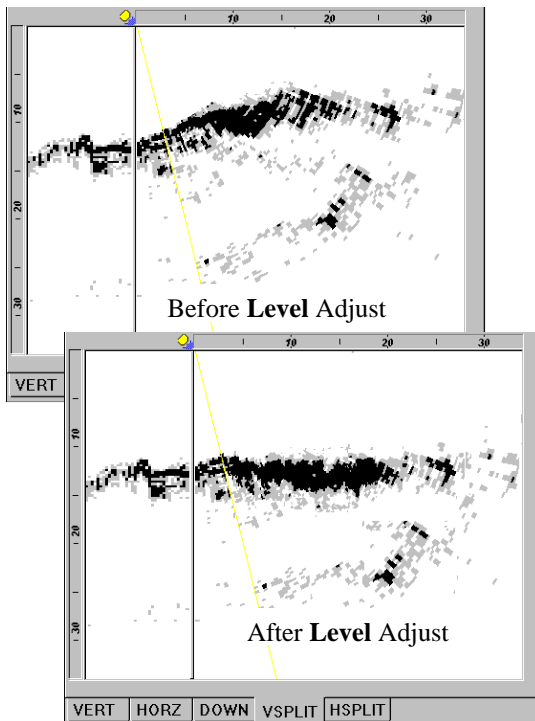
Transducer Mount Corrections

The PC/View/180 software can compensate for minor transducer misalignments. These are important corrections, particularly if PC/View/180 is being used as a collision avoidance aid.

Level Adjustment

PC/View/180 can compensate for up to 14 degrees of fore or aft tilt in the mounting of the vertical (starboard) scanning transducer.

To set the Transducer Level parameter, run PC/View/180 when the boat is over a known level bottom. The vertical display should also appear level. If, however, the bottom is slanted upward (as shown in the "Before Level Adjust" picture at left), it means that the transducer was mounted with its nose pointing down slightly. If the bottom slopes upwards by 10 degrees, the Transducer Level correction should be *10 degrees DOWN*. If the bottom slopes downward, adjust the Transducer Level in the UP direction to compensate.



PC/180 Align Adjustment

PC/180 can compensate for up to 14 degrees of mounting misalignment in either the port or starboard direction for each of the two transducers. To set the Transducer Align corrections, point the boat directly toward a known target (such as a piling) Depending on the misalignment of the two transducers, you may see two targets, the target may be off-center, or you may not see the target at all.

To make the port-side alignment correction:

- 1) Set sector width to 90 degrees and the sector steer to 45 degrees. Refer to the diagram at right.
- 2) Turn the port transducer knob in the port direction until you see the whole target on the port-side scan. (If the transducer is misaligned in the starboard direction, you may not need to turn the knob to see the whole target.)
- 3) Place the cursor at the center of the target and note the bearing. Turn the port transducer knob that number of degrees in the starboard direction.

To make the starboard-side align correction:

- 1) Set sector width to 90 degrees and the sector steer to 135 degrees.
- 2) Turn the starboard transducer knob in the starboard direction until you see the whole target on the starboard-side scan.
- 3) Place the cursor at the center of the target and note the bearing. Turn the starboard transducer knob that number of degrees in the port direction.

When both corrections have been made, reset the sector to the full 180 degrees. The entire target should be visible and centered.

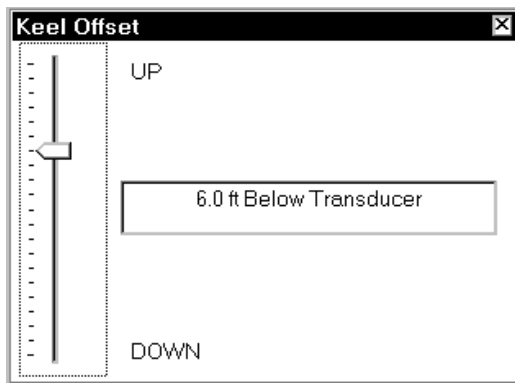
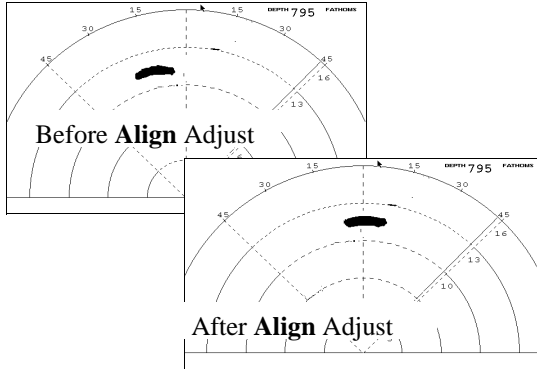
PC/180 Keel Offset

If the transducers are mounted in positions above the deepest point of your boat's keel, PC/180 can automatically adjust the depth scale bars to compensate for the offset. This will allow you to always work with depths that are relative to the bottom of your boat's keel.

Move the slide bars to specify the depth of the keel beneath each transducer.

A port-direction correction brings the

Bearing of the target center
Dial 13 degrees to starboard to center the target.



Transducer Icon

PC/View Align Adjustment

In case the horizontal scanning transducer has been mounted such that it points in a direction other than dead ahead, PC/View can compensate for up to 14 degrees of misalignment either port or starboard.

To set the Transducer Align correction, point the boat directly toward a target (such as a piling, etc.) The target should appear at the center of the horizontal scanning display. If the target is off to the port (shown on the “Before Align Adjust” picture at left), it means that the transducer was mounted pointing slightly in the starboard direction. If the target is off-set to the port by 7 degrees, the Transducer Align correction should be *7 degrees Stbd*. If the target appears off to the right (Stbd), adjust to the Port direction to bring the target back to the center position.

After setting the Transducer Align, view the HORZ display to verify the correction.

PC/View Keel Offset

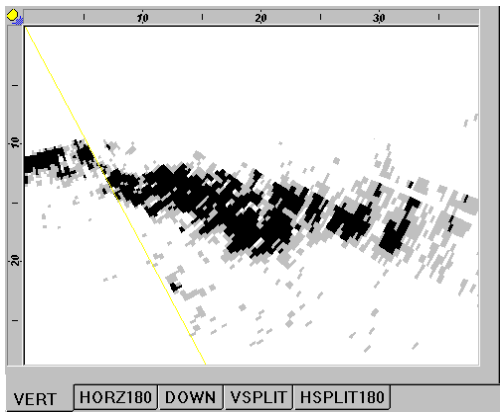
If the transducer(s) are mounted in a position above the deepest point of your boat’s keel, PC/View can automatically adjust the depth scale bars to compensate for the offset. This will allow you to always work with depths that are relative to the bottom of your boat’s keel.

Move the slide bar to specify the depth of the keel beneath the transducer(s).

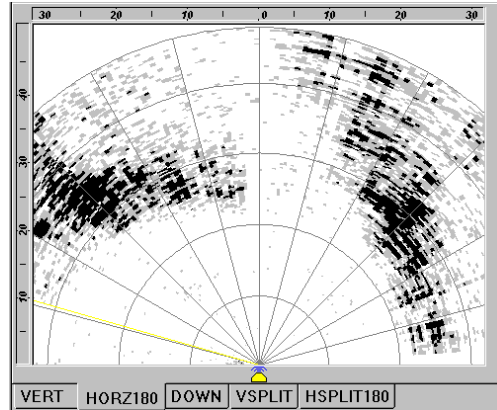
Displays

PC/View/180 has five different scanning sonar display windows. They are VERT, HORZ, DOWN, VSPLIT and HSPLIT, as shown at right. View a display by clicking on its tab at the bottom of the window.

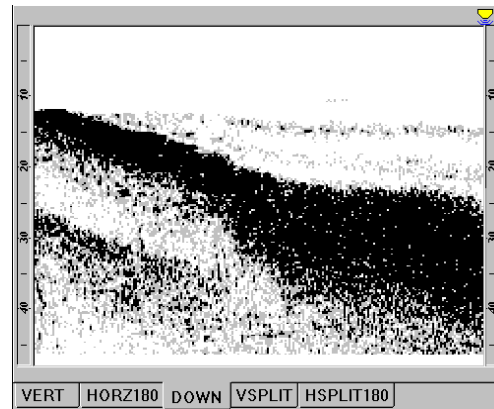
For each of these displays, the transducer icon (shown at left) is displayed in its relative position with a yellow line indicating the scan direction at each instant. Each display fills the current PC/View/180 window. Change the size and/or aspect ratio of the PC/View/180 window by dragging the sides or corners of the window.



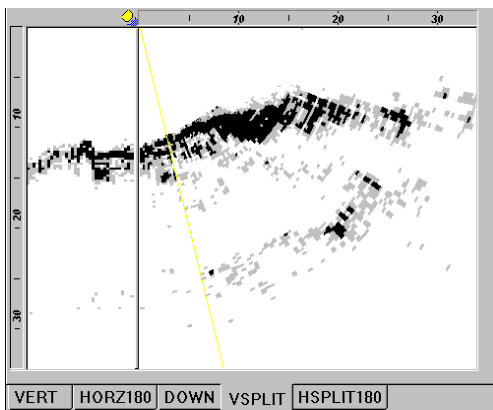
Vertical Display



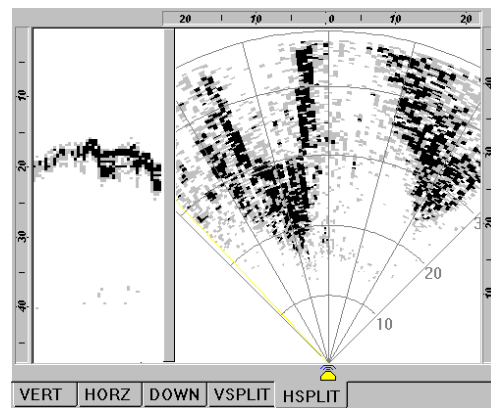
PC/180 Horizontal Display



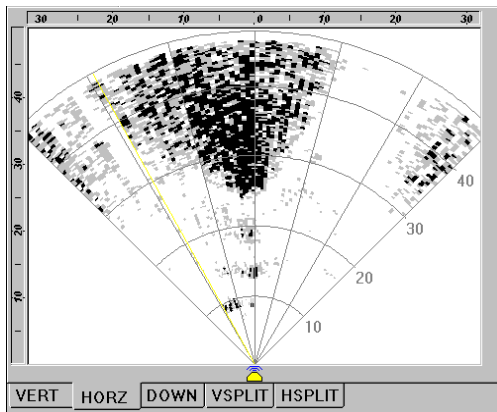
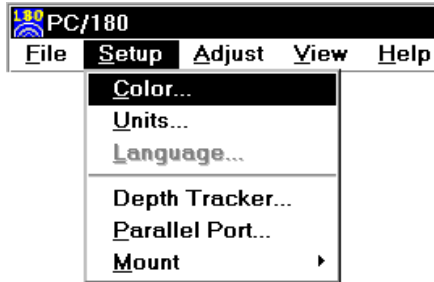
Downlooker Display



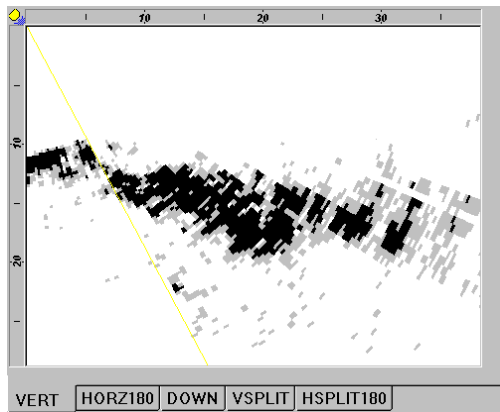
Vertical Split-Screen Display



PC/View Horizontal Split-Screen Display



PC/View Horizontal Display in SUNNY Mode



Vertical Display

Setting Color and Units

The color scheme and distance units can be changed to suit your operating conditions and preferences. Access Color and Units controls using the Setup menu. Both parameters are consistent in PC/View/180 regardless of which scanning display window is active. The units are also consistent in the depth window but the color scheme of the depth window cannot be changed.

Display windows can be viewed in one of three color schemes:

- *Normal*, a 4-color palette varying from dark blue (weakest return) through red (mid-level return) to yellow (strongest return) which is useful for operation in normal daytime conditions.
- *Sunny*, a 3-level gray-scale palette which allows you to view contrast in very bright conditions where light grey is the weakest returns and black is the strongest returns.
- *Night*, black, dark red (weakest returns) and bright red (strongest returns) which enable you to see contrast while preserving your night vision.

Each display includes scale bars showing distance in the selected Units. Units options include *Feet*, *Meters* and *Fathoms*. The selected units are displayed with the depth in the toolbar for reference.

VERT: Vertical Scan Display

The VERT display shows the image created by the vertical scanning transducer elements. This array scans through a maximum of 90 degrees in a sector starting horizontally in the direction that the boat is heading and ending vertically beneath the transducer (see figure at left).

The vertical scan is shown with the transducer at the upper left corner of the display window with the selected range extending to the lower right corner of the window. As a result, the scale bars will usually indicate maximum distances that are less than the selected range.

HORZ180: Horizontal Scan Display

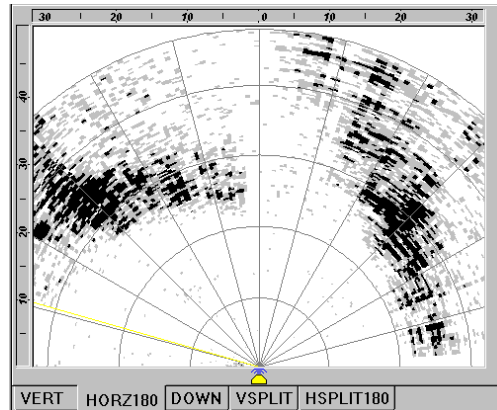
The HORZ180 display shows the image created by the horizontal scanning transducer elements. This array scans forward up to 180 degrees from port to starboard in a sector that is tilted downward from horizontal by about 10 degrees (see figures at right).

The horizontal scan is shown with the transducer at the bottom of the display window and the selected range extending to the top of the window, regardless of the window's width. Thus, data will be clipped on the sides of a tall, narrow display (see figure below).

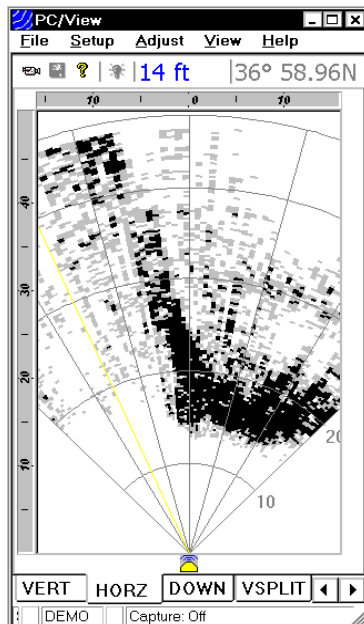
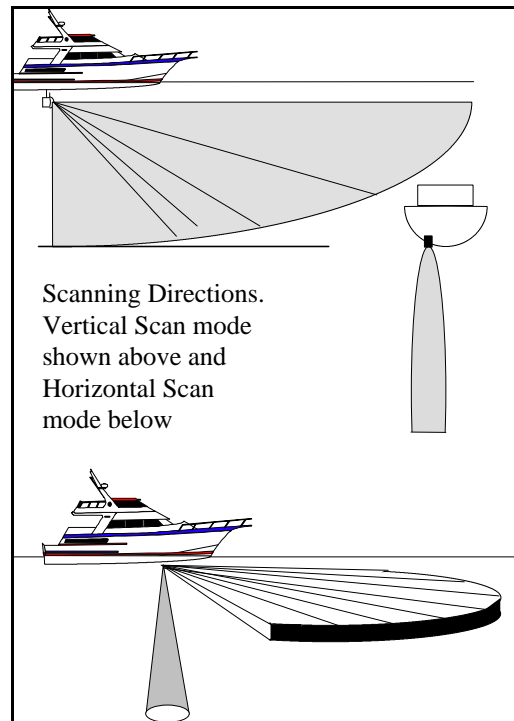
HORZ: Horizontal Scan Display

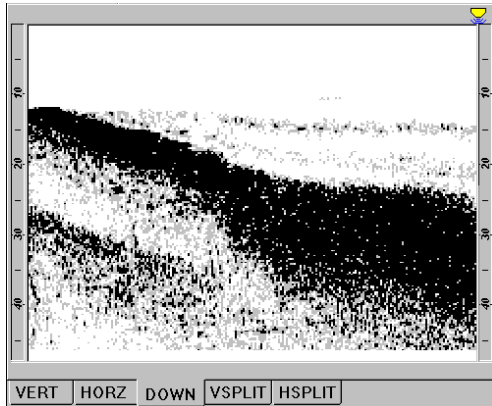
The PC/View HORZ display shows the image created by the horizontal scanning transducer elements. This array scans through a maximum of 90 degrees in a sector centered about the boat's heading and tilted downward from horizontal by about 10 degrees (see figure at lower right).

The horizontal scan is shown with the transducer at the bottom of the display window and the selected range extending to the top of the window, regardless of the window's width. Thus, data will be clipped on the sides of a tall, narrow display (see figure below).

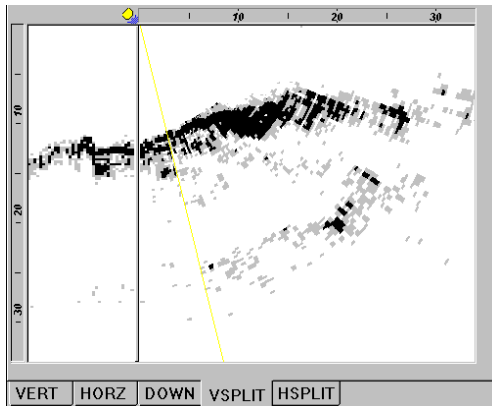


PC/180 Horizontal Display





Downlooker Display



Vertical Split-Screen Display

DOWN: Downlooker Display

The downlooker display shows the region directly beneath the boat over time. The right edge of the display always shows the most recent ping.

Since PC/View/180 does not know boat speed, the downlooker display cannot be used to determine horizontal distances. Thus, there is no horizontal scale bar in the downlooker display.

PC/View/180 can extract DOWN data from either the horizontal array or the vertical array. This is because the horizontal array includes a separate down-looking transducer for the purpose of collecting depth information.

The most recently viewed scanning direction determines the origin of the data displayed in the downlooker window at any time. Both arrays are capable of imaging the bottom in shallow conditions. However, the vertical array has more power to better image the bottom beneath the vessel in deeper water.

If you wish to see downlooker data from the horizontal array, select HORZ or HSPLIT before selecting the DOWN display. To see downlooker data from the vertical array, select VERT or VSPLIT before selecting the DOWN display.

VSPLIT: Vertical Split-Screen Display

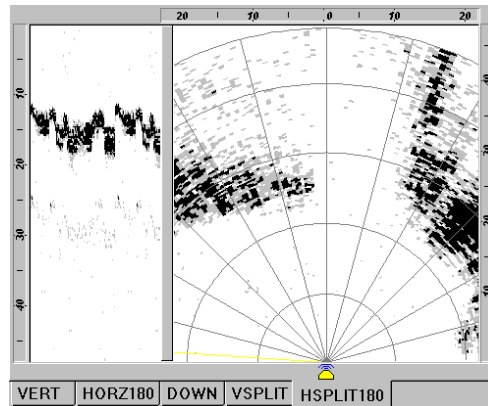
The VSPLIT display shows downlooker data in the left portion of the window and the forward vertical scan in the right portion of the window. The downlooker data occupies one quarter of the horizontal dimension of the window and the vertical scan occupies the remainder of the space.

Both portions of the display are equivalent in function to the individual DOWN and VERT displays. However, PC/View/180 will always use the Gain, Range and Alarm settings that are associated with the vertical scan.

HSPLIT180: Horizontal Split-Screen Display

The HSPLIT180 display shows downlooker data in the left portion of the window and the horizontal 180-degree scan in the right portion of the window. The downlooker data occupies one quarter of the horizontal dimension of the window and the horizontal scan occupies the remainder of the space.

The two portions of the display are equivalent in function to the individual DOWN and HORZ180 displays. However, PC/View/180 will always use the Gain, Range and Alarm settings that are associated with the horizontal scan.

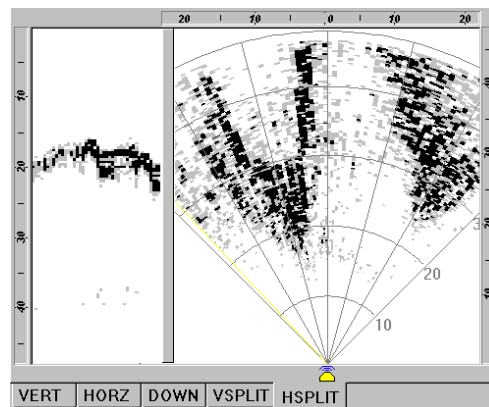


Horizontal Split-Screen Display

HSPLIT: Horizontal Split-Screen Display

The PC/View HSPLIT display shows downlooker data in the left portion of the window and the forward horizontal scan in the right portion of the window. The downlooker data occupies one quarter of the horizontal dimension of the window and the vertical scan occupies the remainder of the space.

Both portions of the display are equivalent in function to the individual DOWN and HORZ displays. However, PC/View will always use the Gain, Range and Alarm settings that are associated with the horizontal scan.

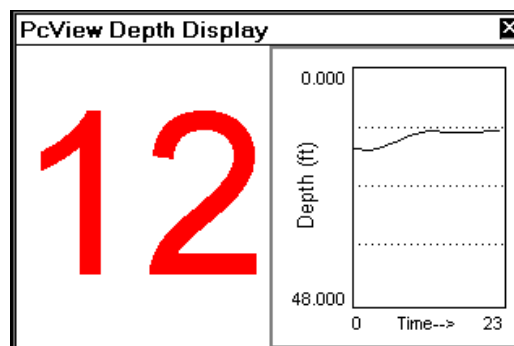


Horizontal Split-Screen Display

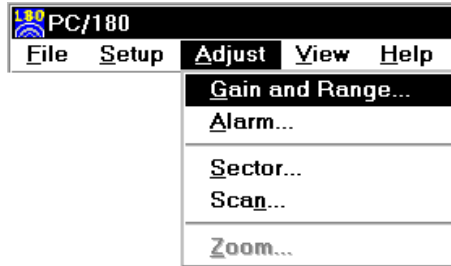
Depth Window

In addition to the five scanning sonar displays, PC/View/180 includes a separate depth window that can be moved and resized to fill any portion of the screen. Open the window by selecting *Depth Display* from the View menu.

The depth window includes a large numerical display as well as a graphical display of the depth over time. The window stays open when the PC/View/180 application is minimized. Note that, if you use Alt-Tab to select PC/View/180 from several applications running under Windows, an open depth display will remain in the background. Select *Depth Display* from the View menu to bring the window to the front.



Adjusting the Gain and Range



The Gain and Range adjustments are perhaps the most critical features of PC/View/180 in optimizing the system performance for different operating conditions.

Gain and Range can be set manually or, alternatively, PC/View/180 can set and vary the Gain and Range settings automatically. It is important to note that each scanning direction has its own Gain and Range settings. To change the Gain and Range settings for the current display, select *Gain and Range...* from the Adjust menu.

Gain Adjustment

The Gain level controls the intensity of the signals shown on the display by varying the amplification of the sonar signals that PC/View/180 receives. Click on the Auto box to turn Auto Gain on and off. A check in the box indicates that Auto Gain is on. The default setting is off.

In the manual mode, PC/View/180 allows you to choose from 32 different Gain levels, numbered from 1 to 32. The default level is 32. Select the Gain by sliding the pointer on the Gain bar. Level 1 provides the smallest amount of Gain. At this level, the screen will display little or no data. Higher Gain numbers will brighten the display. The Gain level required to see a specific target will vary with target range, water clarity and background noise. In addition, Range changes may also require changes in Gain.

In the Auto Gain mode, PC/View/180 will adjust the gain level automatically depending on the strength of the sonar signal returns. Note that it is still possible to make manual adjustments in the Auto Gain mode, but any adjustments you make could be changed by PC/View/180.

NOTE

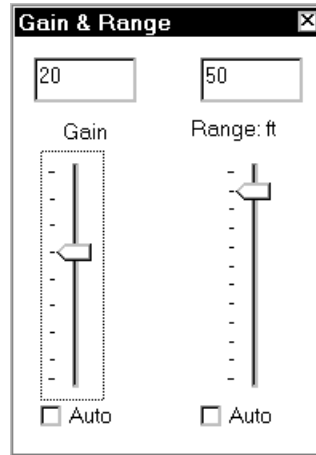
Each PC/View/180 gain setting is actually a *Time-Varied Gain (TVG) curve* which applies higher gains to later returns. This is an important feature which works to counteract the inherent weakening of the acoustic signals with distance from the transducer.

Range Adjustment

The Range is the maximum distance at which features will be displayed by PC/View/180. In general, features at greater distances will be less clearly resolved. In addition, the water conditions will help to determine the greatest distance at which PC/View/180 can accurately image features. Click on the Auto box to turn Auto Range on and off. A check in the box indicates that Auto Range is on. The default setting is off.

In the manual mode, PC/View/180 allows you to choose one of twelve preset Ranges. Range can be varied between 25 and 1400 feet, 8 and 420 meters, or 4 and 224 fathoms. Select the desired Range by sliding the pointer on the Range bar. The default setting is the minimum range (25 feet).

In the Auto Range mode, PC/View/180 will adjust the Range automatically to keep the bottom within the center three-quarters of the range scale. If PC/View/180 cannot find the bottom, it will step through the Ranges until the bottom is found. It is possible to make manual adjustments while in the Auto Range mode.

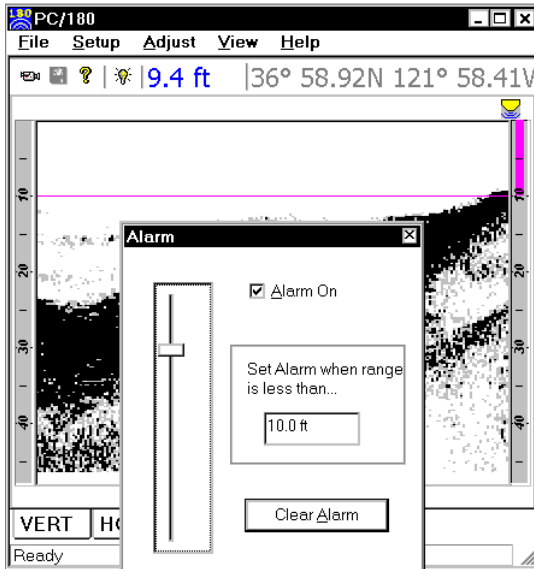


TIP

Leave the Gain and Range and/or Alarm boxes open if you plan to make frequent manual adjustments. Move a box by dragging it to a desired position on your screen.

NOTE

Auto Gain and Auto Range are always turned off when you exit PC/View/180.



NOTE

An alarm setting of zero is equivalent to having the alarm off.

Using the Alarm

PC/View/180 provides an audible alarm to alert you to nearby and shallow features. VERT, HORZ and DOWN displays use independent alarm settings. VS-PLIT and HSPLIT displays use the vertical and horizontal alarm settings, respectively.

Change the alarm settings by selecting *Alarm* from the *Adjust* menu. Turn the alarm on and off by clicking on the *Alarm On* box. Select an alarm distance by moving the slide bar.

The distance covered by the alarm will appear in the scale bar of the display as a solid magenta bar, and a magenta line or arc will cross the display at the specified distance or depth. Vertical and downlooker alarms are triggered whenever a solidly displayed target appears shallower than the depth indicated by the alarm bar. The horizontal alarm is triggered whenever a solidly displayed target appears closer to the boat than the range indicated by the alarm arc.

Once the Alarm has been triggered, it will continue sounding until it has been reset. Reset the Alarm by clicking on the *Clear Alarm* button in the Alarm box or by clicking on the yellow light bulb in the Toolbar.

Adjusting the Viewing Area

PC/View/180 provides several features which allow you to modify the look of the display windows. These features can be accessed via the *Adjust* menu. *Sector* and *Scan* adjustments apply to the scanned displays, and each scan direction uses its own settings. In addition, a *Zoom* feature is available for the DOWN display.

Sector Width and Steer

PC/View/180 allows you to limit your field of view by adjusting both the width and the steering direction of the scanning sector. This allows for a faster update in a region of specific interest. For example, you may want to view only the region just below the water surface in front of your boat. Thus, you might limit your vertical sector scan to 30 degrees and steer it up to the surface (see figure at middle right).

The Horizontal Sector *Width* can be reduced in six-degree increments from a maximum of 90 degrees in PC/View and 180 degrees in PC/180 in the horizontal to a minimum of six degrees in either scan direction. Sector *Steer* defines direction of the center of the sector. This direction is limited by the width of the sector. For example, a sector of 30-degree width can only be pointed in the 15-degree direction and a horizontal sector of 90-degree width can only be pointed in the 45-degree direction. Drag the slide bars to change settings.

The Reset button maximizes the sector width and centers the sector's orientation.

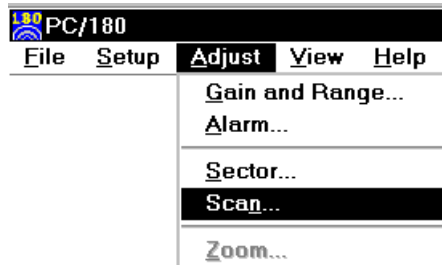
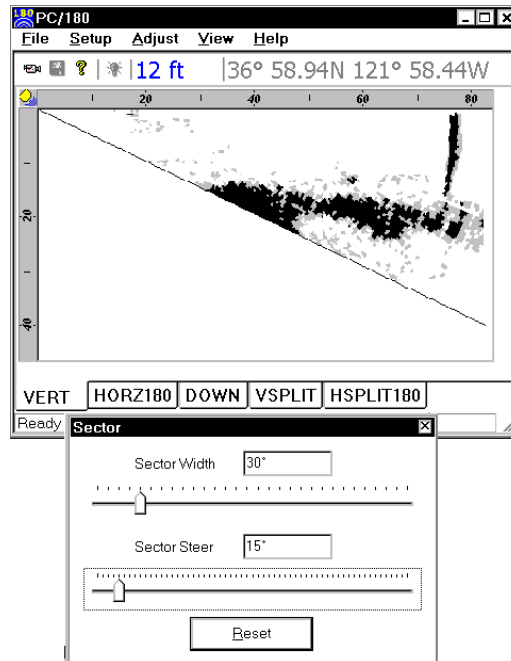
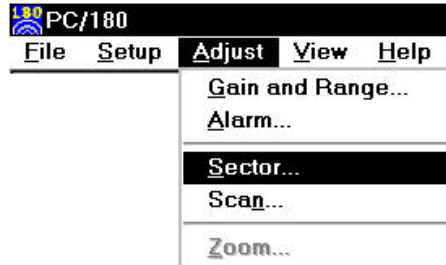
Scan Mode and Method

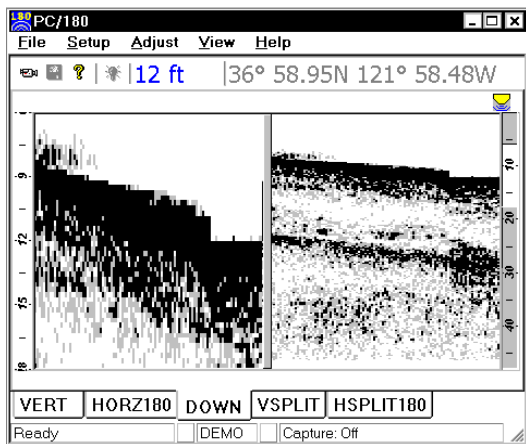
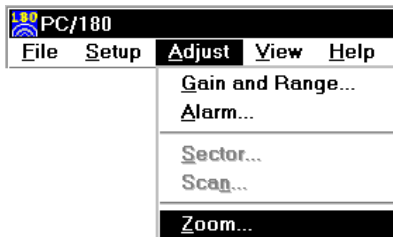
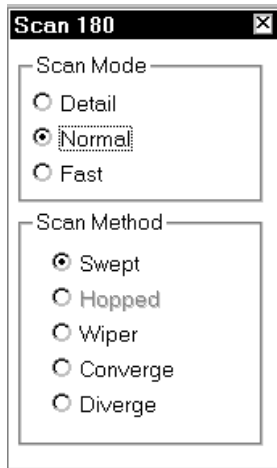
For scanned displays, PC/View180 provides several scanning options. To adjust the scanning Mode and Method, select *Scan* from the Adjust menu.

Vertical Scan

PC/View/180 can operate in one of three resolutions for the vertical scan. In the *Normal* scanning mode, PC/View/180 will send out 30 forward beams and give medium resolution. *Detail* mode offers the maximum resolution with 90 beams. *Fast* mode uses 15 forward beams and provides the fastest update but the lowest resolution.

There are two scanning methods available for the PC/View vertical scan; a traditional *Swept* mode and a *Hopped* mode where the beam direction hops to different areas in a pseudo-random fashion. Hopped mode is useful for getting a faster idea of changing forward conditions, particularly at short ranges.





Horizontal Scan

PC/View can operate in one of three resolutions for the vertical scan. In the *Normal* scanning mode, PC/View will send out 30 forward beams and give medium resolution. *Detail* mode offers the maximum resolution with 90 beams. *Fast* mode uses 15 forward beams and provides the fastest update but the lowest resolution.

PC/180 operates in one of three resolutions for the horizontal scan. In the *Normal* scanning mode, PC/180 will send out 60 forward beams and give medium resolution. *Detail* mode offers the maximum resolution with 180 beams. *Fast* mode uses 30 forward beams and provides the fastest update but the lowest resolution.

Four scanning methods are available for the PC/180 horizontal scan. The *Swept* method scans from port to starboard over any sector width. The other three methods are available only when the sector is set at the full 180-degree width. All three of these methods fill in beams in the port and starboard halves of the sector alternately. The *Wiper* method moves from left to right through the two sector halves, beginning directly to port and forward. The *Converge* method begins at the outer edges of the sector (directly port and starboard) and moves toward the center of the sector. The *Diverge* method begins at the center and moves outward.

Zoom

For the DOWN display, PC/View/180 can show a high-resolution Zoom of one quarter of the depth range. The high-resolution Zoom is useful if you want to see extra detail on the bottom or in areas above the bottom.

To activate the zoom, click in the *Zoom On* box. PC/View/180 will split the screen and begin to display one of the seven available zoom sections in the left half of the display. The standard display will continue in the right half of the window with a highlighted section in the scale bar to show the location of the zoomed section. Select a zoom section by moving the slide bar up or down.

Adjusting the Depth Tracker

With every down-looking ping, the *Depth Tracker* attempts to find the bottom. The depth that is found is displayed in the toolbar as well as the depth window if it is open (see p.26). If the depth tracker cannot find the bottom, a question mark will be displayed in the toolbar. The tracked depth can be saved to a file and sent out over a serial port. Refer to Chapter 7 for a discussion of this utility.

If Auto Range is on, PC/View/180 will use the tracked depth to adjust the range (see p.37 for a description of Auto Range). If the depth tracker cannot find the bottom, Auto Range will step through the available range scales until the bottom is found. To adjust the parameters used by the depth tracker, select *Depth Tracker...* from the Setup menu.

Surface Masking

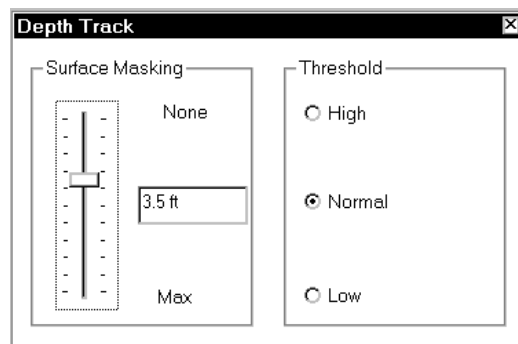
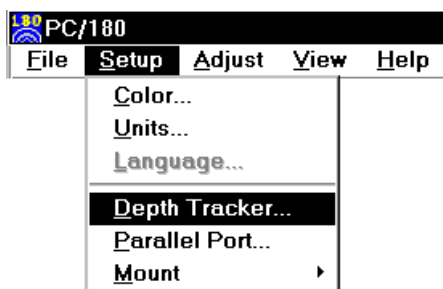
The *Surface Masking* feature allows you to specify a range near the water surface in which the depth tracker will ignore any incoming returns. The default Surface Masking is *off*.

Surface Masking is useful if there is a strong surface return, abundant floating debris, bubbles under the hull or surface bait schools. With blanking off in such situations, the depth tracker could mistake these shallow returns for the bottom.

The maximum masking range is about 10 feet, 3 meters, or 1.6 fathoms. Use the slide bar to select the masking range. The selected masking range is shown in all display windows.

Threshold

To avoid errant depth tracking on noise and suspended features, the depth tracker applies a *Threshold*. *Normal* is the default setting which should be used in most situations.



NOTE

Depth Tracker settings always return to the defaults when you exit PC/View.

However, if the gain is set so that the screen is dark, revealing only obstacles and very bright mid-water targets, the *Low* threshold setting may be required in order to continue to track the depth.

Alternatively, if the gain is set high so that everything is bright, the *High* threshold may be necessary to avoid tracking depth on bait balls and other strong mid-water returns.

Saving Data with Screen Capture

Images displayed in PC/View/180 can be saved using the *Screen Capture* feature. There are four ways to capture an image:

- 1) Select *Capture Screen Now* from the File Menu.
- 2) Use the keyboard shortcut *Ctrl+Shift+C*.
- 3) Click on the *Screen Capture* button of the Tool-bar.
- 4) Use the *Screen Capture Scheduler* accessed from the File Menu to automatically create periodic screen captures.

PC/View180 will not carry out a requested or scheduled screen capture if there is less than 20 MegaBytes of space remaining on your hard disk.

Whenever PC/View/180 does a screen capture, the screen capture indicator (to the left of the screen capture status box in the Status Bar) flashes blue. Each screen capture image is saved in the folder specified in the Screen Capture Scheduler.

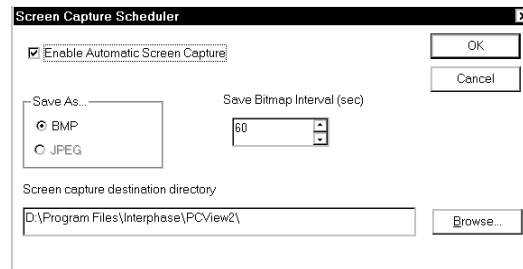
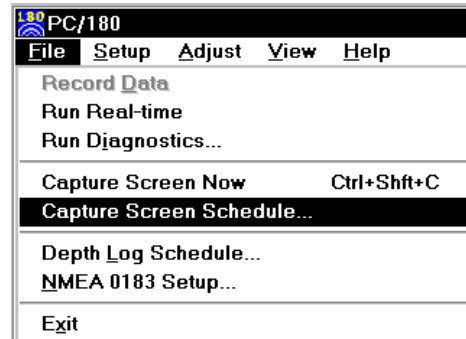
The PC/View default folder is the Data folder in the PC/View program folder:

C:\Program Files\Interphase\PC/View\Data

The PC/180 default folder is the Data folder in the PC/180 program folder:

C:\Program Files\Interphase\PC180\Data

The Scheduler allows you to turn auto-saving on or off (click on the box labeled *Enable Screen Capture*) and specify the frequency of auto-saving. You may also select a file format and change the destination folder. Both of the available file formats are bitmaps. The BMP format is more universal but the JPEG format takes considerably less space.



Screen Capture File Name Format

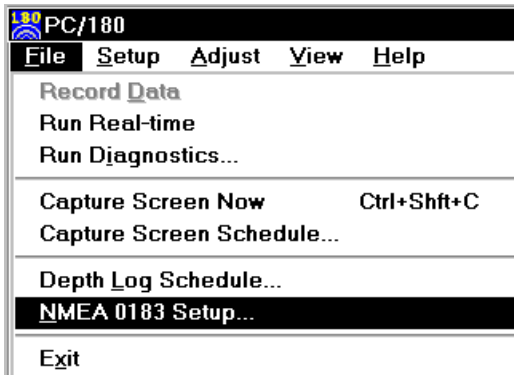
19981118164240R0048G31.bmp

Year Month Day Hour Minute Second Range Gain Format
(bmp or jpg)

7 Advanced Operation

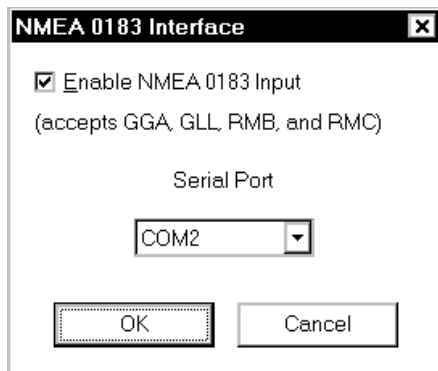
This chapter describes several features of the PC/View/180 software which provide data handling and troubleshooting for the more advanced operator.

Working with NMEA Navigation



PC/View/180 reads standard NMEA 0183 navigation strings from a serial port, extracts the latitude and longitude and displays this information in the toolbar. PC/View/180 accepts GGA, GLL, RMB and RMC strings. To activate this feature, select *NMEA 0183 Setup...* from the File menu, click in the check box labeled *Enable NMEA 0183 Input* and select the serial port to which navigation input is connected.

When NMEA 0183 input is enabled, PC/View/180 will look for data coming from the serial port. If the NMEA strings are successfully parsed, PC/View/180 will display the most recent latitude and longitude in the navigation box on the toolbar. If PC/View/180 does not find data or is unable to parse the data coming from the serial port, a series of dashes will be displayed in the navigation box. A blank navigation box indicates that NMEA 0183 input is disabled.



Use the following connections to your serial port. If you have a 9-pin serial port:

- Pin# 2 = RX = Out
- Pin# 3 = TX = In
- Pin# 5 - Ground

If you have a 25-pin serial port:

- Pin# 2 = RX = Out
- Pin# 3 = TX = In
- Pin# 7 = Ground

Logging Depth

PC/View/180 can log the tracked depth in a file and send it out over a serial port. To activate this feature, select *Depth Log Schedule...* from the File menu and click in the check box labeled *Enable Automatic Depth Log*. Next, select a format for the logged depth. Choose ASCII format or NMEA 0183 sentence format. The ASCII format includes the date, the time and the depth below the transducer in the current *Units*.

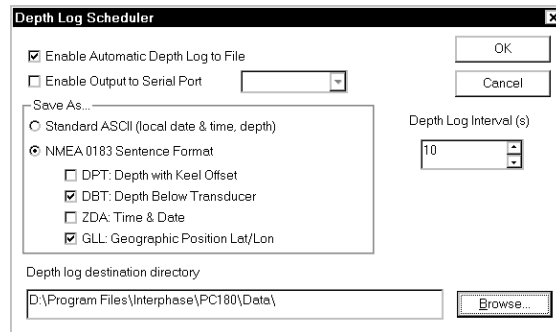
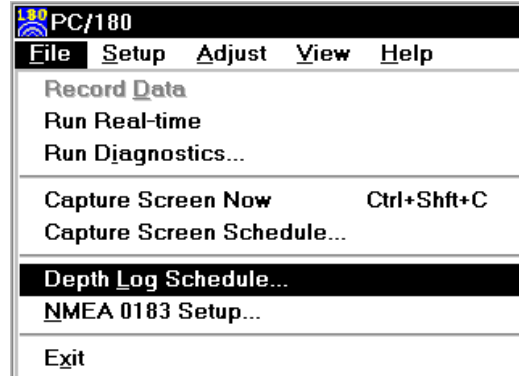
For the NMEA 0183 format, any or all of four sentence types can be saved. NMEA 0183 format sentences begin with a dollar sign followed by the two-character talker identification followed by the three-character sentence type. The talker identification for PC/View/180 is SS, for scanning sonar. Data fields in the sentences are comma-delimited and the sentences end with a star followed by the checksum. PC/View/180 uses the following four sentence types:

DPT - Depth with Keel Offset. This sentence includes the water depth, in meters, relative to the transducer followed by the offset from the transducer in meters.

DBT - Depth Below Transducer. This sentence includes the water depth in feet; the water depth in meters and the water depth in fathoms, all referenced to the transducer.

ZDA - Time and Date. This sentence includes, the Universal Time Coordinated (UTC), the day, the month, and the year, all in UTC, and the local zone hours and minutes (Atlantic Standard Time is local zone 05 hours, 00 minutes).

GLL - Geographic Position Lat/Lon. This sentence includes the latitude in degrees and decimal minutes, north or south, the longitude in degrees and decimal minutes, east or west, the UTC of the position and an indicator of the validity of the information. The talker identification for this string is that of the navigation source rather than SS.



ASCII Depth Format

1999/03/31 16:43:29.01 12.2 ft.

Year Month Day Hour Minute Second Depth Units

NMEA Sentence Formats

\$SSDPT,4.2,0.0*46
 Water Depth (m) | Keel Offset (m) | Checksum

\$SSDBT,13.0,f,4.0,M,2.2,F*27
 Depth in feet | Depth in meters | Depth in fathoms | Checksum

\$SSZDA,004635.18,01,04,1999,08,00*79
 UTC (hhmmss.ss) | Day (UTC) | Month (UTC) | Year (UTC) | Local zone hours | Local zone minutes | Checksum

\$GPGLL,2457.250,N,12120.714,E,104439.02,A*61
 Latitude, N/S | Longitude, E/W | UTC (hhmmss.ss) | Status | Checksum
 A = data valid
 V = data not valid

Once you have selected the depth log format, select a depth log frequency interval in seconds. If the frequency is set at 5, PC/180 will log the depth every 5 seconds. PC/180 will always log the depth to a file named with the current local date (year month day) and a file extension of .dep (e.g. 19990401.dep). By default, the file will be saved in the PCView\Data directory: C:\ProgramFiles\Interphase\PCView\Data\.

By default, the file will be saved in the PC180\Data directory: C:\ProgramFiles\Interphase\PC180\Data\

If you wish to save to another directory, specify the new directory in the *Depth log destination directory* box. To send the depth information out a serial port as well, click in the box labeled *Output to Serial Port* and select a serial port from the pull-down menu. PC/View/180 will automatically configure the protocol of the selected serial port to the NMEA 0183 standard.

Depth Log File Name Format

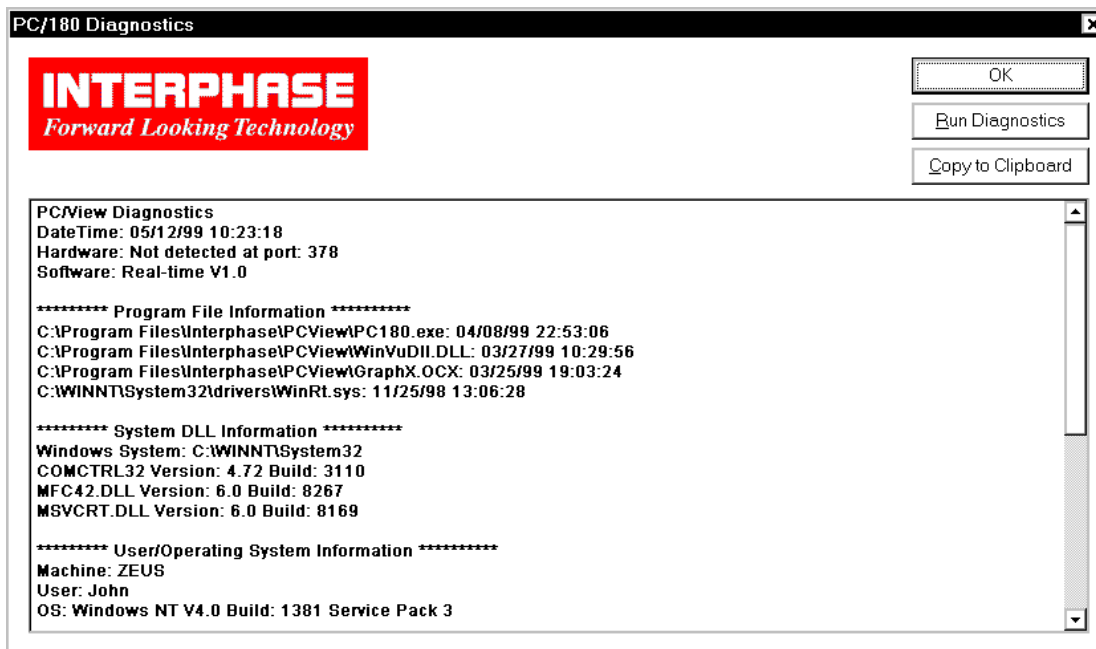
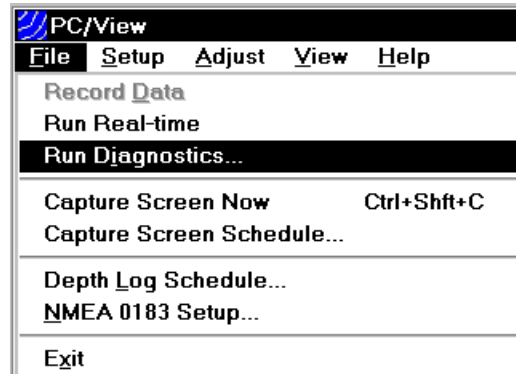
20030401.dep
 Year | Month | Day | Depth file extension

Using the Diagnostics

The PC/View/180 Diagnostics provide information about your computer system and the PC/View/180 software. This tool enhances the ability of the Interphase Technical Support staff to troubleshoot any problem that you might have with your PC/View/180.

To gain the most information about your system, be sure that the PC/View/180 hardware is connected to your computer and turned on before selecting *Run Diagnostics...* from the File menu.

To save the results of the diagnostics, click on the *Copy to Clipboard* button and then paste into any word processor, any email application or the notepad. If you contact Interphase Technical Support via fax (831-462-7444) phone (831-477-4944) or email (comments@interphase-tech.com), it will be useful to include the diagnostics results in your correspondence.



8 Interpreting Displays

Principles

NOTE

Poor water conditions such as surface chop, temperature inversion layers and muddy water may degrade the PC/View's performance

The PC/View system provides a display of acoustic echos from the underwater area beneath and ahead of your vessel. The Phased Array Transducer steers an acoustic beam over a sector which can be adjusted from 6 to 90 degrees width in the vertical or horizontal direction.

The PC/180 system provides a display of acoustic echos from the underwater area beneath and ahead of your vessel. The Phased Array Transducer steers an acoustic beam over a sector which can be adjusted from 6 to 90 degrees width in the vertical direction and from 6 to 180 degrees width in the horizontal direction.

As the PC/View/180 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 returning echoes. As the energy from this acoustic beam strikes underwater objects or the bottom, a portion of the energy is re-flected as an echo back to the transducer. When the echo is received at the transducer, it's converted into a small electrical signal and processed for display.

Since PC/View/180 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 PC/View/180 sequentially steps through the scan sector, the computer's display shows a continuously updated image of the returning echoes in their approximate positions relative to the vessel.

Interpreting the Vertical Display

In the vertical mode, PC/View/180 scans forward from horizontal down to vertical beneath the vessel. Since the resulting display shows only the acoustic echoes that are returned to the transducer, it cannot 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.

Forward Imaging Capabilities

The distance ahead of the vessel over which the PC/View/180 is capable of imaging features is dependent upon water depth, bottom structure and water conditions. Under typical conditions, the PC/View/180 will show level or shallowing bottom contours for a distance forward of between 4-times and 6-times the water depth beneath the transducer. Obstructions in the water may be seen at much greater distances (up to PC/View/180's 1200-foot range).

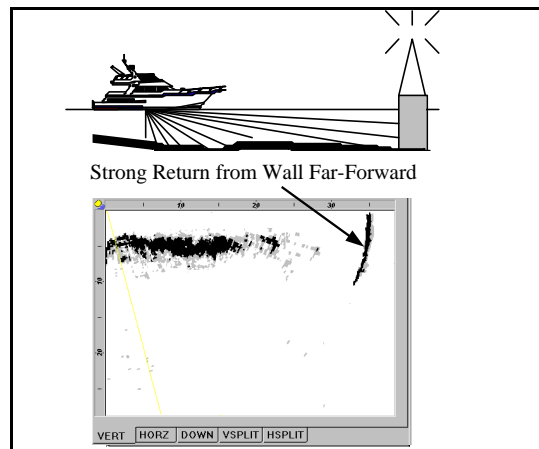
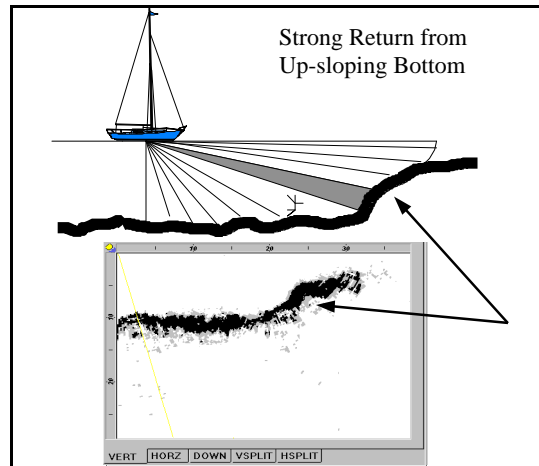
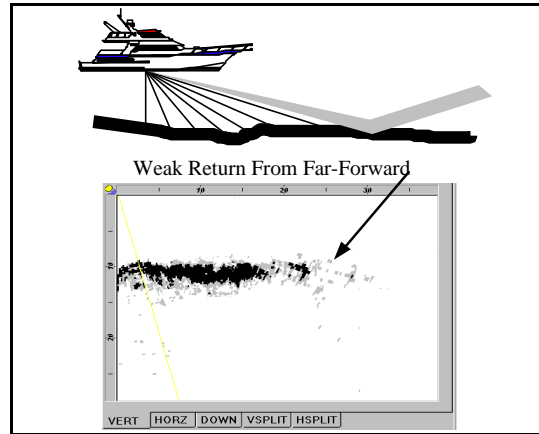
Smooth bottom conditions far forward of the vessel are difficult to image as very little of the acoustic energy is reflected back as an echo (see the diagram at top left). Bottoms that are rough and rocky or are sloping upward will reflect more acoustic energy back to the transducer and will show strong far-forward returns (see diagram at middle right).

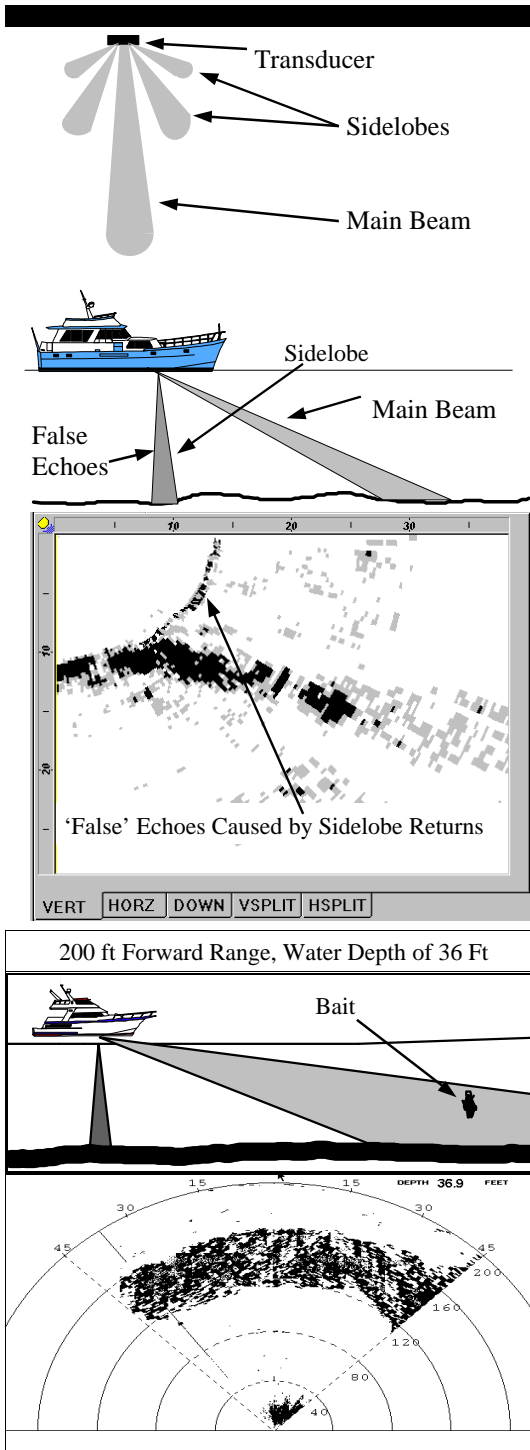
It is important to note that if the bottom is smooth and does not show up far-forward, acoustically reflective obstructions in the same far-forward region (sea walls, large rocks, underwater shelves, submerged buoys, etc.) will typically send back strong echoes (see diagram at bottom right). Regardless of the actual vertical dimension of such far-forward obstructions, they will often appear on the PC/View/180 display as a vertical line or arc.

Transducer Sidelobe Effect

The PC/View/180's transducer, like all transducers, does not form a perfect beam of acoustic energy. Some of the energy is contained in areas outside of the main beam called sidelobes (see diagram on next page). In some situations, sidelobes can lead to echoes that are not placed in the proper position on the display.

As the PC/View/180 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 strikes a reflective object, such as the bottom, creating a sufficiently strong echo, the PC/View/180 will display the "false" return as if it were located within the main beam.





The most typical display of sidelobe echoes appears in the vertical display as an arc at the same distance as the bottom depth (see diagram at left). After using the PC/View/180 in different situations, with different gain settings, you should become proficient in identifying the bottom echoes caused by the transducer's sidelobes. A gain reduction will help to minimize the sidelobe effect. However, in some situations, you may want to ignore the sidelobe effect and increase the gain to achieve a better display of the bottom far-forward of the vessel.

In general, PC/View/180's adjustable gain settings help to minimize the sidelobe effect. This is because each gain setting represents a time-varied-gain (TVG) curve. These curves use lower gains for earlier returns, which may include unwanted sidelobe echoes, and higher gains for later returns which include the desired echoes. Refer to page 36 for a discussion of gain settings.

Interpreting the Horizontal Display

In the horizontal scanning mode the PC/View scans from 45-degrees Port to 45-degrees Starboard across the vessel's bow. With PC/180 the Port-side transducer scans a 90-degree sector on the Port side of the keel and the Starboard-side transducer scans a 90-degree sector on the Starboard side of the keel. The forward scanning elements in each transducer are positioned so that the plane of the horizontal scan is angled downward approximately 10 degrees from the water's surface (see the diagrams at bottom left and on p.25). This downward angle is designed to help reduce the effects of surface noise clutter when the water is choppy and to allow easier trans-som mounting of the transducer on smaller boats.

Imaging the Bottom

As the acoustic beam is projected away from the boat, the cross-sectional area of the beam increases. At a range of approximately 3.5 to 4X the depth of the water, the sound beam will begin intersecting the bottom and some of the sound energy that intersects the bottom will be reflected back and will appear on the PC/View/180 screen as bottom echoes. See bottom left diagram.

It is important to understand that the PC/View/180 will often see the bottom and will show it on the forward display. This display information can be used to help understand the structure of the bottom ahead of the boat, but the bottom echoes can also mask or be confused with other desired targets. In the diagram at bottom left, a bait ball or school of fish is lost in the bottom echoes. However, as the vessel approaches the target, it will become distinct from the bottom echoes as it moves into the nearer ranges.

Special Situations

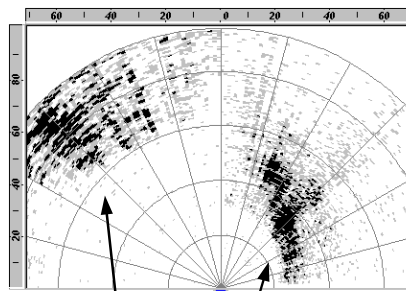
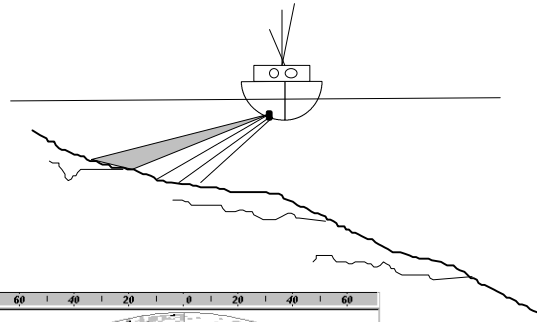
With experience you should be able to use the fact that the forward beam will show the bottom, to your advantage. You will learn to recognize bottom structure such as varying water depths across the sector, drop-offs, ledges, and rocky patches on the bottom ahead. Two examples of changing bottom conditions are shown in the diagrams at right.

In the upper diagram, a shallow bottom in the starboard direction is clearly imaged in the horizontal scan. In the lower diagram, a channel is imaged. The deepest point of the channel ahead of the vessel is indicated by the gap in the bottom echoes.

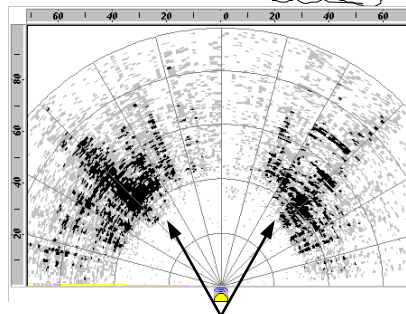
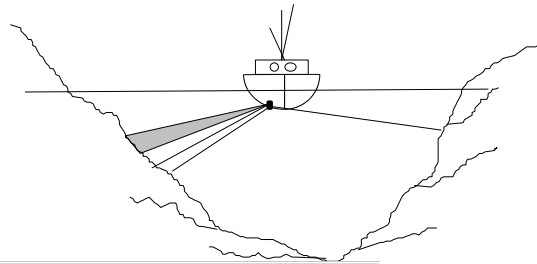
Forward Imaging Capabilities

If the horizontal range setting is greater than the forward distance to the bottom, the PC/180 can detect targets at distances beyond where the beam hits the bottom. This is because the acoustic beam can bounce off the bottom and keep going forward until it strikes a solid object and then returns as an echo.

Even in shallow water it is possible to see several hundred feet ahead by using this “bounce” technique. When looking far-forward in shallow situations such as this, it is advisable to adjust the gain manually. Otherwise the Auto Gain feature will reduce the gain because of the strong close-in bottom reflections. Refer to page 36 for a discussion of gain settings.

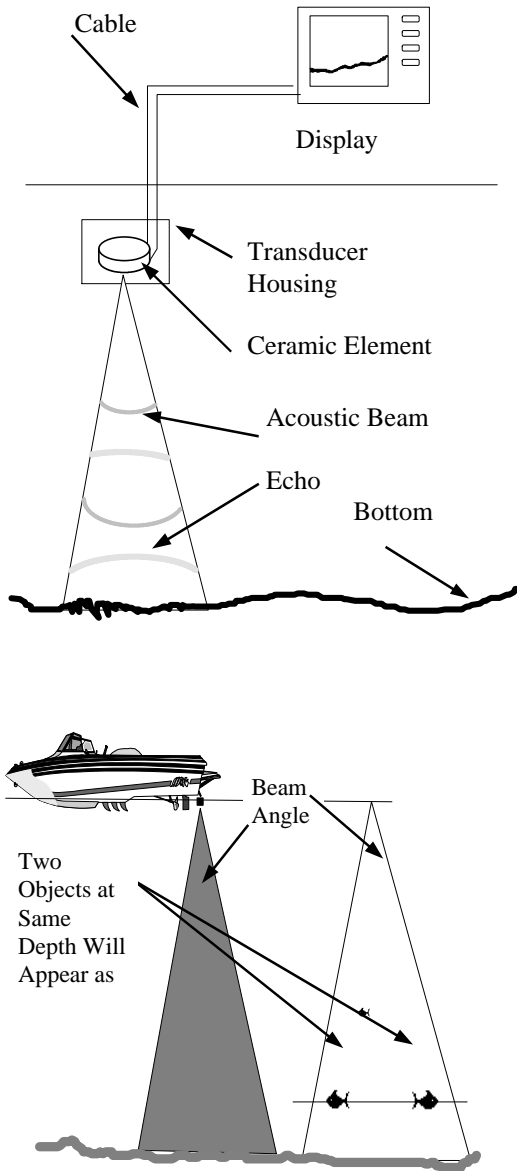


Deeper water to port (left) of boat Shallow rise on starboard (right) of boat



Sides of Underwater Trench

7 Reference



Theory of Operation

Sonar Basics

Most existing depthsounders and fishfinders in the marine market use a standard “fixed beam” technology which was originally developed during W.W. II to detect the presence and distance of submarines. Products using this technology usually have a transducer mounted on the rear of the vessel, making contact with the water. The transducer is connected to an electronic display module which is typically mounted near the boat’s steering station.

These transducers are typically made up of a single piezoceramic element which is encapsulated in a hydrodynamically shaped plastic or bronze case. The piezoceramic element has the important property in that it will vibrate when shocked with a high voltage vibrating electrical signal and will itself give off a small vibrating electrical signal when physically vibrated. If the display unit sends a large pulse of voltage down the cable to the transducer, the transducer will vibrate and the resulting acoustic vibrations will travel through the water until they strike an object, such as the bottom or suspended fish. When striking an object, a small amount of the acoustic energy is reflected and this “echo” returns and causes a small vibration in the transducer. The small vibrations in the transducer caused by the returning acoustic echo cause the transducer to send a small electrical signal back up the cable to the display unit. The user can then view the presence of, and distance to, these underwater objects.

The transducer element, depending on the physical characteristics of the piezoceramic element (thickness, diameter, etc.) has a fixed direction in which it is most efficient at sending and receiving acoustic signals. This direction is called the “main beam” and is of critical concern to most knowledgeable fishermen, as the display will typically show only those targets that are within this main

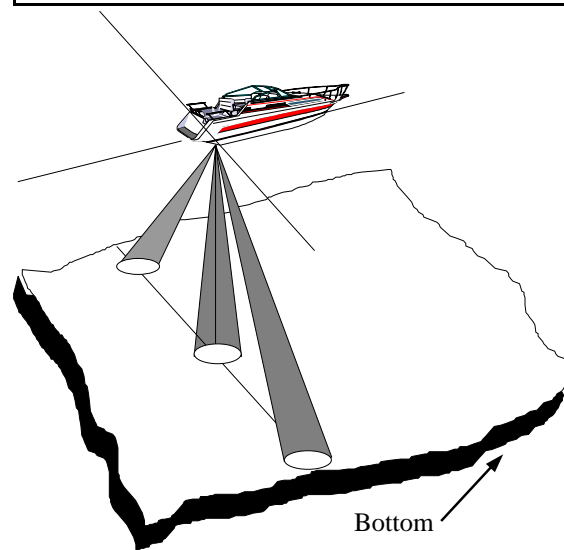
beam width. A large beam width will show targets from a larger underwater area, but suffers from lack of resolution. That means that although several targets may be in the beam width, the user can only determine their distance from the transducer, not their lateral position within the beam. For example, if one fish target is 10' below the boat at the far right edge of the beam angle, it will show the same display as if it were 10' below the boat at the far left edge of the beam angle. In addition, if fish are present at exactly the same depth but at different sides of the underwater beam, the transducer will receive echoes from both fish targets at the same time and the display will only show a single target. This is a serious limitation to the conventional technology.

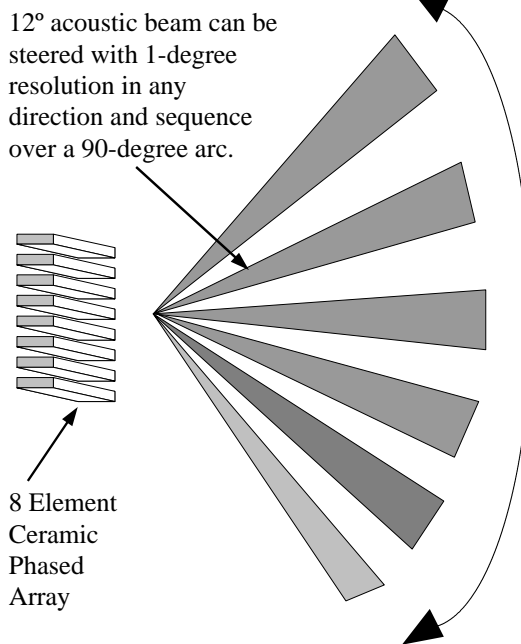
To get around this limitation, several manufacturers have resorted to adding more piezoceramic elements to the transducer, each pointed in a different direction. By selectively using each piezoceramic element the transducer has the ability to point or look in as many different directions as there are piezoceramic elements. After approximately four elements, however, the transducer housing starts to become physically large and cumbersome. To date, manufacturers have put as many as five separate elements into the transducer to enable users a view in up to five different underwater directions. For the future, Interphase believes that this multiple fixed-beam approach has serious limitations, especially for use in more advanced products where maximum underwater coverage and resolution are important.

Phased Array Technology

To get around these limitations and provide a sonar system that can achieve both outstanding coverage and good resolution, Interphase pioneered the use of Ultrasonic Phased Array Technology. In 1991, we received the prestigious IMTEC Innovation Award in recognition of the importance of this new technology to the marine industry. Although new to the sportsfishing and recreational marine industry, "phased array ultrasound technology" has proven its capabilities in the medical industry for many years. The amazing video images provided by medical ultrasound equipment are familiar to most people

Three Fixed-Beam System, Looking Down and to Each Side of Boat





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.

An acoustic phased array is a group of piezoceramic elements that are precisely sized and spaced. Each element will send and receive acoustic pulses as when used in the conventional single element technology. However, when all the 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 array has the ability 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 to the array, acoustic beams can be directed in an almost unlimited number of directions. For example, using an 8 element phased array, the PC/View/180 is capable of steering the acoustic beam in over 90 different directions. Conventional fixed-beam technology would require the use of at least 90 transducer elements, each pointed in a different direction. Such a transducer would be much too costly and bulky to be of any practical use in the marine market.

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—showing, for example, the movement of underwater fish or the constantly changing bottom conditions.

In addition to its ability to electronically steer an acoustic beam, the phased array has other advantages over fixed beam technologies. These include; allowing the user to adjust the transducer sector width; the ability to scan large areas limited only by the physics of speed of sound through water (5,000 ft/sec.); and the ability to provide nearly real-time or live-action underwater views.

Maintenance

The PC/View/180 Forward Scanning Sonar has been designed to provide reliable, trouble-free performance for years. Follow the maintenance tips below to ensure that your PC/View/180 remains problem-free.

- 1) Keep your PC/View/180 Acoustic Interface Module clean and dry.
- 2) If the power cord 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 **Product Support Department** at **(831) 477-4944**.
- 3) 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. **DO NOT allow any solvents, gasoline, acetone, etc. to come in contact with the transducer or head unit as these may dissolve the plastic materials.**

Troubleshooting Guide

If you are experiencing trouble with your PC/View/180, please refer to the following checklist:

PROBLEM

Acoustic Interface Module will not turn on.

Power cord in-line fuse blows repeatedly

Screen remains blank in Demo Mode.

Loses picture at speed.

Screen is full of noise, or has dots running through it.

Known flat bottom slopes up/down.

Digital water depth not working.

SOLUTION

Check power cord in-line fuse, battery voltage and power connections. Also, check for continuity through the in-line fuse holder

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. Check the voltage to the Acoustic Interface Module. It should be less than 16V and ideally 12-13V.

PC/View/180 cannot find the demo data. Move the data files (*.pcv) back into the Data folder in the PC/View or PC180 program folder.

Adjust the transducer angle or placement. Make sure that the transducer is installed in the area which has the least amount of water turbulence.

Reduce your gain setting and review the section on interference.

Adjust the transducer angle or perform the level/align procedure to compensate for transducer mis-installation.

Increase your gain, and check that you are in the proper depth range. Refer to the section on Depth Tracker parameters.

Troubleshooting Guide, Continued

PROBLEM

Will not run in Real-Time Mode.

Note: Computer conflicts are a common source of Real-Time interruption. The most common conflicts and solutions are listed below.

Below are outlined the 3 most common conflicts encountered using **PC/View** and **PC/180**. Please read the entire document before attempting any changes to the computer system or **PC/View** or **PC/180** programs. Typically, these conflicts are noted by the message "**PC32 Sonar Not Found. Switch To Demo Mode?**" This indicates some conflict in the computer that prevents it from finding the equipment via the parallel port. Other messages may appear as noted below.

PC's running Win2K and WinXP will always need setting changes to run the program, see pages 59-60.

Section 1 - Parallel Port Conflict:

The **PC/View** and **PC180** use interrupt IRQ 7 to communicate with the hardware via standard parallel port. Some computers may have another device installed that will also try to load on IRQ 7, creating a conflict. We will use Soundblaster as an example. When the driver is loading "aggressively" on IRQ 7 at boot time, the interrupt will be taken from the **PC/View** or **PC180**, and any other interrupt-driven application.

Note: many parallel port applications, such as printer drivers, are not interrupt-driven and therefore do not suffer when this conflict exists.

There are two ways of addressing the conflict:

1. Use the port before the Soundblaster can.
2. Switch the Soundblaster to use another IRQ.

There are two ways to resolve this conflict for Win95 and Win98. In order of preference they are:

A. Use the Device Manager to switch the Soundblaster's interrupt. There are many ways to get to the Device Manager. Perhaps the easiest to describe is through 'My Computer'. Here's the process for Windows 95/98:

1. Right click on the 'My Computer' icon (usually upper left of desktop).
2. Select the 'Properties' option.
3. Select the 'Device Manager' tab.
4. Right click on the 'Computer' icon at the top of the Device Manager box.
5. Select the 'Properties' option.
6. Select the 'Reserve Resources' tab.
7. Click on the 'Add' button.
8. Type "07" in the edit box.
9. You will now see a little "07" in the Reserved Resources box.
10. Reboot.
11. If you watch the boot cycle carefully, you should see the Soundblaster load on IRQ 5.
12. If your system acts funny or gives you new LPT messages/warnings, just revert to the unreserved IRQ and try our DriverLoadMethod.exe.

Computers running Win2K or WinXP use a different method to access and alter the Port Settings. Please see the note at the end of section 2, LPT Port Address.

SOLUTION

Verify that the parallel data cable is connected to the Acoustic Interface Module and your computer, and that the Acoustic Interface Module is on. Check to see that the proper parallel port address is selected. Select *Run Real-time* from the File menu.

B. Use our “patch” program called ‘DriverLoadMethod.exe’ which ships and installs with all Windows versions of **PC/View** & **PC/180** X.2 and beyond. Within D.L.M., the **PC/View** parallel port driver can be configured for boot time load instead of the default runtime load. This is a relatively aggressive approach and should be avoided if possible.

Here’s the process for Windows 95/98:

1. Double click : My Computer: (C:) Drive: Programs File: Interphase File: **PC/View** or **PC/180**
2. Open DriverLoadMethod.exe
3. Uncheck box marked Load Driver at Runtime.
4. Reboot.

Section 2 - LPT Port Address:

There are 3 to select from in the Setup menu under Parallel Port, 0X378, 0X3BC and 0X278. The default is 0X378. Check to be certain that the **PC/View** or **PC/180** program is using the same address as the PC’s parallel port. The preferred setting is 0X378 (sometimes written as 0378).

The parallel port resources can be located as follows:

1. Right click on the ‘My Computer’ icon.
2. Click on the ‘Device Manager’ tab.
3. Double click on ‘Port (COM & LPT)’.
4. Double click on ‘Printer Port’.
5. Click on ‘Resources Tab’.
6. Select ‘Resource Type’ (typically 0378-037F).
7. Make changes as needed.
8. Reboot.

Computers using Win2K and WinXP Access both of the features in the following manner:

1. Got to ‘My Computer’ either via the desktop icon or Start menu.
2. Under the ‘System Tasks’ heading, click on ‘View System Information’.
3. Click on the ‘Hardware’ tab.
4. Click on ‘Device Manager’.
5. Scroll down to ‘Ports’ and open by clicking on the ‘+’.
6. Double click on ‘Printer Port’.
7. Click on the ‘Resources’ tab. The default settings should be “I/O Range 0378 – 037F” and “IRQ 07”. These are the proper and preferred settings for **PC/View** and **PC/180**. If they are not set up this way then the I/O range can be changed here. It is possible to change the LPT Port Address within the **PC/View** and **PC/180** to match other I/O settings on the PC. This is not preferred, but can be attempted if the preferred settings are not operating.

LPT Port Settings in WinXP can also be viewed and changed by the following method:

1. Go to ‘My Computer’ either via the desktop icon or Start menu.
2. Under the ‘System Tasks’ heading, click on ‘Change a Setting’.
3. Double Click on ‘System’.
4. Click on the ‘Hardware’ tab.
5. Click on ‘Device Manager’.
6. Scroll down to ‘Ports’ and open by clicking on the ‘+’.
7. Double click on ‘Printer Port (LPT1)’.

-
8. Click on the 'Resources' tab. The default settings should be "I/O Range 0378 – 037F" and "IRQ 07".
 9. Highlight 'I/O Range'.
 10. Next to the text "Headings Based on..." scroll down to desired configuration.
 11. Once the desired configuration appears after 'I/O Range' Click 'OK'.
 12. The message " You adjusted one or more settings manuall. If you continue, these settings will be assigned to the device. Do you want to continue?" will appear. Click on 'Yes'.

In addition, it is ESSENTIAL that the Port Settings allow **PC/View** or **PC/180** to use the port.

1. Follow steps 1-6 above.
2. Click on the 'Port Settings' tab.

Select "Use Any Interrupt Assigned". The default is "Never Use An Interrupt". **PC/View** and **PC/180** cannot operate if this default setting is selected.

Section 3 - The Parallel Port Protocol or BIOS Mode:

This setting is typically made from the BIOS configuration that is accessible during the boot cycle. During the boot sequence, you can access a utility called SETUP by pressing either "Del" "Esc" "Ctrl-Esc" or "F2". This varies from system to system. Dell computers running both Win2K and WinXP access by pressing F2.

The three major BIOS manufactureres (AMI, Award, Phoenix) each provide a different Setup utility, though they are similar in function. Select the option that indicates "Ports" or "Integrated Peripherals" or Peripheral Setup" or simply "Advanced".

Scroll down to the Parallel Port Mode setting and select it.

Us the arrow keys (or PgUp/PgDn depending on brand) to set the mode to one of the following: **Bi-Directional**, **Standard** or **SPP**. These are the most often used modes that work with the program.

Other settings might include but are not limited to: Output Only, EPP or ECP. If you find that one setting does not work, try another.

Note: There are some exceptions, most notably Sony Vio, Gateway and Panasonic laptops which operate using the ECP mode.

Save and exit using the key sequence indicated at the bottom of the screen, usually "ESC" or "F10" or both. You may need to escape back to the main setup screen before you can save and exit.

Once out of the Setup utility, the boot sequence will continue.

- The IBM Thinkpad also uses the ECP mode. However, it is accessed differently than other brands as follows: Control Panel: Thinkpad Config: Device Config: Parallel Port: Operating Mode: Select ECP.

- Dell computers running Win2K offer a setting under pallellel port settings called "AT". Access the setting under 'Integrated Devices'. The "AT" setting should be selected over "ECP or "EPP". Further, there is a need to alter the port's interrupt settings in the Device Manager. A button called "Never use an Interrupt" is normally checked. This box must be unchecked and the "Use any Interrupt Assigned" button should be checked. One way to access the Device manager is as follows:

-
1. Right click on 'My Computer'.
 2. Select 'Properties'.
 3. Choose the 'Hardware' tab.
 4. Click on the 'Device Manager' button in the Device Manager box.
 5. Scroll down to 'Ports' and open by clicking on the '+'.
 6. Double click on 'LPT1' or "ECP Parallel Port".
 7. Choose the 'Port Settings' tab.
 8. Select radio option 3 'Use any Interrupt assigned to the Port'.
 9. Click Ok.
 10. Close the Device Manager window using the 'X' button in the upper right.
 11. Close the Properties window with the OK button.

Dell computers running WinXP should use the default setting of 'Bi-Directional'. To access the bios:

1. Press F2 during the boot sequence.
2. Toggle to 'Advanced'.
3. Under 'Peripheral Configuration' go to 'Mode'.
4. Select 'Bi-Directional'. Note: Output Only, ECP and EPP are also available. In our tests using a Dell Dimension 4400 running WinXP(HE) the 'Bi-Directional' setting allowed PC/View and PC/180 to run. No other bios setting worked. This has also been confirmed to work on XP Pro.

For WinXP the critical settings are:

1. 'Use Any Interrupt Assigned' described at the end of section.
2. Disable the 'Compatibility' option. This option allows WinXP to operate as if it us using an older version of Windows (95, 98, 2000). Our program will not operate if any of these options is selected. The message "WinVUDLL Can't Create ISR Event" will appear if this option is active and the program will not run. The method for doing this is outlined below:

From the **PC/View** or **PC/180** ICON on the desktop:

1. Right Click on the icon.
2. Scroll down to and click on 'Properties'.
3. Click on the 'Compatibility' tab.
4. Unselect "Run this program in compatability mode for".
5. Also under this selection there are the following options: "Run in 256 Colors", "Run in 640x480 screen resolution", "Disable Visual Themes". ALL of the options should be unselected for best visual performance of **PC/View** and **PC/180**.

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 PC/View/180 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 PC/View/180 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 PC/View/180 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 PC/View/180 display as each suspected source is turned back on. This type of interference can usu-

ally be eliminated by moving the PC/View/180 Acoustic Interface Module 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 PC/View/180's 12VDC power leads, or those of the interfering equipment, directly to the battery.

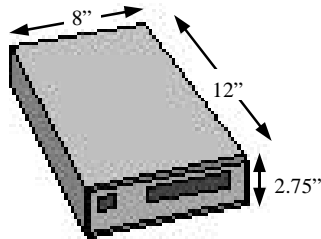
Alternatively, you may find it helpful to install a separate dedicated power supply battery that is used only to run your electronic gear (e.g.; fishfinders, VHF radios, radar units, etc.). If your unit shuts off during low voltage situations, such as when cranking your engine starter, you may want to 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.

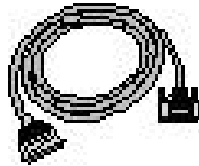
Specifications



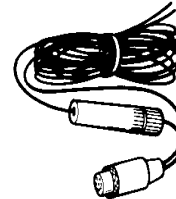
Operating Software on CD
PC/View Part # 52-1002-001



Acoustic Interface
Module
Part# X1-VIEW-WIN



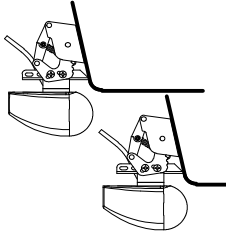
Parallel Cable,
10' Length
Part # 04-1035-000



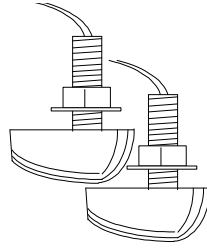
12 VDC Power
Supply Cable
Part # 04-0001-008

Computer Requirements:	486/66 MHz CPU, minimum, available parallel port, Win95, 98, 2000, XP or WinNT operating system, CD ROM Drive, 10 MB available hard disk space.
Depth Ranges:	Overlapping ranges; 0 to 15 ft min, 0 to 800 ft max.
Forward Ranges:	Overlapping forward ranges, 0 - 25 ft. min to 0 - 1,200 ft max.
Transmit Frequency:	200 kHz
Zoom Ranges:	Variable oversampled zoom. Allows any 25% of depth to be zoomed by a factor of 4X and displayed in a split 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.
Standard Equipment:	PC/VIEW: Scan Converter, PCView32 Software on CD ROM, 12 VDC power cable with in-line fuse, 10' long computer parallel cable, and operation manual. <i>Note: some configurations include transducer(s) with 30' of cable. (see following page)</i> PC/180: Port Horizontal Scanning Transducer, Starboard Horizontal/Vertical Scanning Transducer (shown on following page), Transducer Fairing Blocks, Acoustic Interface Module, PC/180 Software on CD ROM, 12 VDC power cable with in-line fuse, 10'-long computer parallel cable, and operation manual.

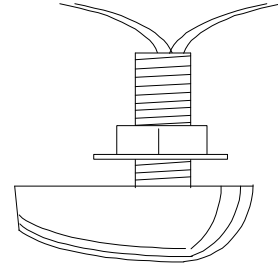
PC/View Transducer Options



Two Transom Transducers
Part # T1-0200-025
& T1-0200-028



Two Thru-Hull Transducers
Part # T1-I200-026
& T1-I200-029



Single
Thru-Hull Transducer
Part # T1-I200-032

Transducer specifications subject to change without notice.

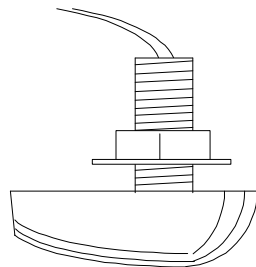
Fairing blocks for PC/View thru-hull transducers:

For T1-I200-032 - Part# 42-2005-000

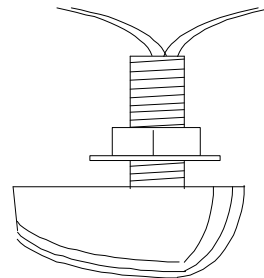
For T1-I200-026 and T1-I200-029 - Part# 42-2004-000



PC/180 Transducer Configuration



PORT Horizontal
Port Scanning Transducer
Part# T1-0200-35



STARBOARD Vertical Scanning and
Horizontal Starboard Scanning Transducer
Part # T1-0200-036

Transducer specifications subject to change without notice.

Transducer Fairing Blocks included with PC/180.

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: **PC/180** 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.

Index

A		VERT: Vertical Scan	48-51
About PC/View/180	26	VSPLIT: Vertical Split-Screen	32
Acoustic Interface Module	7, 60, 61	Interpreting	48-51
PC/180 Installation	8	F	
PC/View Installation	14	Fairing Blocks	11, 19, 61-62
maintenance	55	Forward Imaging Capabilities	25, 49, 51
Advanced Operation	44-47	G	
Alarm		Gain	
reset	26, 38	Adjustment	36
setting parameters	38	Automatic	36-37
Auto Gain	36-37	In Demo Mode	27
Auto Range	37, 41	Time-Varied	36, 50
B		H	
Basic Operation	26-43	Horizontal Scan	6, 19, 15, 25, 30-35, 50-51
Beam Width	25	HORZ: Horizontal Scan Displays	33
Bottom Imaging	50	HSPLIT: Horizontal Split-Screen Displays	35
C		I	
Cables	7, 12-16, 20-21, 60	Installation	8-23
Color	32	PC/180 Acoustic Interface Module	13
Computer Requirements	22, 61	PC/View Acoustic Interface Module	21
Cursor Position	27	PC/180 Transducers	8-13
D		PC/View Transducers	14-21
Defaults	25	Interference Problems	13, 60
Demo Mode	25, 27	M	
Depth		Maintenance	55
Logging	45-46	Microsoft Windows	22, 61
Display	35	Modes of Operation	25, 27
Depth Tracker	26, 41-42	N	
Surface Masking	41		
Threshold	41-42		
Depth Window	35		
Diagnostics	47		
Displays	30-35		
DOWN: Downlooker	34		
HORZ: Horizontal Scan	33		
HSPLIT: Horizontal Split-Screen	35		

Navigation Warning	6, 24	Theory of Operation	52-54
NMEA Navigation	44	Threshold	41-42
P		Time-Variied Gain	36, 50
Parallel Port		Toolbar	26
Address	28, 57-58	Tools Required for Transducer Installation	
Cable	7-8, 14, 61	PC/180	12
Phased Array Technology	53-54	PC/View	16
Position		Transducer	
Cursor	27	Align Adjustment	29, 30
Vessel	44	Cable	7, 12-16, 20-21, 60
Power Cable	7, 60	Icon	30
Q		PC/180 Installation	9-13
Quick Start	24-25	PC/View Installation	14-21
R		Keel Offset	29, 30
Range		Level Adjustment	28
Adjustment	37	PC/180 Mounting Location	6, 10
Automatic	37	PC/View Moutning Location	16-19
In Demo Mode	27	Mounting Corrections	28-30
Real-Time Mode	27	Options	7, 62
S		Orientation	9-10, 15-18, 20
Scale Bars	32	Troubleshooting	47, 55-59
Scan Mode and Method	39-40	U	
Screen Capture	27, 43	Units	26, 32
Screen Capture Scheduler	43	Unpacking and Inspection	7
Sector Width and Steer	39	V	
Service	7, 63	VERT: Vertical Scan Display	32
Setup.exe	22	Vertical Scan	25, 31-32, 34, 48-50
Sidelobe Effects	49-50	Vessel Position	26, 44
Software		VSPLIT: Vertical Split-Screen Display	34
CD, Installation	7, 22	W	
Starting	24	Warranty	6-7, 67
Sonar Basics	52	Z	
Specifications	61	Zoom	40
Split-Screen Displays	31, 34-35	T	
Status Bar	26		
Surface Masking	41		
System Parameters	28-30		

NOTES:

Interphase Technologies, Inc.
Limited Warranty

This product is covered by a 5 year limited warranty.

Any unit that fails during the first year of the warranty period will, at **Interphase's** 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.

Units that fail during the second to fifth year of the warranty period will be repaired or replaced at a flat rate charge which is revised each year. The defective unit must be returned to Interphase, freight prepaid with proof of date of purchase and a description of the malfunction.

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.

Any costs incurred with transducer replacement are specifically excluded from this warranty other than the cost of the transducer itself.

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.

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.

