

# User's Manual

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## BV3200 Pole Mount



*Part Number: 204765-00*

*Revision: A, October 2014*

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**Warning!** This device should not be used as a navigational aid to prevent collision, grounding, boat damage, or personal injury.

**Warning!** This product contains lead, a chemical known to the state of California to cause cancer, birth defects and other reproductive harm. Handling and/or opening this unit may result in exposure to lead, in the form of solder.

**Warning!** Disassembly and repair of this electronic unit should only be performed by authorized service personnel. Any modification of the serial number or attempt to repair the original equipment or accessories by unauthorized individuals will void the warranty.

**Warning!** Changes or modifications to this unit not expressly approved by the party responsible for compliance may void the user's authority to operate this equipment.

**Warning!** This equipment contains High Voltage electronics. Tampering with or using damaged equipment could lead to serious injury.

### **Warranty Information:**

The BV3200 is backed by a standard 12-month parts and labor warranty policy. Seller's terms and conditions of sale can be found at [www.blueview.com](http://www.blueview.com)

For more information on safety and/or maintenance issues please call Teledyne BlueView, Inc. at 425.492.7376.

# Chapter 1: Important Safeguards

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To reduce the risk of electrocution:

Always unplug the BV3200 control box immediately after using. Do not place or store the control box where it can easily fall or be pulled into water. If the box does fall in the water, unplug before retrieving.

**WARNING** – To reduce the risk of burns, electrocution, fire, or injury to persons:

1. Use this BV3200 and sonar only for its intended use as described in this manual. Do not use attachments not recommended by BlueView Technologies.
2. Never operate this product if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or if the control box has been dropped into water.
3. Keep cords away from heated surfaces.
4. Connect this product to a properly grounded outlet only. See grounding instructions.

This product should be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. The BV3200 control box is equipped with a cord having a grounding wire with a grounding plug. The plug must be plugged into an outlet that is properly installed and grounded.

If repair or replacement of the cord or plug is necessary, do not connect the grounding wire to either flat blade terminal. The wire with insulation having an outer surface that is green with or without yellow stripes is the grounding wire.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded.

This product is factory equipped with a specific electric cord and plug to permit connection to a proper electric circuit. Make sure that the product is connected to an outlet having the same configuration as the plug. No adapter should be used with this product. Do not modify the plug provided—if it will not fit the outlet, have the proper outlet installed by a qualified electrician. If the product must be reconnected for use on a different type of electric circuit, the reconnection should be made by qualified service personnel.

If it is necessary to use an extension cord, use only a three wire extension cord that has a three-blade grounding plug, and a three-slot receptacle that will accept the plug on the product. Replace or repair a damaged cord.

## Chapter 2: System Components

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### System Contents

You will receive an accessory kit containing the following:

<b>BV3200 Transport Case</b>
<b>Pole Assembly</b>
<b>Junction Box</b>
<b>Pole Mount</b>
<b>7 Ft Ethernet Cable</b>
<b>USB Cable</b>
<b>Power Cable</b>
<b>BV3200 Software and Manuals CD Containing:</b>
- <b>BV3200 QuickStart Guide</b>
- <b>BV3200 User's Manual</b>
- <b>ProViewer 4 Software</b>
- <b>ProViewer 4 Handbook</b>
- <b>USB Serial Adapter Driver Software</b>
<b>Hex Driver</b>
<b>Screw Kit</b>
<b>Printed BV3200 QuickStart Guide</b>

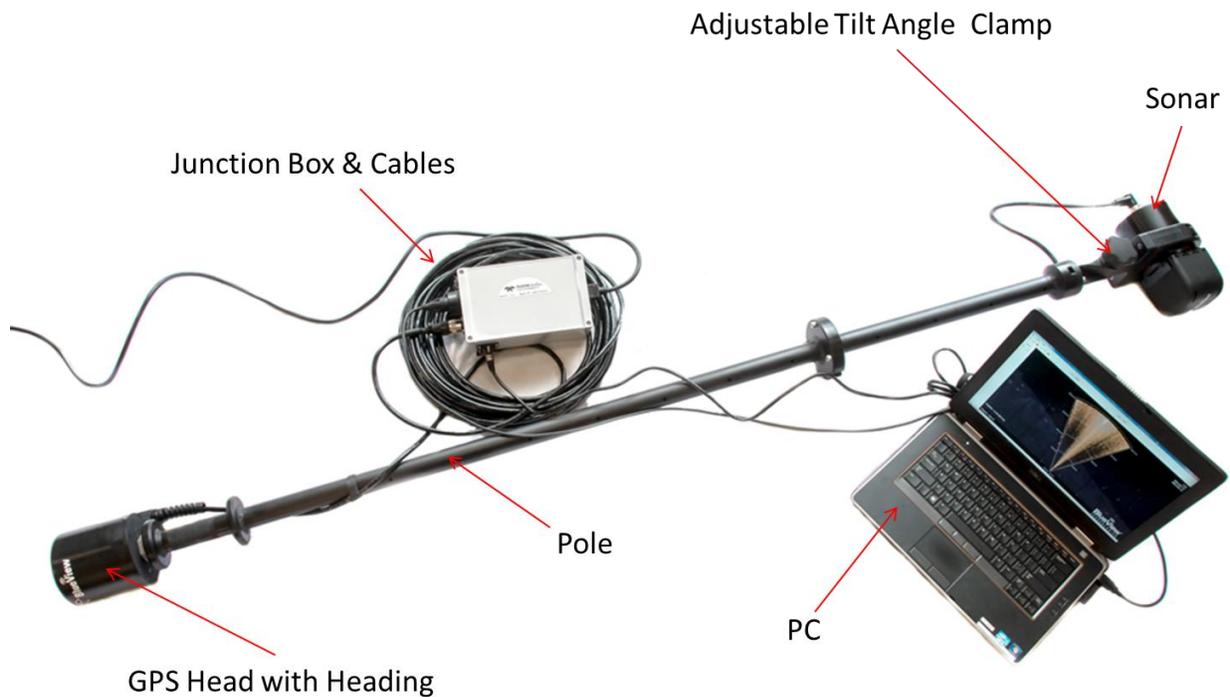
## System Overview

The BlueView BV3200 Mobile Acoustic Underwater Vision® System consists of a boat mountable BlueView sonar with an adjustable tilt angle, integrated GPS and a compass. The entire system connects through a single cable to the Junction Box, which then connects to a PC via USB and Ethernet. The BV3200 system is airline checkable luggage.

To familiarize yourself with the BV3200 system, please review the information in this manual.



**BV3200 unit in travel case**



**BV3200 Components**

# Chapter 3: Setup & Operation

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## Assemble the Pole

After verifying that all necessary components are present, you are ready to begin assembly of the BV3200.

The following instructions will walk you through all steps necessary to assemble the pole, mount the sonar, and connect all required cabling.

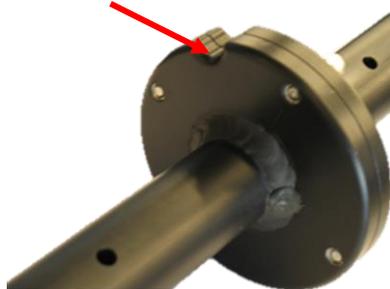
1. Remove the BV3200 pole unit from case.



2. Place the top and bottom pole pieces end to end. Pull the sonar cable through the pole as you bring the pole bolt flanges together.



3. Rotate one of the pole segments till the alignment notches are adjacent to each other.



4. Attach the lower section to the upper using the provided cap screws. Insert the bolt first through the unthreaded upper flange and screw into the threaded lower flange.

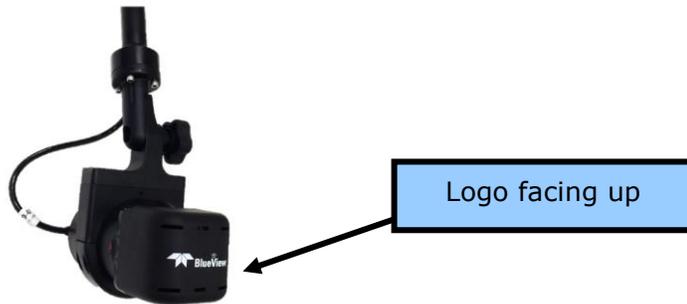


5. Attach the sonar to the sonar clamp by loosening the four cap screws, sliding in the sonar and retightening the four cap screws.

**NOTE:** The sonar is inserted into the clamp such that its connector is on the same side as the Sonar Cable.



**NOTE:** Use the stickers and connector placement on the rear end cap of the sonar or the logo on the front end of the sonar to determine the up-down orientation of the sonar. If the sonar is inverted, be sure to select the “inverted” option in ProViewer’s settings.

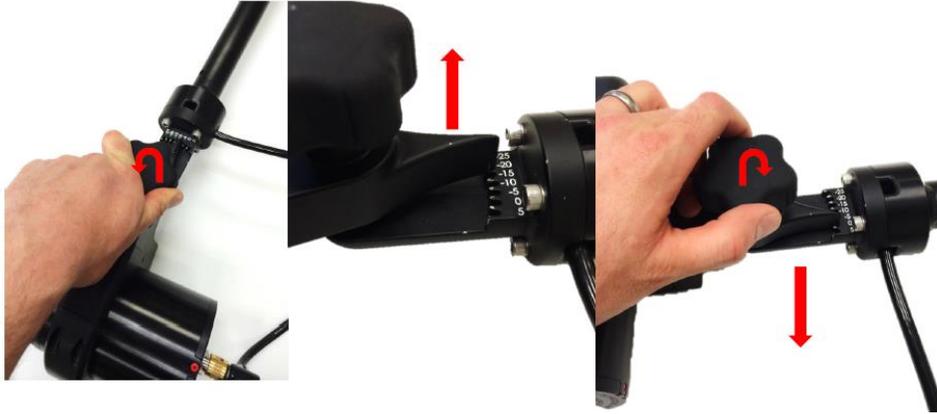


6. Connect the sonar cable to the sonar connector.

## Tilt Angle Adjustment

**NOTE:** It is the user's responsibility to insure the pole mount is secured in a way that will support the pole assembly.

1. Loosen the clamp angle adjustment knob by turning the knob counterclockwise.



2. Lift the clamp until the angle adjustment selector clears the angle keyway.
3. Select desired angle and tighten the angle adjustment knob by turning clockwise until it is snug.

## Pole Mounting

**NOTE:** It is the user's responsibility to insure the pole mount is secured in a way that will support the pole assembly.

1. Securely attach the transom mount assembly to a fixed structure. The mounting holes are sized for 1/4" bolts.
2. Place the pole into the clamp and close the clamp by tightening the threaded knob.

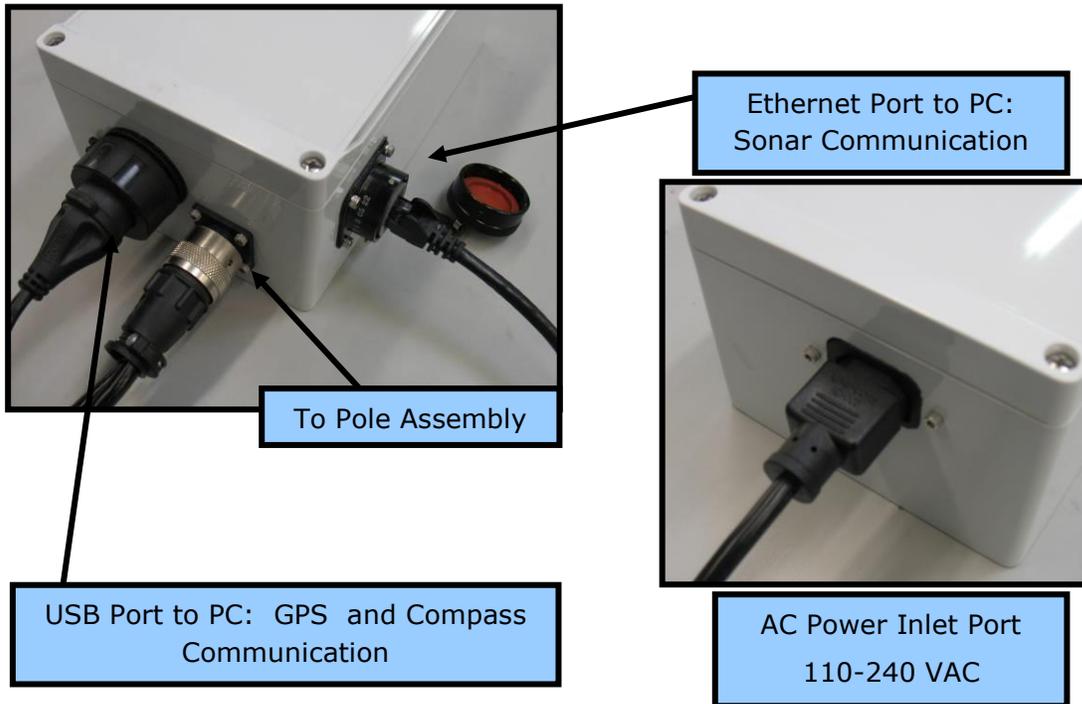
**NOTE:** Do not let go of the pole assembly until the clamp is closed and the threads have fully engaged.



3. Rotate the pole in the mount so that the sonar, when set to the 'home position,' points in the desired direction.
4. In order to obtain accurate compass readings, ensure that the arrow on top of the unit is pointed *parallel* to the vessel centerline, in the direction of forward travel.

## Junction Box

The Junction Box contains a power supply and a USB to RS-485 Converter. The power supply provides power to both the GPS unit and sonar. The converter adds a COM port to the PC so the PC can receive GPS data via a USB port. The Ethernet port on the control box provides communication with the sonar. The Sonar + Junction Box can handle input AC power between 110 and 240 volts.



## Installing the Junction Box

The Junction Box contains a USB to RS-485 converter and a power supply. The converter will add a COM port to the PC for communicating with the pan and tilt. The drivers for the converter need to be installed onto the PC. These drivers are located on the provided CD labeled “BV3200 CD” in the “Junction Box” folder under “Drivers.”

There are two drivers to install: one is for a “USB Serial Converter”, and the other is for a “USB Serial Port.”

**NOTE:** Do not close the second “Found New Hardware Wizard” window while installing the driver.

**NOTE:** For Windows Vista, disconnect your PC from the internet before installing drivers; otherwise, Windows Vista will search for and install the drivers automatically from Windows Updates and cause errors. The instructions below are for Windows XP. Installation for Windows Vista may vary from the instructions below.

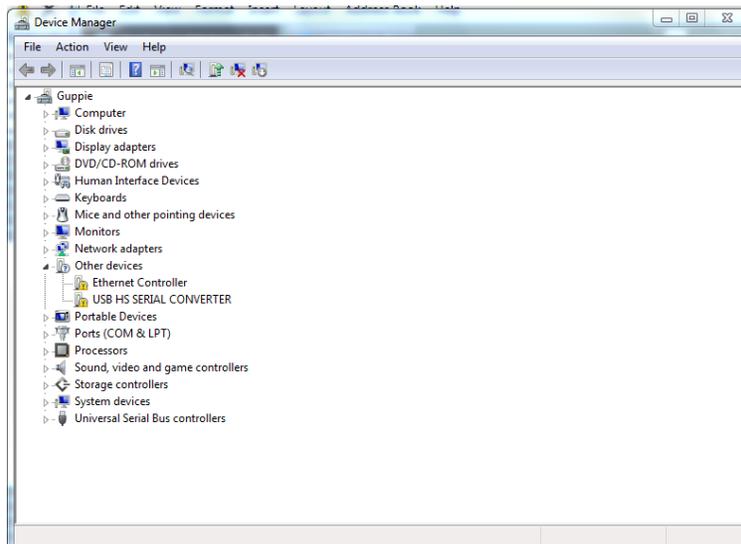
1. Connect the USB port on the control box to an available USB port on the PC connected to the internet. The “Found New Hardware Wizard” will guide you through the automatic installation process.



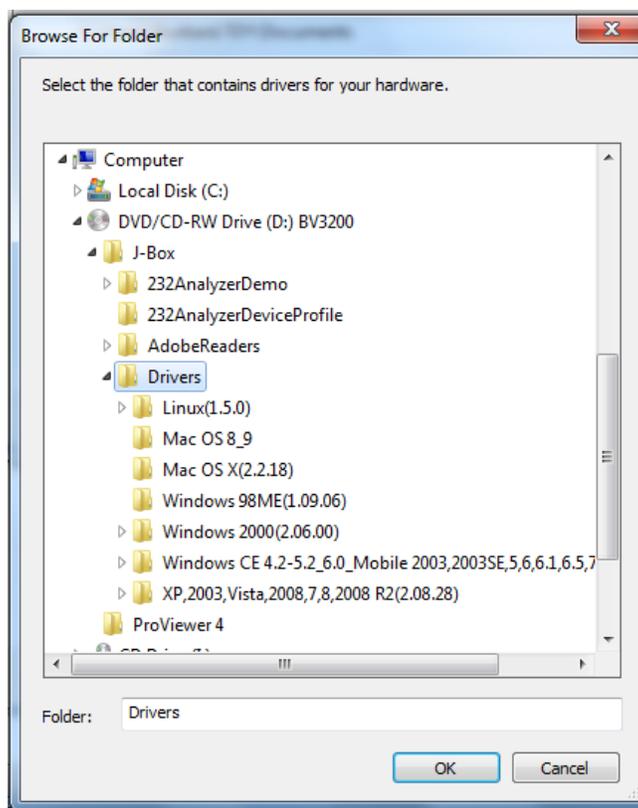
2. First, the USB Serial Converter driver will install. Select “No, not this time” and click “Next.” Follow prompts until the device is ready to use or cannot be installed.



3. If drives do not install automatically, **Insert the BV3200CD into the drive on the PC.** In the windows “Start” menu search for “device manager.” Open “Device Manager.”



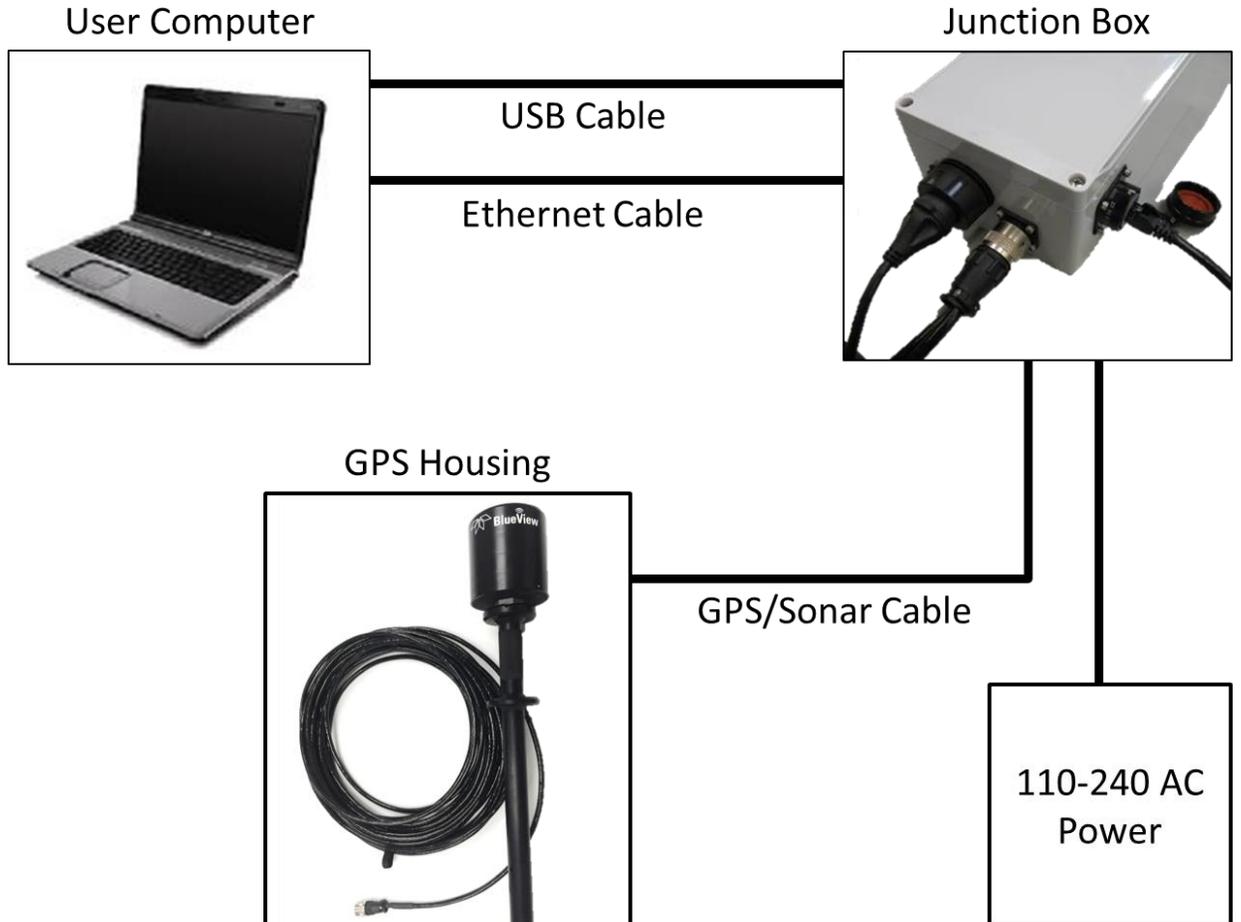
4. In Device Manager, under “Other Devices” right click “USB HS Serial Converter” and select “Update Driver Software.” You will be asked how you want to search for driver software. Select “Browse my computer for driver software.”



5. Browse to the “BV3200 CD.” “J-Box.” “Drivers,” and select “OK.” Click “Next” and follow screen prompts to complete driver installation.

## Final Cable Connections

1. Connect the sonar and GPS cables to the Junction Box. Connect the Ethernet cable to the control box, then to an available network connection port on the PC. Verify that all connections in the diagram below have been made.



2. Connect the power cable to the control box. Connect the opposite end to a suitable AC power outlet. All necessary connections have now been made.



## Install ProViewer 4 Software

Whether connected to an external PC or an onboard AUV controller, the ProViewer software is required to operate the M-Series Sonar. The following describes how to install the ProViewer 4 software on a user-

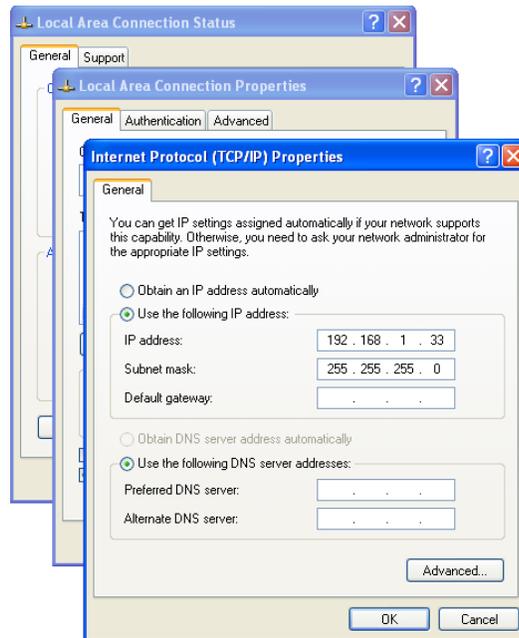
supplied PC. For more information on ProViewer and integration, see the ProViewer Software Handbook found on the BV3200 CD, as well as under the software's help menu.

**Note:** Running other applications in conjunction with the ProViewer Software may affect performance of one or both of the applications.

- 1) Place the BV3200 CD in the CD-ROM drive and open the "ProViewer 4" folder.
- 2) Double-click the "setup" icon to begin installation.
- 3) Follow the instructions on the screen to complete the installation.

## Configure PC

The IP address on the user's PC will need to be set either to "Obtain an IP address automatically," or to a static IP: 192.168.1.x where x is any number besides 45 that doesn't conflict with the user's system:



## Connecting the BV3200 GPS in ProViewer 4

General GPS to ProViewer 4 integration information is provided in the ProViewer 4 software manual. The information provided below relates directly to establishing communications with the AIRMAR GH2183 GPS mounted inside the BV3200. For more information on ProViewer, integration, and its capabilities, see the ProViewer Software Handbook found on the software CD.

Descriptions of the functions in the Sonar tab of ProViewer settings are provided below. If connected, note that values captured from GPS devices will be saved in the .son file while recording, and will be displayed on the screen both on playback and during live viewing.



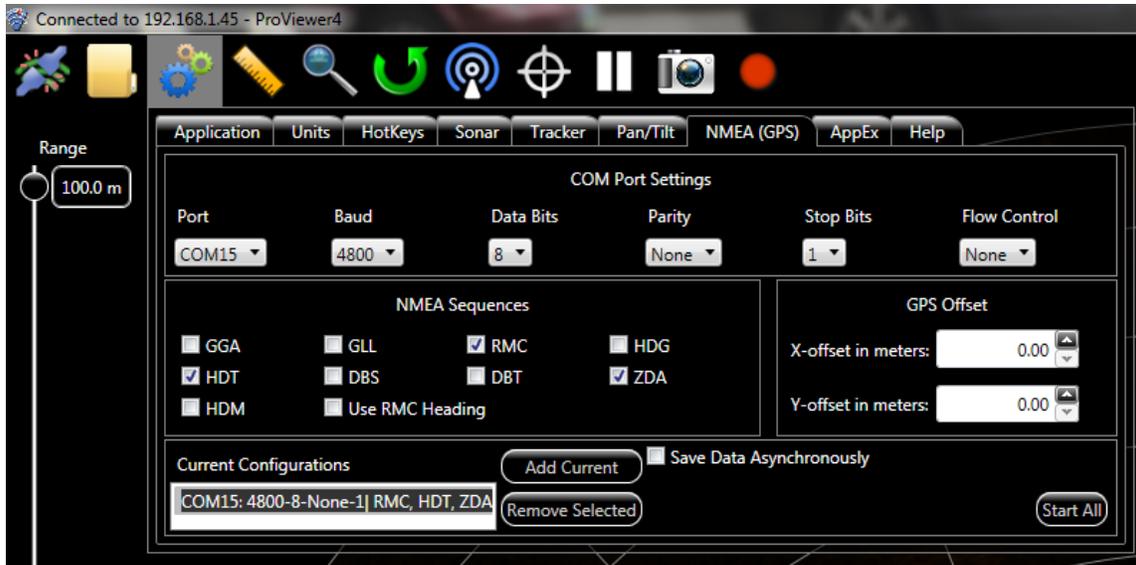
**COM Port Settings:** Select the proper COM port value corresponding to the GPS device USB connection. Select a baud rate of 4800, data bits of 8, no parity, one stop bit, and no flow control.

**NMEA Sequences:** The BV-3200 is setup to receive only select NMEA sequences. Under NMEA Sequences select: HDT, RMC, and ZDA. For more information on NMEA sequences refer to the ProViewer Software Handbook.

**GPS Offset:** Because the GPS is mounted directly above the sonar on the BV-3200 the GPS offset will be zero for both x and y.

**Current Configurations:** Once COM Port Settings, NMEA Sequences, and GPS Offset have been configured correctly you save a current configuration using the **Add Current** button. The current configuration will appear highlighted under current configurations.

**NOTE:** This configuration should be stored and populated the next time you open ProViewer.



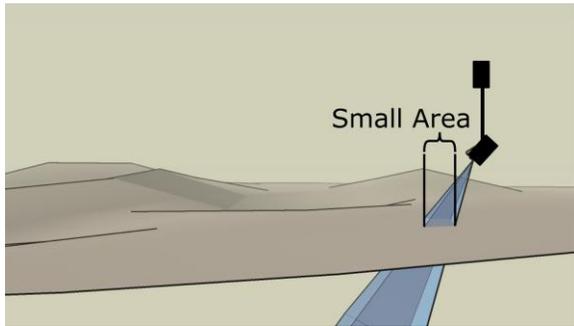
**Start All:** Click this button to begin displaying NMEA information on your ProViewer main window. LAT, LONG and Heading will be displayed in the lower right hand corner of your ProViewer 4 window.

**Stop All:** Click this button to stop displaying NMEA information on your ProViewer main window.

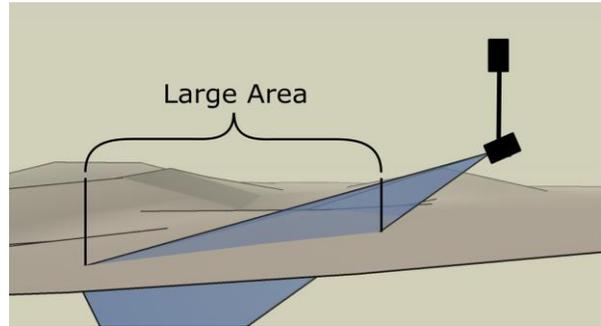


## Sonar Angle

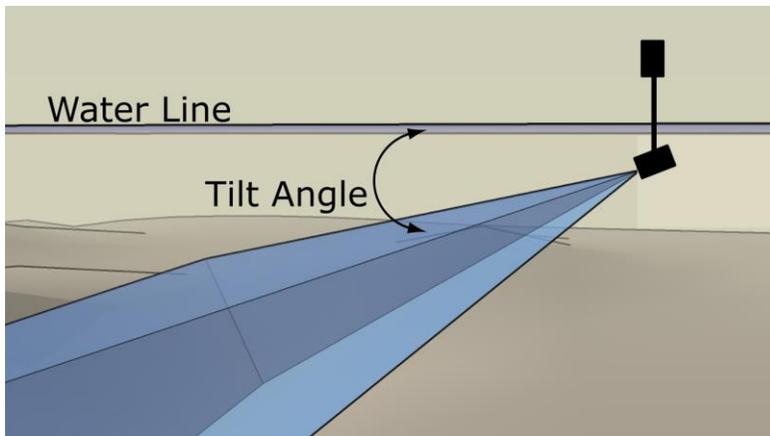
To achieve optimal performance while imaging targets and/or the bottom at a given depth, the angle that the sonar is tilted down from the surface is important. This issue is demonstrated in the figures below. On the left, the sonar is tilted down at a steep angle that provides only a narrow field of view of the bottom. The sonar on the right-hand figure is set at a much shallower angle that provides both a better perspective on targets and a larger field-of-view of the bottom. The BV 3200 allows the user to select any angle from 5 to -20 degrees in 5 degree increments. The table below should be used as a guide for initial angle selection.



The sonar's steep tilt-angle in this figure produces imagery of a narrow strip of the bottom.



The sonar's shallow tilt-angle in this figure produces an image of the bottom over a broad area. In general, shallower tilt-angles, which give larger areas of bottom imaging, are preferred.



Recommended tilt angles.

Target Depth (ft)	0	10	20	30	40	60	80
Approx. Tilt Angle(Deg)	0	5	5-10	10	10	15	20

## ProMapper Add-On Software

Teledyne BlueView offers ProMapper geo-referencing and sonar mosaicking software. ProMapper enables the users' ability to display a portion of the standard 2D data window on to a real world background image or nautical chart. This capability allows the user to easily combine the ease of use of a Teledyne BlueView forward looking sonar, with practical mapping displays to greatly increase operational efficiency. The real time map display allows the sonar operator to quickly assess coverage, sonar data relative to reference points, and interpret the data in the larger context of location and setting. In addition, because the data is displayed on screen in its true location with a graphical indication of vessel position, it is easy to reacquire targets quickly for further investigation.

## GPS Heading/Compass Calibration

The BV3200 system GPS is factory calibrated for areas without a unique magnetic signature. Depending on accuracy requirements, it may be desirable to calibrate the BV3200 to its own unique, as-installed configuration. Additionally, if the GPS Heading/Compass readings become inaccurate, this calibration step can be used as an attempt to correct the issue. The GPS unit mounted inside the BV3200 has an auto calibration feature which can be performed by following the steps outlined below.

**IMPORTANT:** Calibration requires the vessel to complete 2 to 3 circles. The compass should be calibrated to achieve maximum sensor accuracy. Use of a timer or stop-watch is recommended as the steps are time-dependent.

### Auto Calibration Procedure

1. Install the BV3200 on the vessel with the arrow on the top of the unit pointing parallel to the boat centerline, and in the direction of forward travel.
2. In calm seas, navigate the vessel to an open area of water, 0.8 km (0.5 mile) of open space away from other boats or ferrous objects (structures or aids to navigation).
3. Power-cycle the BV3200 junction box.
4. Open ProViewer 4 and display GPS data.
5. Within 2 minutes of cycling the power, steer in a circle at 4 to 6 kts (5 to 7 mph), taking about 2 minutes to complete a circle. Heading information will disappear, indicating that calibration has begun.
6. Complete 3 to 4 circles, maintaining speed until the Heading information reappears, indicating that calibration is complete.

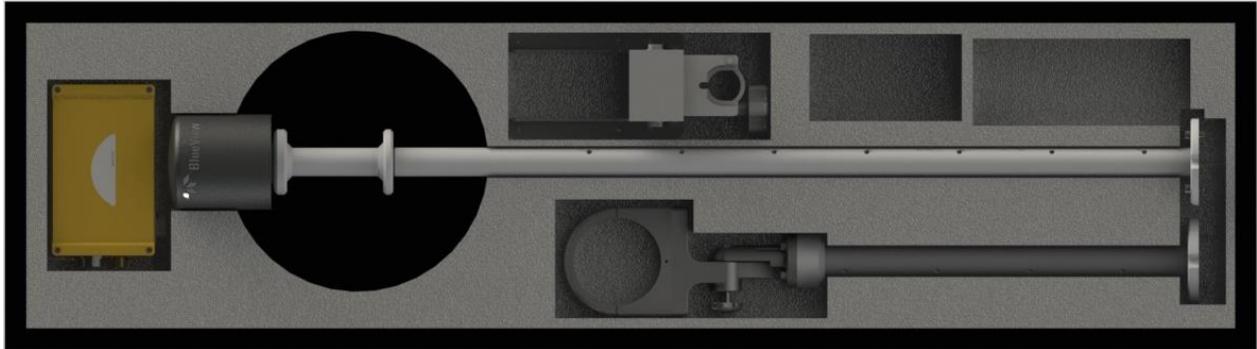
If calibration fails, the display will flash Heading ON and OFF in 10 second intervals for 60 seconds. (Display times may vary by manufacture.)

**IMPORTANT:** In the event of a calibration failure, repeat the Auto Calibration procedure.

\* The optimum rate of turn is 180°/ minute: 3°/second, 30°/10 seconds, 45°/15 seconds, and 90°/30 seconds.

## System Breakdown

Proper system breakdown of the BV3200 requires only that the AC power and pole cable be disconnected from the console, rinse the pole and sonar with fresh water and return to their respective positions in the carrying case, as shown.



**NOTE:** Care should be taken to ensure cables are positioned not to crimp or damage pole components or the cable while shutting the case.

# Chapter 4: Maintenance

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## Before Use

1. Prior to assembly of components, ensure that all connector contacts are clean, dry and free of dirt and/or corrosion.
2. Inspect all BV3200 hardware for excessive corrosion. Replace as needed.
3. Inspect all cables and connectors for abrasion, cuts or cracks. Repair or replace as needed.

## After Use

1. After use rinse all BV3200 components with a solution of mild soap and fresh water. At this time, inspect all components for corrosion, wear or damage. Replace any piece of hardware showing corrosion or damage.

## Chapter 5: Troubleshooting

Symptoms	Possible Cause	Resolution
The sonar software does not automatically find the connected sonar.	Junction Box AC power Cord is not plugged into active AC outlet	Ensure the console power cord is plugged into an active AC outlet
	Sonar not connected	Verify the main pole cable is plugged into the Junction Box. Verify the sonar connector is attached to the sonar. Verify the Ethernet cable is connected to the Junction Box and the PC.
	Sonar is not initialized	Ensure all physical connectors are dry, clean, and connected properly
	PC is set to the wrong IP address	Follow the instruction in your sonar manual to reset the PC's IP address/Subnet Mask to 192.168.1.2/255.255.255.0
	Sonar experienced a power glitch	Unplug the AC power to the SPT Junction Box for 10 seconds and reconnect.
PC does not connect to GPS unit	GPS Unit is not connected.	Verify the main pole cable is plugged into the Junction Box. Verify the sonar connector is attached to the sonar. Verify the Ethernet cable is connected to the Junction Box and the PC. Verify the USB cable is connected to the Junction Box and the PC.
	USB to RS485 drivers are not installed properly	Uninstall then reinstall drivers.
	COM Port may need to be manually set in ProViewer	See "ProViewer Configuration" section of this manual.
LAT/LONG Not Displaying	GPS does not have correct line of sight to establish a fix	Make sure GPS is outdoors with clear overhead area
	NMEA Sequences are not properly configured	Go into ProViewer 4 settings under the NMEA tab and verify HDT, RMC, and ZDA sequences are selected.

## Still not working?

Please contact us:

BlueView Technologies Customer Support

[www.blueview.com](http://www.blueview.com)

**+1.425.492.7376**

**8am – 5pm PST Mon through Fri**

[swa\\_support@teledyne.com](mailto:swa_support@teledyne.com)

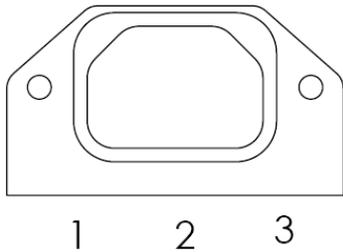
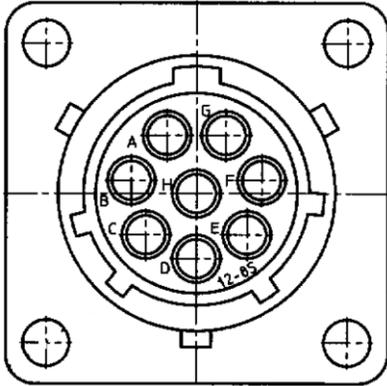
## Appendix A: Technical Specifications

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<b>GPS</b>	
GPS Position Accuracy	10 ft. (3m)
Position Resolution	1°
Static Compass Accuracy	1° RMS when level
Dynamic Compass Accuracy	2°
Heading Display Resolution	0.1°
Rate-of-Turn Accuracy	1° per second
GPS-Fix Update Rate	2 x per second
<b>Pole Mount</b>	
Pole Length (Extended)	77.5 in
Pole Length (Collapsed)	47.5 in
Cable Length	50 ft.
<b>Electrical</b>	
Power Supply	110-240 VAC @ 100 W (max)
<b>Mechanical</b>	
Pole case weight	45 lbs.
BV-3200 Weight (Without Sonar)	15.80 lbs.
Pole case dimension	53.8" x 16.5" x 6.7"
<b>Recommended PC Specifications</b>	
Processor	1.4 GHz Pentium M
Memory	1GB DRAM
Ports	USB, Ethernet
Screen	Sunlight Readable Screen

## Appendix B: Connector Pinouts

### Sonar + Junction Box

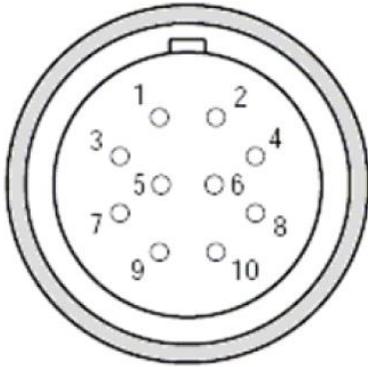


8 Pin Connector to Sonar and GPS Unit (Souriau UTG012-8S)	
Pin	Function
A	Ethernet RX+ (to sonar)
B	Ethernet RX- (to sonar)
C	Ethernet TX- (to sonar)
D	+24V DC
E	Ground
F	Ethernet TX+ (to sonar)
G	RS485A
H	RS485B

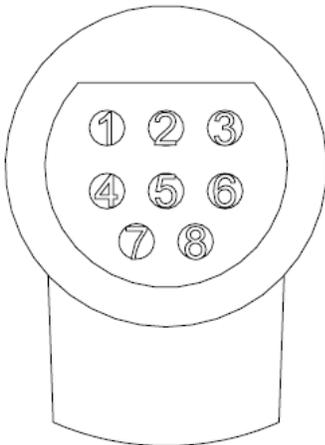
3 Pin C14 Power Connector	
Pin	Function
1	110-240V AC
2	110-240V AC Ground
3	110-240V AC Common

RJ45 Connector to PC		
Pin	Conductor Color	Function
1	Orange/White	RX+
2	Orange	RX-
3	Green/White	TX+
4	N/C	N/C
5	N/C	N/C
6	Green	TX-
7	N/C	N/C
8	N/C	N/C

## Sonar Cable Ends



10 Pin Connector to Sonar (Impulse MKS-310-CCP-RA)	
Pin	Function
1	Ethernet RX+ (to sonar)
2	Ethernet RX- (to sonar)
3	Ethernet TX+ (to sonar)
4	+24V DC
5	+24V DC
6	Ethernet TX- (to sonar)
7	Ground
8	Ground
9	N/C
10	N/C



8 Pin Connector to Sonar (Burton 55R1-1508 )	
Pin	Function
1	Ethernet RX+ (to sonar)
2	Ethernet RX- (to sonar)
3	Ethernet TX+ (to sonar)
4	+24V DC
5	N/C
6	Ethernet TX- (to sonar)
7	Ground
8	N/C