Seismic Source

User Manual

BirdDog 3 & VibQC User Manual

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Version 2.01

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Document Revisions

Date	Version Number	Document Changes	Author
9/18/2017	2.0	Reformatting and other Edits	Mark Day
9/19/2017	2.01	Fixed SrcSig Images & Added VibTest Trace Definitions	Mark Day

Table of Contents

1 Introduction

The Bird Dog III system is a 32-bit data acquisition system that is used with different software for quality control of Seismic Recording Systems.

The standard Bird Dog III is used with GeoTest to test the geophone elements on a crew. Single elements, or strings of geophones can be tested with GeoTest. The results of the tests are stored to a database for statistical analysis. The Hydrophone Test Option and the HydroTest program allows the Bird Dog III unit to be used to test Hydrophone elements.

1.1 Bird Dog III System Description – Vibrator QC Option

The Vibrator Quality Control Option and the Source Signature software allows the Bird Dog III unit to be used to test Servo Hydraulic Vibrators. Various signals can be recorded with the Vibrator QC option, the following is a list of some of the signals:

- True Reference (Pilot Signal)
- Reaction Mass Accelerometer (loop, sim, or independent sensor)
- Baseplate Accelerometer (loop, sim, or independent sensor)
- Drive Signal
- Torque Motor Current
- Valve Displacement (Valve LVDT)
- Reaction Mass Displacement (Mass LVDT)
- Wireline Reference Signal
- Vibrator Similarity Output

1.2 Bird Dog III Software Installation and Setup

Insert the install USB drive into the computer and following the instructions, all programs should be installed in the Seismic Source and iSeis folders on the computer.

Note: The latest Source Signature program and BD3 manuals are available on our Website: www.seismicsource.com

1.3 Bird Dog III Software Overview

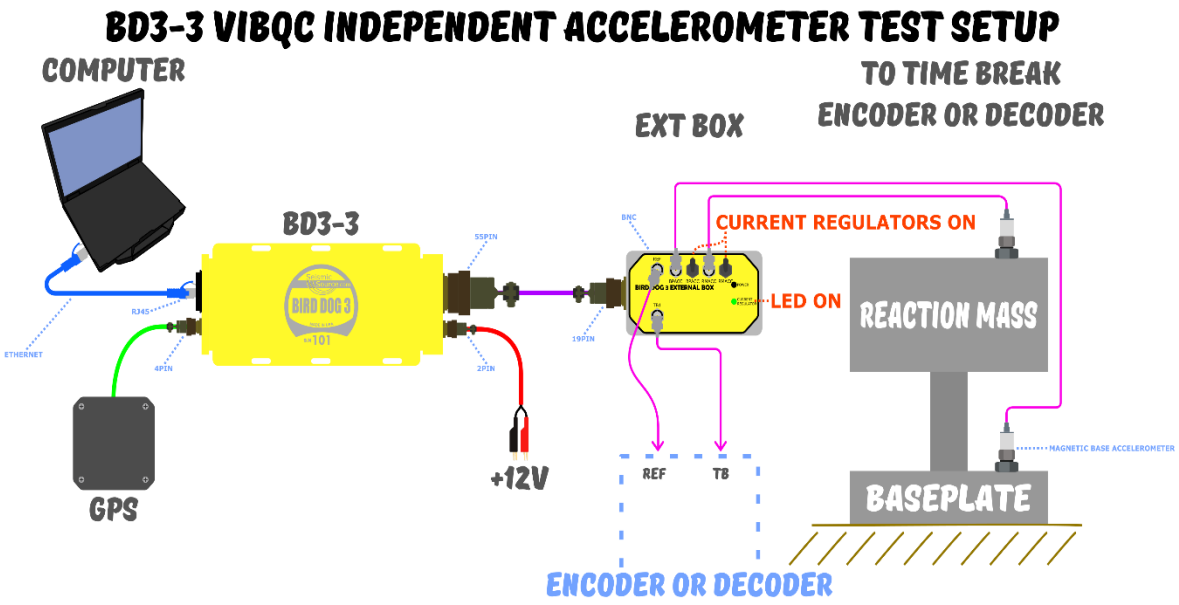
The following is a list of some of the applications of the Bird Dog III System.

- Vibrator Analysis - Source Signature Software
- Independent Accelerometer Test
- Zero Time Adjust Test
- Force 2, Force 3, Sercel VE464 or VibPro direct connection
- Wireline Similarities
- Geophone Test – GeoTest Software
- Hydrophone Test – HydroTest software - Requires Hydrophone Test Option
- M5 and M6 accelerometer Test - ACCTest software – Requires BD3-11 System

2 BirdDog III Cable and Software Setup

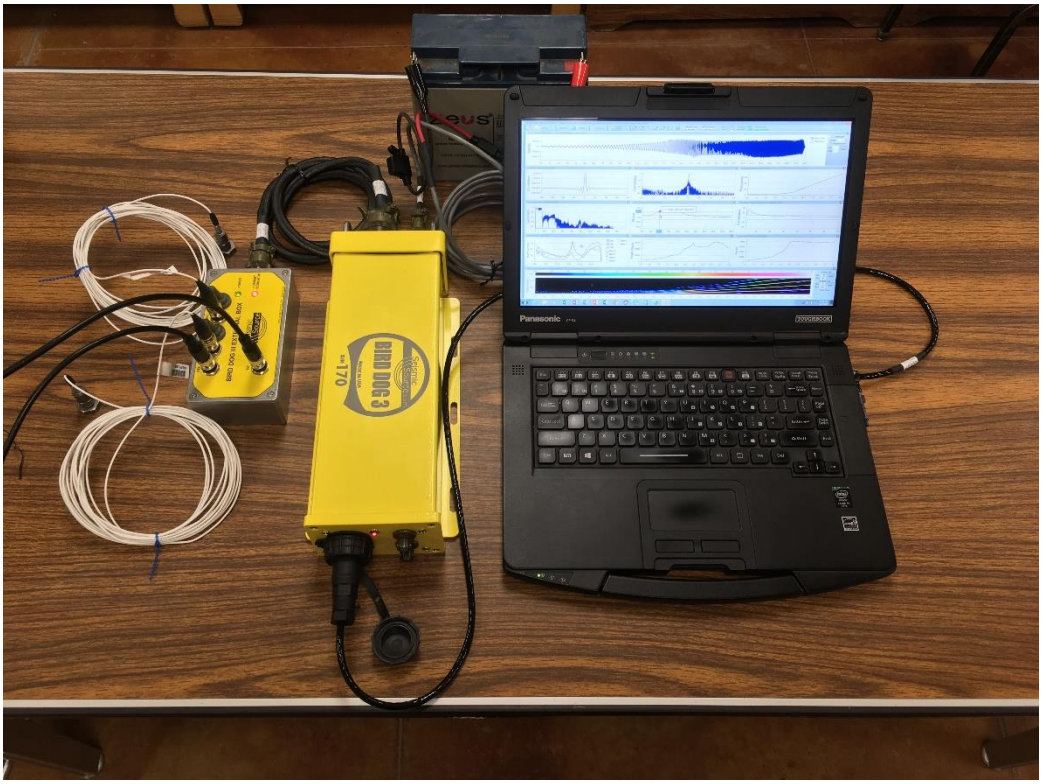
The following section provides instructions for cable setup and software configuration for various tests.

2.1 Bird Dog III VibQC Independent Accelerometer Test Setup



2.1.1 Bird Dog III Cable Connections VIBQC Accelerometer I/F

- Connect the Bird Dog III to a computer with the patch cable provided
- Connect 11-18 VDC supply to Bird Dog III cable.
- Connect the Vibrator QC Accelerometer Interface Adapter to the Analog Input of the Bird Dog III unit.
- Connect the True Reference Signal (Pilot signal) from the Vibrator Electronics to Ch 1 (REF) input on the Accelerometer Interface
- Connect the Time Break input from the Vibrator Electronics to the TB input on the Accelerometer Interface unit.
- Connect the Magnetic Base Accelerometers to the VibQC Accelerometer Interface unit.
- The Accelerometer mounted on the Baseplate of the Vibrator should be connected to Ch 2 (BP) of the VibQC Accelerometer Interface.
- The Accelerometer mounted on the Reaction Mass of the Vibrator should be connected to Ch 3 (RM) of the VibQC Accelerometer Interface.
- When using the Independent Magnetic Accelerometers, the Current Regulator Switch on the VibQC Accelerometer Interface must be turned “ON”. When using any other input signal be sure to turn the current regulators “OFF”.
- Accelerometer should be mounted next to the Control Accelerometers. The paint on the Vibrator may need to be removed to ensure good coupling.

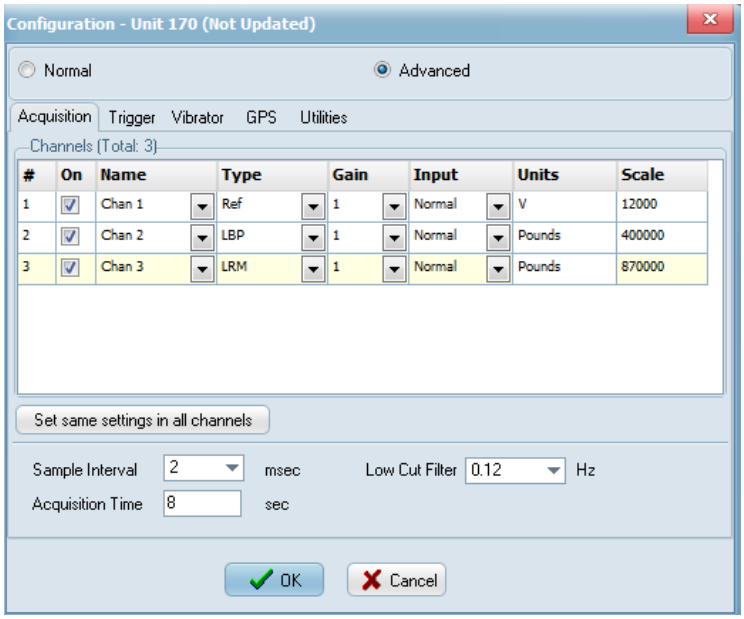


2.1.2 Source Signature (SrcSig) Settings

Source Signature (SrcSig), is used to acquire data.

2.1.2.1 Acquisition Settings

First, open SrcSig and click the Configuration button. Set the Device Settings to Advanced.



1. Set Channel 1 to REF – For the Reference Channel

2. Set Channel 2 for the LBF – Loop Baseplate Channel

3. Set Channel 3 for the LRM – Loop Reaction Mass Channel

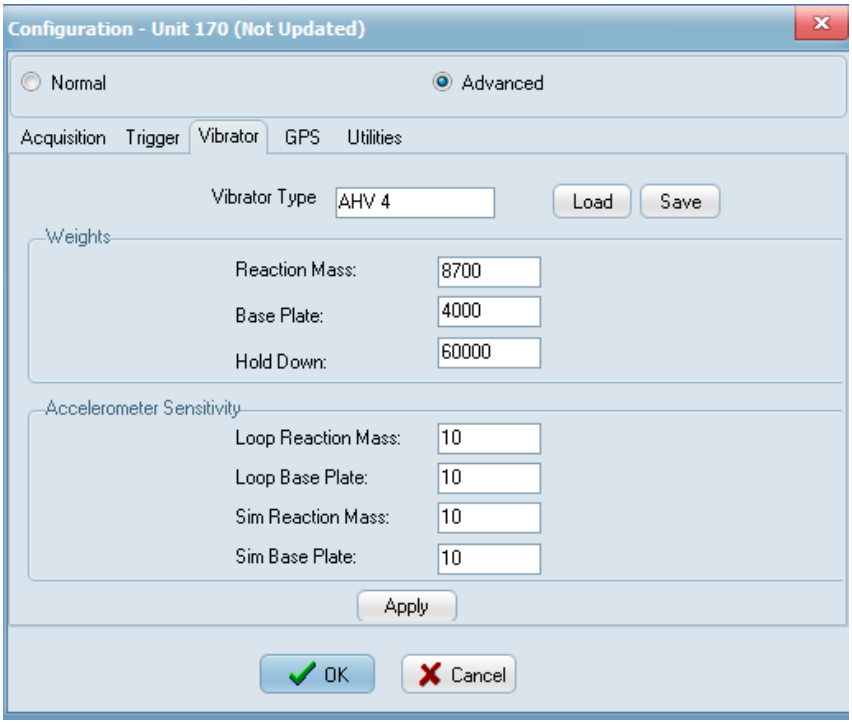
4. Set the Sample rate to the desired setting.

5. Set the Acquisition Time the same as the sweep length

6. Set the low-cut filter. Normally set to 0.12 Hz to remove any unwanted DC offset in the accelerometer circuitry.

2.1.2.2 Vibrator Settings

Next, click on the Vibrator tab to edit Vibrator settings.



1. Set the Reaction Mass, Baseplate, and Hold Down (Target Force) Weight to match the Vibrator unit that is being tested. All units must be entered in either pounds or Kilograms. All entries must have the same units. i.e. enter everything in pounds or enter everything in KG. Do not enter some items in KG and some in pounds.

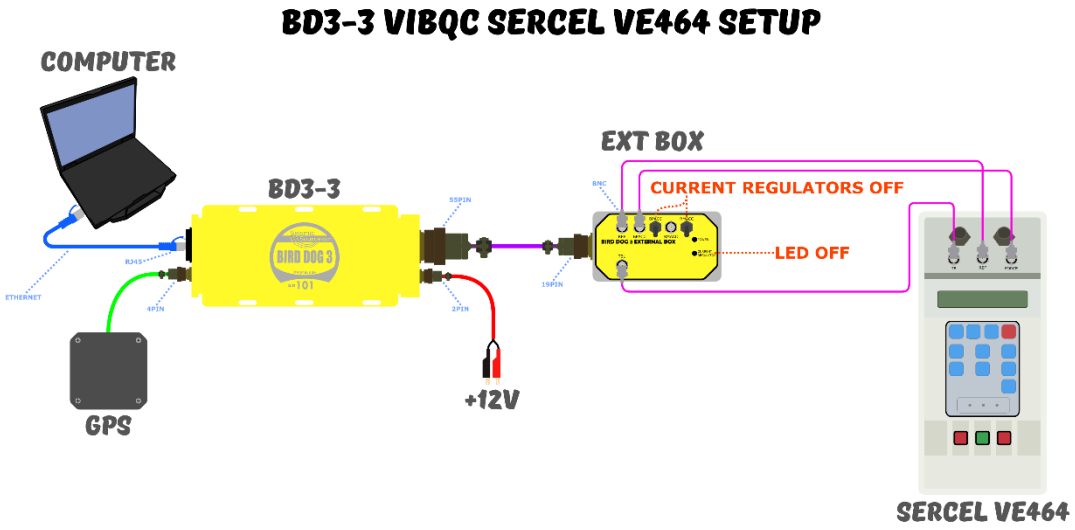
2. Set the Accelerometer Sensitivity to about 10 mV/G when using the magnetic accelerometers. Each accelerometer is shipped with a calibration certificate. The exact sensitivity from the calibration certificate should be entered for each accelerometer.

2.2 Bird Dog III Cable Connections Zero Time Adjust

- Connect the Bird Dog III to a computer with the patch cable provided
- Connect 11-18 VDC supply to Bird Dog III cable.
- Connect the True Reference from the Encoder to Channel 1
- Connect the True Reference from the Vibrator Electronics to Channel 2
- Set Current Regulators to OFF
- Run Source Signature Compare Phase Error of Channel 1 to Channel 2

2.3 BirdDog III VibQC Sercel VE464 Setup

- This test can be performed using the REF and FORCE outputs of the VE464.
- This Test does not provide an independent verification of the system, but can be used to check the general performance of the system using the systems accelerometers.



2.3.1 Bird Dog III Cable Connections Sercel Vibrator Controller

- Connect Bird Dog III to computer with patch cable provided
- Connect the following BNC cables from Sercel Controller to the VibQC I/F box
  - TB to TB
  - REF to REF
  - Force to BP
- Connect 11-18 VDC supply to Bird Dog III cable.
- Run Source Signature program

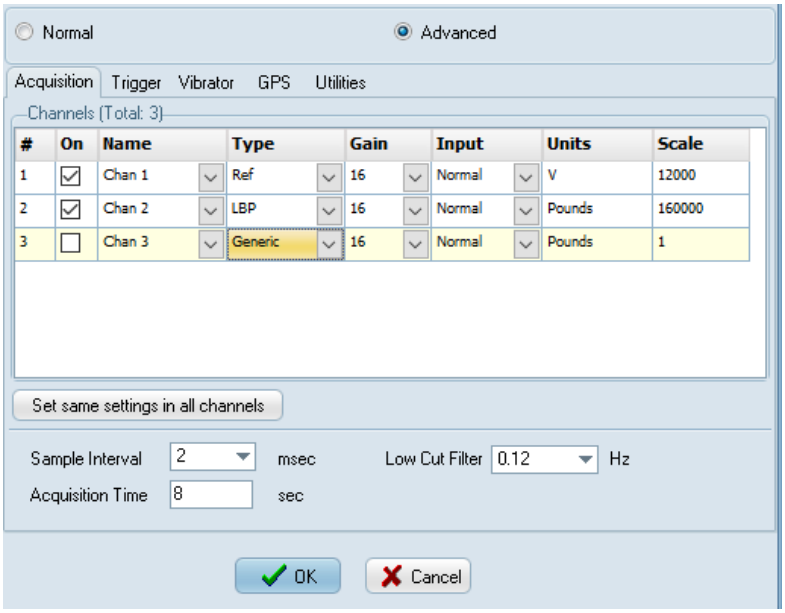
2.3.2 SourceSignature (SrcSig) Settings

Source Signature (SrcSig), is used to acquire data.

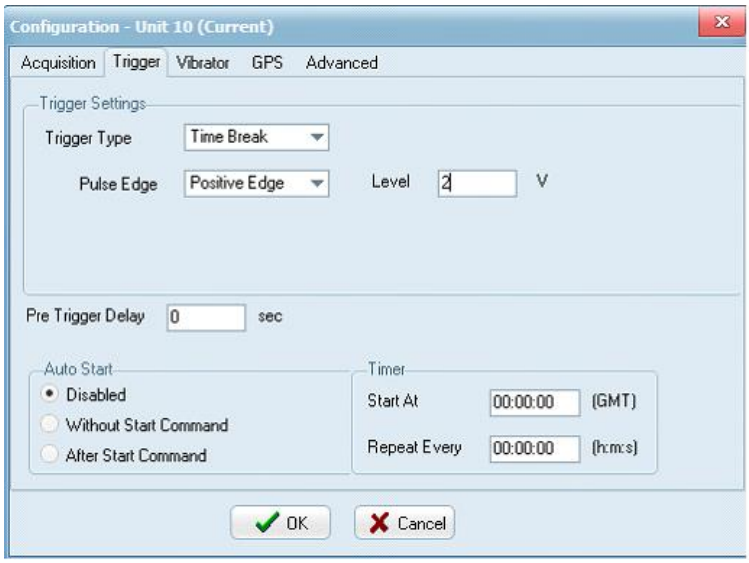
2.3.2.1 Acquisition Settings

Set the Device Settings to Advanced.

1. Set Channel 1 to REF – For the Reference Channel
2. Set Channel 2 for the LBF – Loop Baseplate Channel
3. Set Channel 3 for the LRM – Generic
4. Set the Sample rate to the desired setting.
5. Set the Acquisition Time the same as the sweep length
6. Set the low-cut filter. Normally set to 0.12 Hz to remove any unwanted DC offset in the accelerometer circuitry.

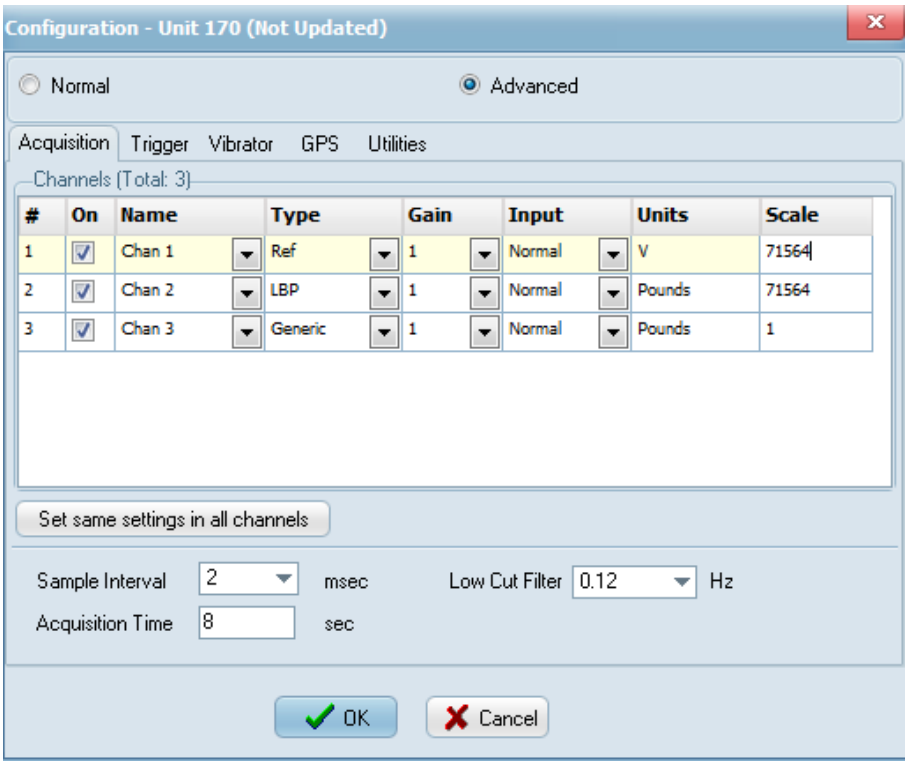


2.3.2.2 Trigger Settings

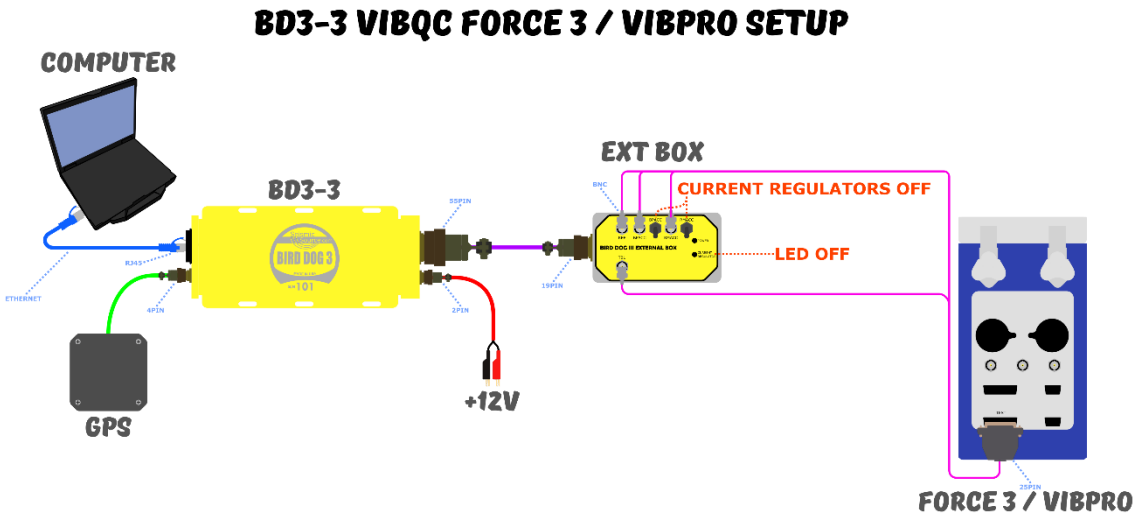


2.3.2.3 Vibrator Settings

- The VE464 wireline test and the VE464 Single vibrator connections require special scaling of the accelerometer signal as shown in the following paragraphs.
- To show the correct Output Force in Pounds, go to the Options- Device - DAQlink Setting menu and setup the channels for the following Scale and units.


Configuration - Unit 170 (Not Updated)
Normal
Advanced
Acquisition
Trigger
Vibrator
GPS
Utilities
Channels (Total: 3)
On Name Type Gain Input Units Scale
1 Chan 1 Ref 1 Normal V 71564
2 Chan 2 LBP 1 Normal Pounds 71564
3 Chan 3 Generic 1 Normal Pounds 1
Set same settings in all channels
Sample Interval 2 msec
Low Cut Filter 0.12 Hz
Acquisition Time 8 sec
OK
Cancel

2.4 BirdDog III VibQC Force III / VibPro Setup



2.4.1 Bird Dog III Cable Connections VibPro or Force Controller

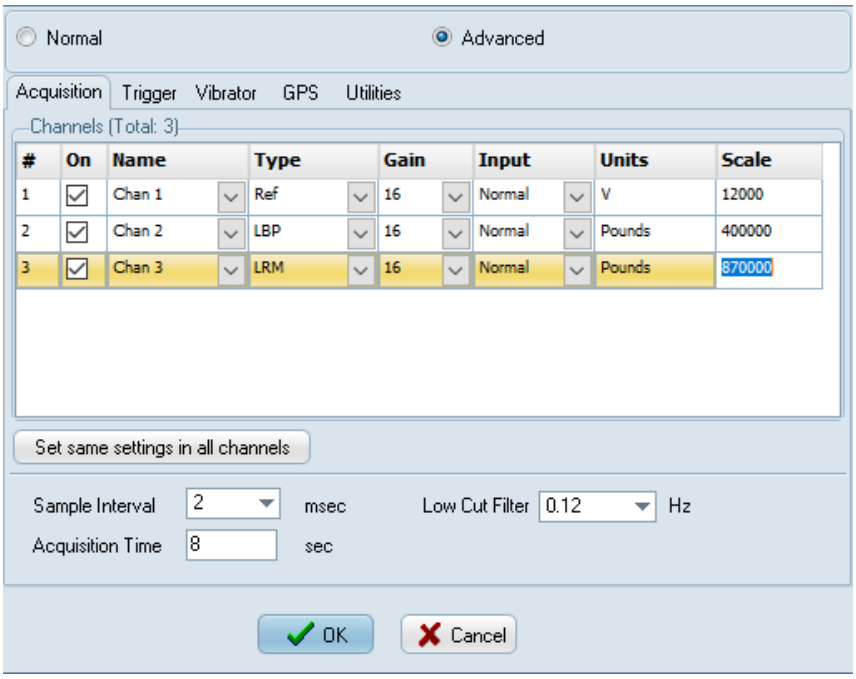
- Connect the Bird Dog III to a computer with the patch cable provided
- Connect 11-18 VDC supply to Bird Dog III cable.
- Connect the VibPro or Force 3 - 25 pin test connector
- Connect the following BNC cables from the 25 pin Test Cable to the VibQC I/F box
  - TB to TB
  - REF to REF
  - RM to RM
  - BP to BP
- Run Source Signature program

2.4.2 3.4.1 SourceSignature (SrcSig) Settings

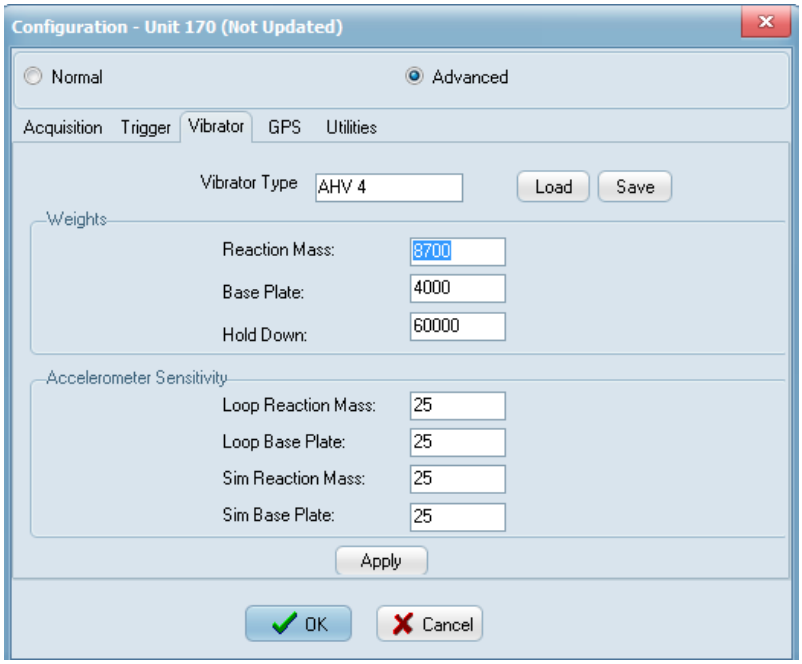
Source Signature (SrcSig), is used to acquire the data.

2.4.2.1 Acquisition Settings

1. Set Channel 1 to REF – For the Reference Channel
2. Set Channel 2 for the LBF – Loop Baseplate Channel
3. Set Channel 3 for the LRM – Loop Reaction Mass Channel
4. Set the Sample rate to the desired setting.
5. Set the Acquisition Time the same as the sweep length
6. Set the low-cut filter. Normally set to 0.12 Hz to remove any unwanted DC offset in the accelerometer circuitry



2.4.2.2 Vibrator Settings

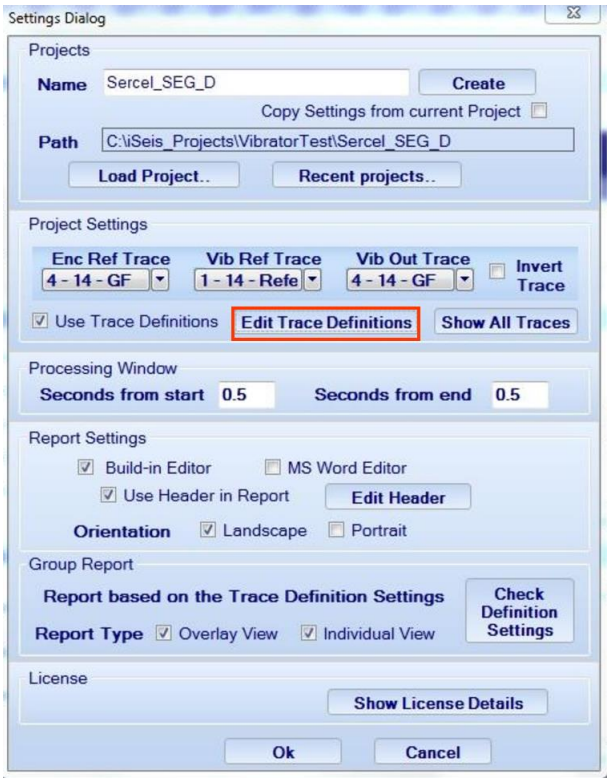


- Set the Reaction Mass, Baseplate and Hold Down (Target Force) Weight to match the Vibrator unit that is being tested. All units must be entered in either pounds or Kilograms. All entries must have the same units. i.e. enter everything in pounds or enter everything in KG. Do not enter some items in KG and some in pounds.
- Set the Accelerometer Sensitivity to about 25 mV/G when using the accelerometers from the VibPro or Force 3 units.

3 VibTest Trace Definitions

This section is a brief note on Trace Definitions in VibTest.

When loading data from SrcSig into VibTest, the following settings must be used for the correct scaling.



After opening VibTest, Click Settings => Edit Trace Definitions.

Next, make sure your Trace Definitions are set to match the following. (Vibrator ID only matters for your own identification.)

SrcSig saves the data in pounds of Force, so set the scale factor in VibTest to Scale = 1.0.

4 Source Signature (SrcSig) Software

The following section introduces and explains some of Source Signature's features, and program operation.

4.1 Source Signature Program Operation

The BD 3-11 unit controls the Current Regulators via software.

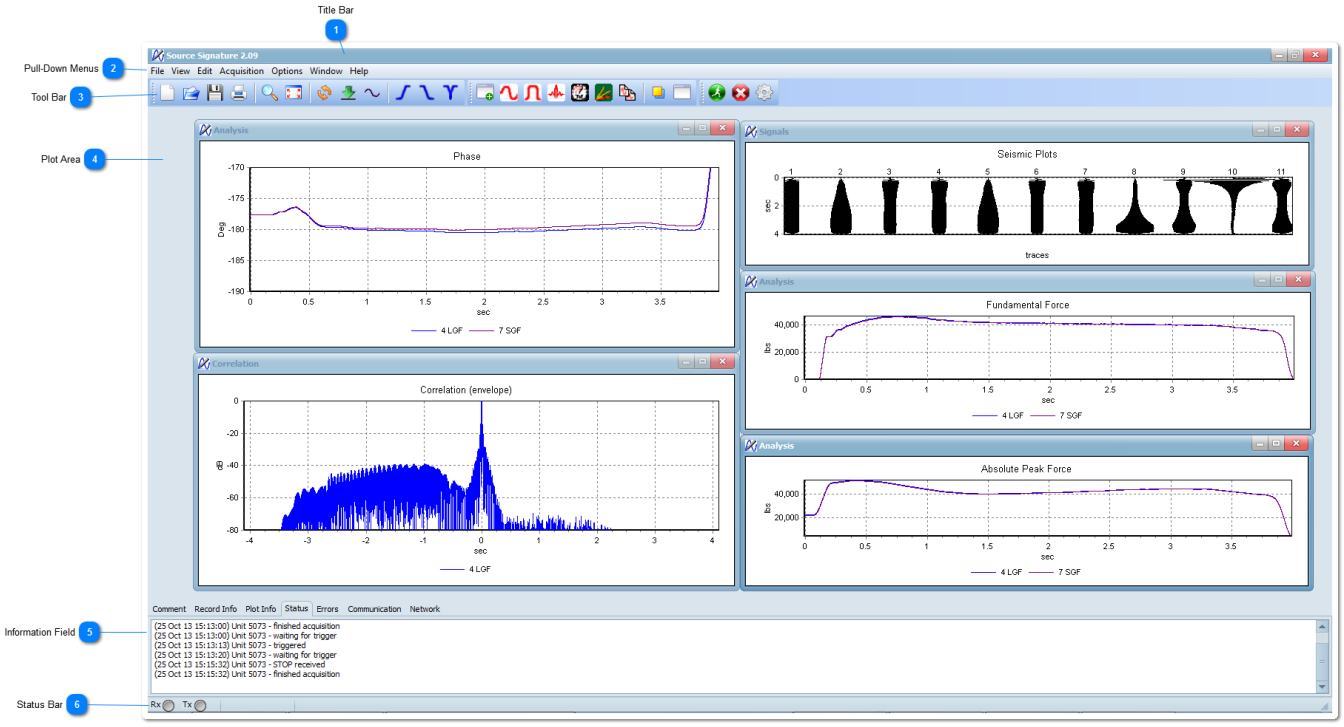
BD 3-3 – VibQC option – The current Regulators are controlled by hardware switches on the VibQC Interface box. When using the BD3-3 VibQC option there are only 3 channels and no software control of the current regulators, please ignore the references to the software current regulators and the additional input channels in the following text.

BEFORE STARTING SRCSIG, BE SURE TO SET THE LAN IP ADDRESS OF THE COMPUTER TO:

IP: 10.0.0.101

SUBNET: 255.0.0.0

4.1.1 SrcSig Overview



1. Title Bar

Contains the program name and version along with typical windows applications control buttons to close the program, etc.

2. Pull-Down Menus

Typical menus to access the program's features.

3. Tool Bar

Buttons for quick access to many of the program's commonly used features.

4. Plot Area

Various plots the program can generate can be displayed in this area.

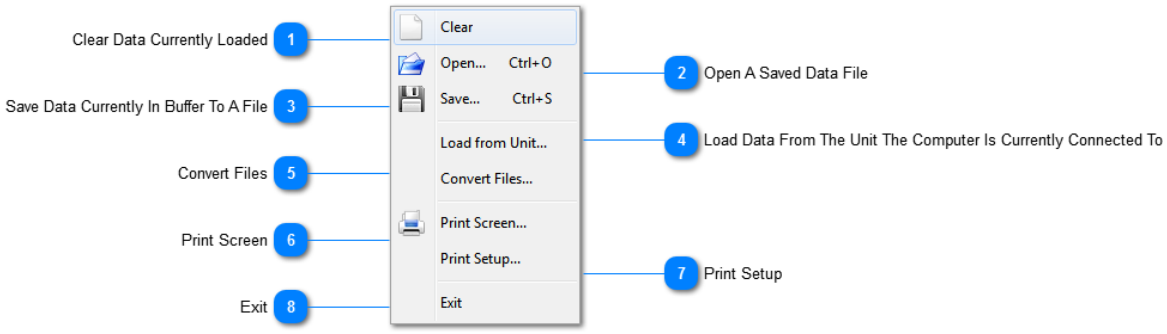
5. Information Field

Various kinds of information about the data and program status can be displayed here.

6. Status Bar

Receiving and transmitting data and recording progress messages are displayed in this bar.

4.1.2 File Pull-Down Menu



1. Clear Data Currently Loaded

Removes data currently in the program buffer. Does not delete any saved files.

2. Open A Saved Data File

A standard operating system Open function.

3. Save Data Currently in Buffer to a File

A standard operating system Save function.

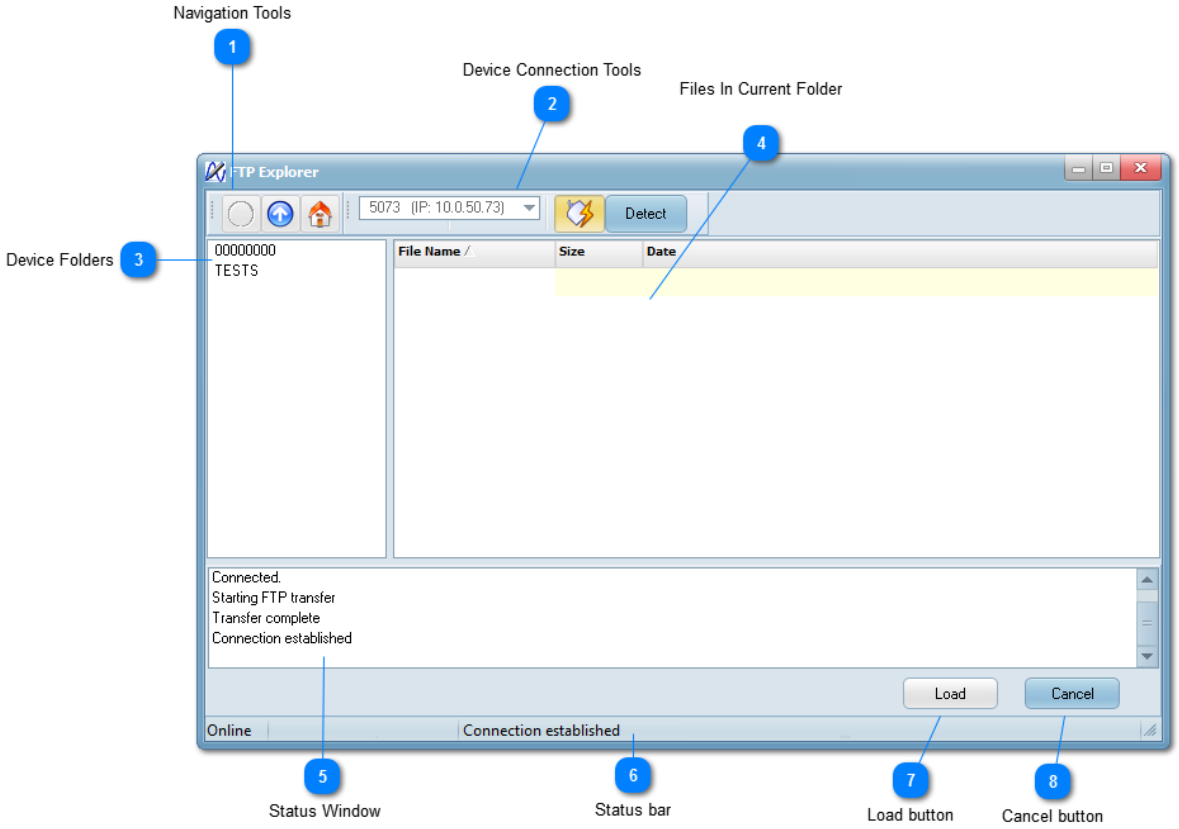
4. Load Data from The Unit the Computer is Currently Connected To

Opens a dialog to load data from a Bird Dog 3-11 VibQC, a Force 2, or other kind of unit. Allows the user to detect the unit(s) the computer is connected to. Also allows one to see a listing of the files saved on the unit, see plot previews for the files, and download one or more files.

5. Convert Files

DAT files downloaded from a unit to SEG-Y format.0

4.1.3 Load From Unit Menu



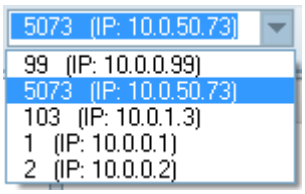
1. Navigation Tools

Tools to move up a folder, back, etc.

2. Device Connection Tools

The device window 

shows the device connected to or a list of devices the program has been connected to by clicking on the pull-down button in that window.



Left click on the connect/disconnect (toggle) button  to connect or disconnect the computer to/from the unit in the device shown in the device window. When the background of this button is white, the unit is disconnected. When the background is tan, the unit is connected.

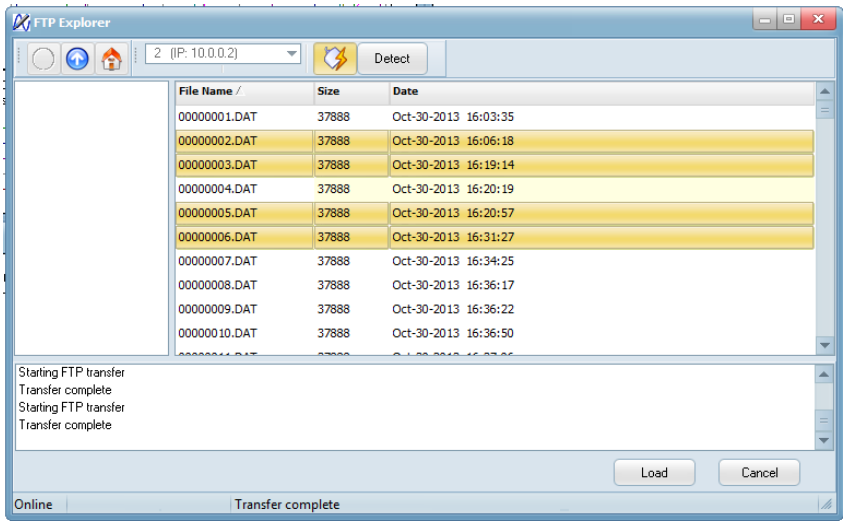
Left click on the Detect button 

for the computer to detect the unit it is connected to and to open the Device Folder window to the initial folder.

3. Device Folders

Shows the folders available from the folder currently connected to.

4. Files in Current Folder



Shows the files in the folder currently connected to. If enough files are in the current folder, a scroll bar will appear on the right side of the window for moving up and down in the list of files. Files may be sorted by clicking on the File Name, Size, and Date fields.

Data from a single file may be loaded by left clicking on the file name, size, or date then left clicking on the Load button.

One or more files may be selected by left clicking, shift-left clicking, or ctrl-left clicking on files.

One or more files may be downloaded from the unit to the computer by right clicking with the cursor is in the file list window title bar or on one of the selected files.

5. Status Window

Shows a brief history of events.

4.1.4 File Types

Source Signature input files are DAT and VIB. DAT files may be imported from a Bird Dog unit or from a Force III unit by connecting to the unit via the File/Load from Unit... function.

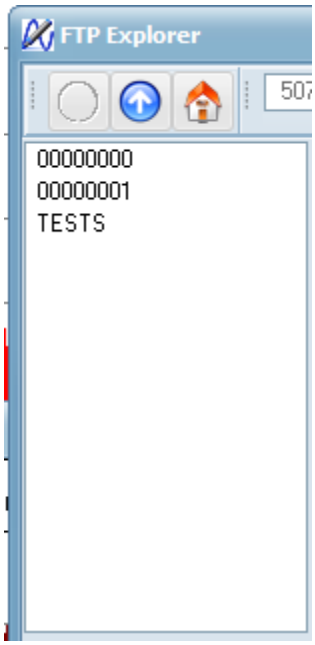
DAT files from a Force III will contain Reference and sim Baseplate and Reaction Mass acceleration and Ground Force signals. DAT files from a Bird Dog 3-3 or 3-11 unit will contain as many signals as were recorded in each file, e.g. 8 recorded data traces plus two more Ground Force signals for VibQC files; 2 for Zero Time files, encoder and decoder references.

VIB files may only be downloaded from a Force III. VIB files have Reference, Loop and Sim Baseplate, and Reaction Mass Accelerometer signals, Loop and Sim Ground Force, Torque Motor, Valve and Mass Displacement, and Drive.

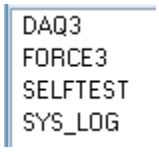
VIB files are automatically deleted from Force III units as the GPS date increments.

To enable storage of VIB files, in the Force III menus, go to SERVICE/TESTS/VIB RECORD and select ON, then return to the main operating screen and take one or more sweeps.

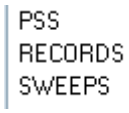
To download VIB files, in Source Signature, use the File/Load from Unit... function. When connected to a Force III, the first Device Folders window should look like this:



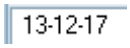
Left click on the up-arrow button to go up one folder level. Then the Device Folders window should look like this:



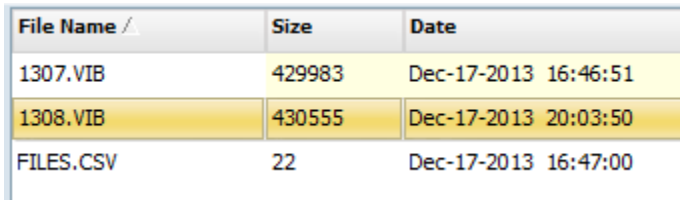
Double left click on FORCE3 to open the FORCE3 folder. Then the Device Folders window should look like this:



Double left click on RECORDS to open the RECORDS folder. Then the Device Folders window should look like this:



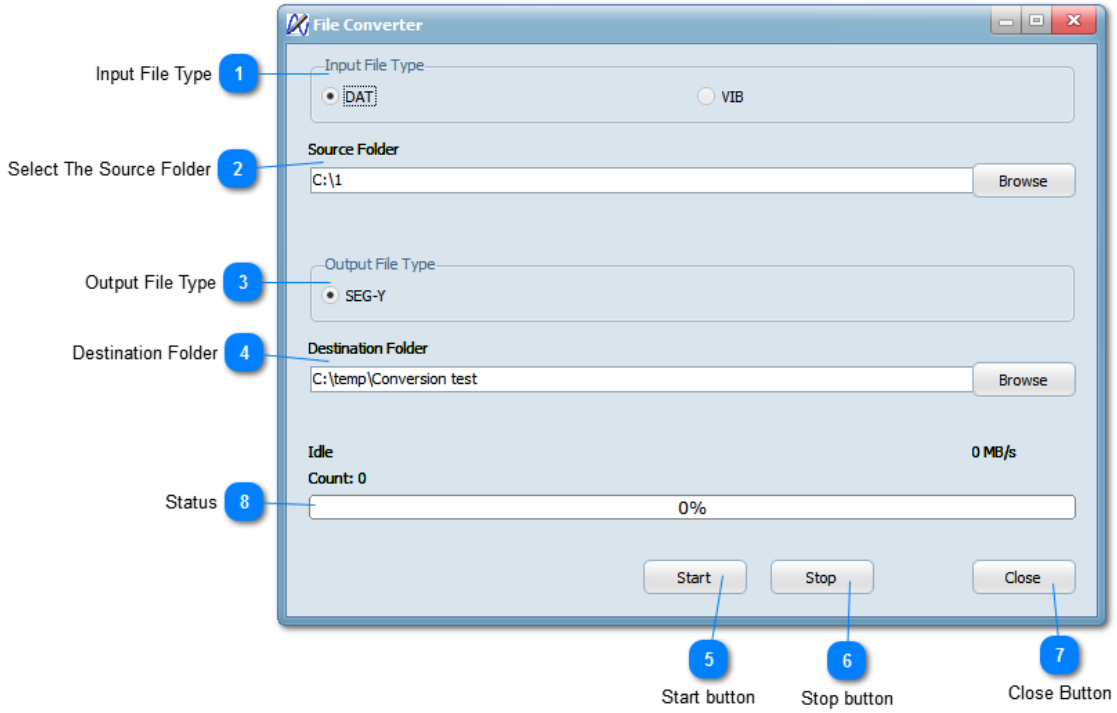
Where the folder shown is the current GPS date. Double left click on the date to open the date folder. Then the Device Folders window should be empty and the Files in Current Folder should show a listing of the saved VIB files. It may look like this:



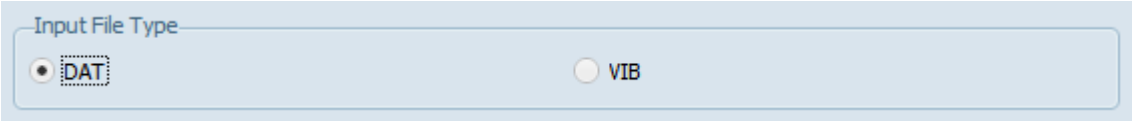
File Name	Size	Date
1307.VIB	429983	Dec-17-2013 16:46:51
1308.VIB	430555	Dec-17-2013 20:03:50
FILES.CSV	22	Dec-17-2013 16:47:00

Double left clicking on a VIB file will open that file into Source Signature. Source Signature will support analysis and storage of the data.

4.1.5 File Converter window



1. Input File Type

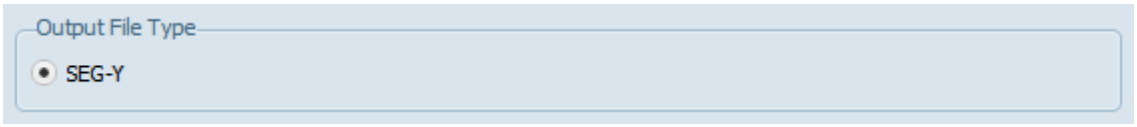


Select the type of file to be converted.

2. Select the Source Folder

Select the folder where the files to be converted are located.

3. Output File Type

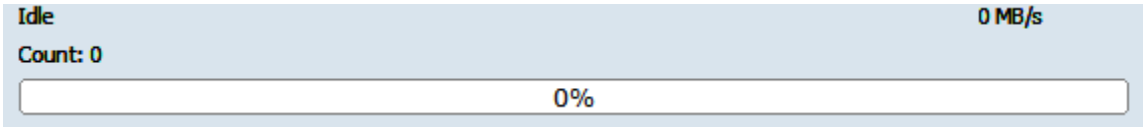


Now, only SEG-Y file type is available.

4. Destination Folder

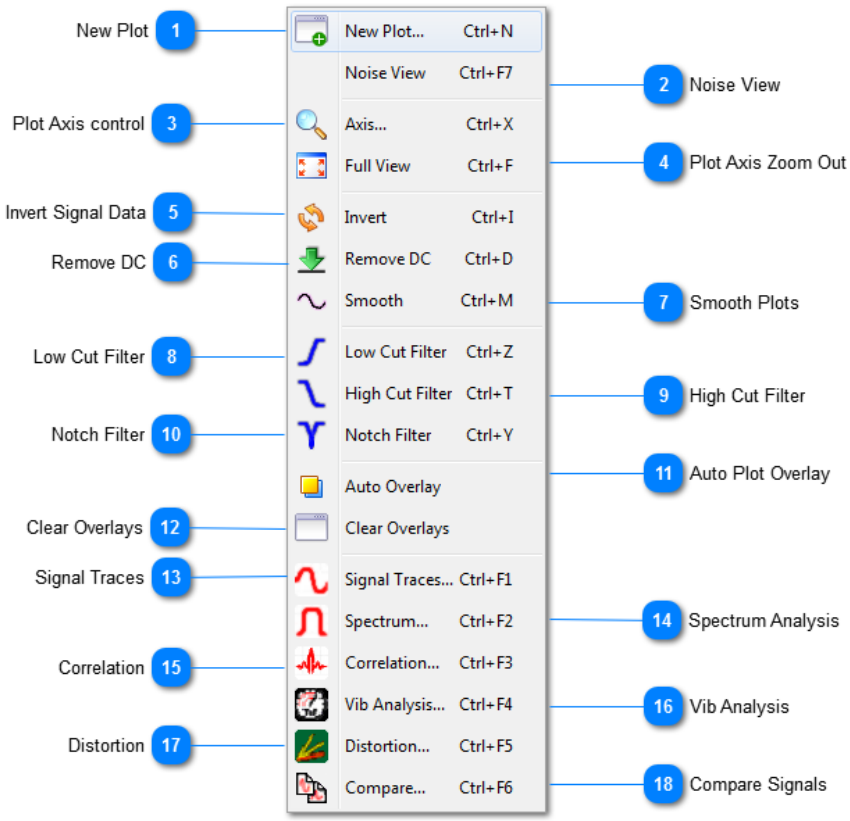
Select the folder the converted files should be written to.

5. Status



Shows the status/progress of the file conversion process.

4.1.6 View Pull-Down Menu



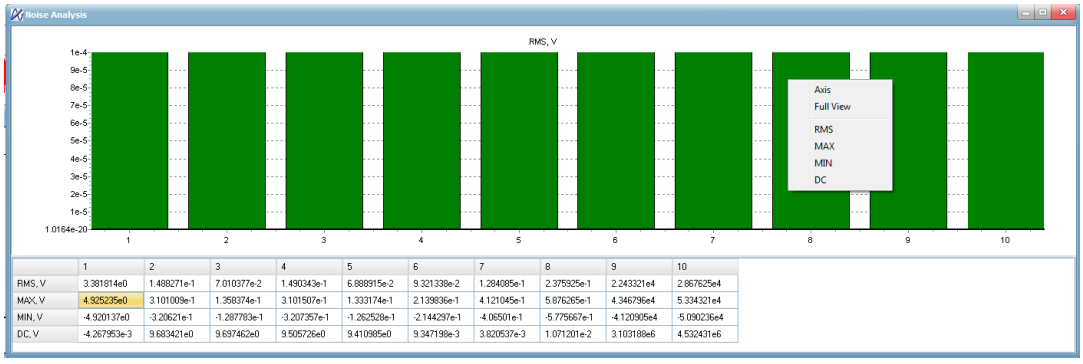
Most of the functions in the View pull-down menu are also on the Tool Bar. The Tool Bar has a few functions not found here.

1. New Plot

Adds a plot window to the Plot Area

2. Noise View

Opens a Noise View window that should look something like this:



Right clicking in the graph section will open the window that provides access to Axis, Full View, RMS, etc. functions.

3. Plot Axis control
Opens a window to allow changing the axes of the currently selected plot.

4. Plot Axis Zoom Out
Sets the axes of the currently selected plot to be great enough to show the complete plot of the currently displayed data.

5. Invert Signal Data
Inverts the signal data for display purposes only, not for saving data. Will cause phase plot to toggle between 0 and 180 degrees, etc. Does not invert the reference signal.

6. Remove DC
Removes D.C. offset from all signals.

7. Smooth Plots
Smooths all data for most types of plots.

8. Low Cut Filter
Enables or disables the low-cut filtering of data. See the Options/Preferences/Filters to set the frequency of the low-cut Filter.

9. High Cut Filter
Enables or disables the high cut filtering of data. See the Options/Preferences/Filters to set the frequency of the High Cut Filter.

10. Notch Filter
Enables or disables the notch filtering of data. See the Options/Preferences/Filters to set the frequency of the Notch Filter.

11. Auto Plot Overlay
Captures the current plots so that newer data plots overlay the current plots.

12. Clear Overlays
Removes the captured overlays from the plots.

13. Signal Traces
Converts the currently selected plot to a Signal Trace (oscillograph, commonly called wiggle trace) of all the signals selected for that plot. The plot can be configured several ways.

14. Spectrum Analysis
Converts the currently selected plot to a Spectrum Analysis Plot of all the signals selected for that plot. The plot can be configured several ways.

15. Correlation
Converts the currently selected plot to a Correlation Plot of all the signals selected for that plot. The plot can be configured several ways.

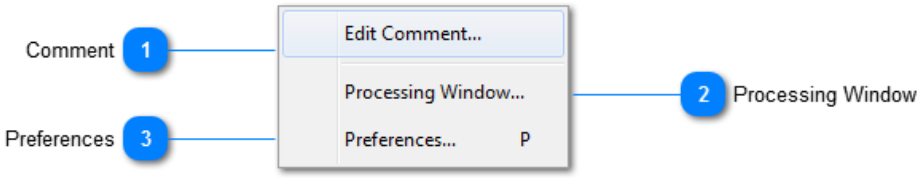
16. Vib Analysis
Converts the currently selected plot to a Vib Analysis Plot of all the signals selected for that plot. The plot can be configured several ways and can include phase, fundamental force, absolute peak force, etc. plots.

17. Distortion
Converts the currently selected plot to a Distortion Plot of all the signals selected for that plot. The plot can be configured several ways.

18. Compare Signals

Converts the currently selected plot to compare selected plots, e.g. plotting reference versus baseplate phase, etc. This can be a phase or amplitude comparison.

4.1.7 Edit Pull-Down Menu



1. Comment

Allows editing of comments to be saved with data when saving a file.

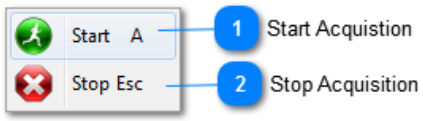
2. Processing Window

Allows one to have some of the data not plotted. The start and/or end amounts of plot suppression can be defined.

3. Preferences

Opens the application Preferences setup window. Can also be accessed through the Options pull-down menu.

4.1.8 Acquisition Menu



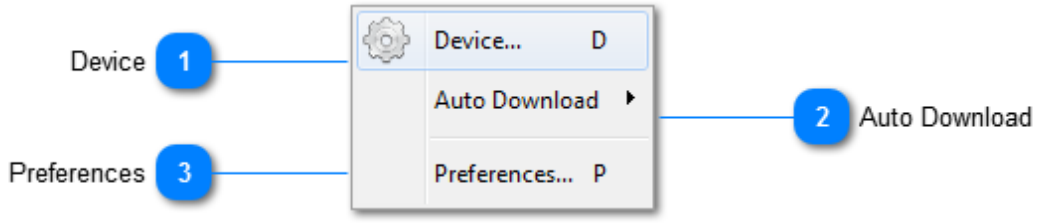
1. Start Acquisition

Enables data acquisition when used with a Bird Dog 3-11 VibQC unit. Pressing the A key on the keyboard also enables acquisition. Acquisition starts automatically at start of sweeps when connected to a F3.

2. Stop Acquisition

Stops data acquisition when used with a Bird Dog 3-11 VibQC unit. Pressing the ESC key on the keyboard also stops acquisition. The Stop button has no effect when connected to a F3.

4.1.9 Options Menu

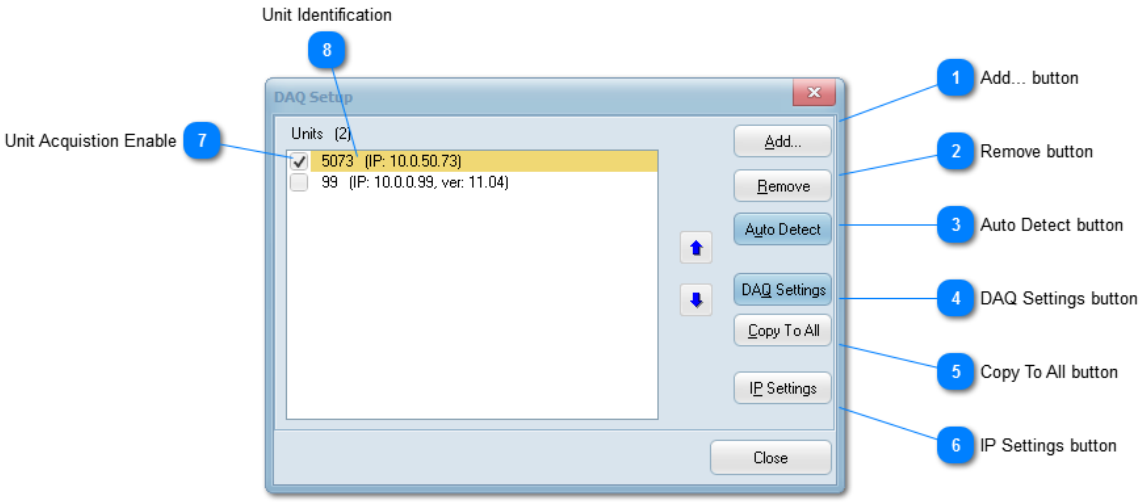


1. Device
Opens the Deice window, for selecting and configuring devices that the computer may be connected to.

2. Auto Download
Opens the window to automatically download VSS (3 channel) or VibQC (11 channel) data or to disable Auto Downloads. The Disable function does not currently work properly.

3. Preferences
Opens the application Preferences setup window. Can also be accessed through the Edit pull-down menu.

4.1.10 DAQ Setup window



1. Add button
Allows the user to add a serial number and IP address manually.

2. Remove button
Allows the user to remove a highlighted unit.

3. Auto Detect button
If a unit's serial number and IP address is not known, connect it to the computer then click on the Auto Detect button. If communications can be established, the unit's serial number and IP address will appear in the Unit Identification window.

4. DAQ Settings button
Downloads the settings of the selected unit. The unit's settings may be edited and sent to the unit from the DAQ Settings window.

5. Copy to All button
Copies the settings to multiple units. Multiple units may be connected through an Ethernet Switch, etc.

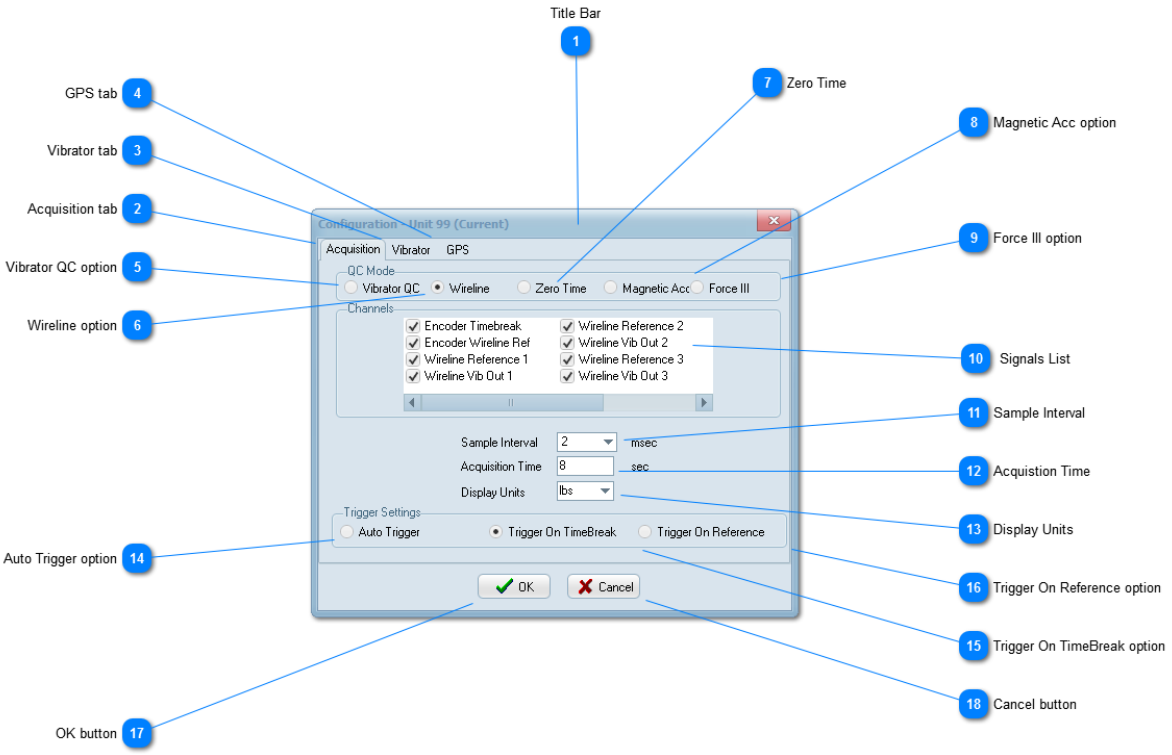
6. IP Settings button
Opens a window that will allow changing the IP settings of the connected unit.

7. Unit Acquisition Enable
Signals from all units with this field checked will be acquired.

8. Unit Identification
5073 (IP: 10.0.50.73)

Each detected unit's serial number and IP address will be displayed here. Selecting a unit will highlight this field, as shown for 5073 in this example. The selected unit will be configured when DAQ Settings is selected.

4.1.11 Configuration - Acquisition



1. Title Bar
Shows the number of the Unit being configured and has the exit button for the configuration function.

2. Acquisition tab
Opens the window for acquisition configuration setup, as displayed in this example.

3. Vibrator tab
Opens a window for setting vibrator weights, etc.

4. GPS tab
Opens a window for checking the current GPS position information.

5. Vibrator QC option
Select this option for connecting the unit to a vibrator control unit.

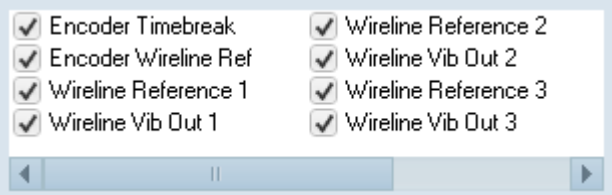
6. Wireline option
Select this option for conducting wireline similarities by connecting wireline similarity cables from the vibrators' connector panels to the unit.

7. Zero Time
Select to conduct zero-time tests.

8. Magnetic Acc option
Select for connecting independent magnetic mount accelerometers to any of inputs 2 through 11.

9. Force III option
Select for connecting the unit to a Force III unit by Ethernet.

10. Signals List



Click to enable or disable signal inputs. Move the slider at the bottom of this window to see all the signals available. This example shows the Wireline Signals List. It is best to only enable active signals for acquisition.

11. Sample Interval
Allows selection of the sample interval for signals applied to the unit.

12. Acquisition Time
Allows selection of the length of acquisition time.

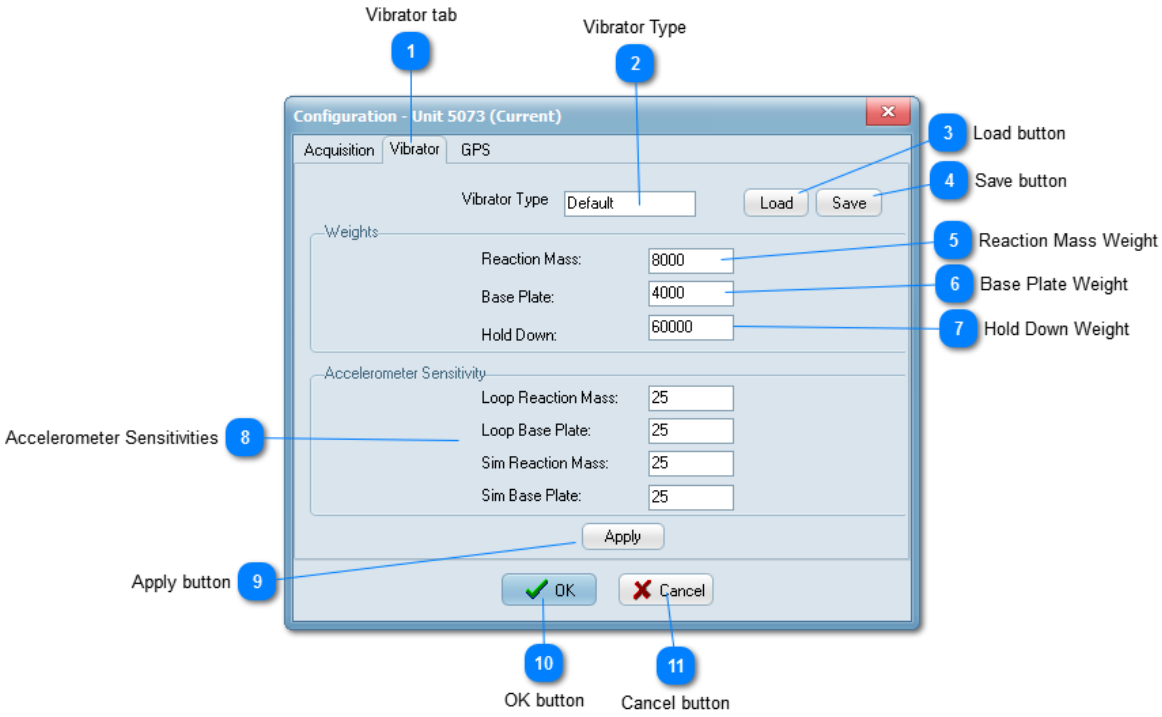
13. Display Units
Allows the graphs scaling to be displayed in different units.

14. Auto Trigger option
Select for the unit to start acquisition as soon as the START button is pressed.

15. Trigger on Time Break option
Select for the unit to start acquisition when the Time Break input signal arrives.

16. Trigger on Reference option
Select for the unit to start acquisition when the reference signal becomes active.

4.1.12 Configuration - Vibrator
Must be configured when using a Bird Dog 3-11 Vib QC unit in the Vibrator QC or Magnetic ACC modes. Not used in Wireline, Zero Time, or Force III Modes.



1. Vibrator tab
Select this tab to set vibrator parameters

2. Vibrator Type
The type of vibrator may be displayed here. It is not necessary.

3. Load button
Loads vibrator parameters from a file.

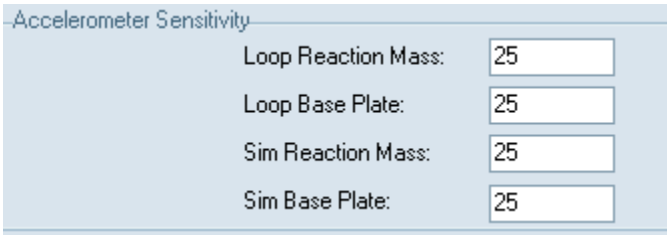
4. Save button
Saves vibrator parameters to a file.

5. Reaction Mass Weight
Enter the reaction mass weight. Any units are acceptable if reaction mass, base plate, and hold down weights are all in the same weight system.

6. Base Plate Weight
Enter the base plate weight. Any units are acceptable if reaction mass, base plate, and hold down weights are all in the same weight system.

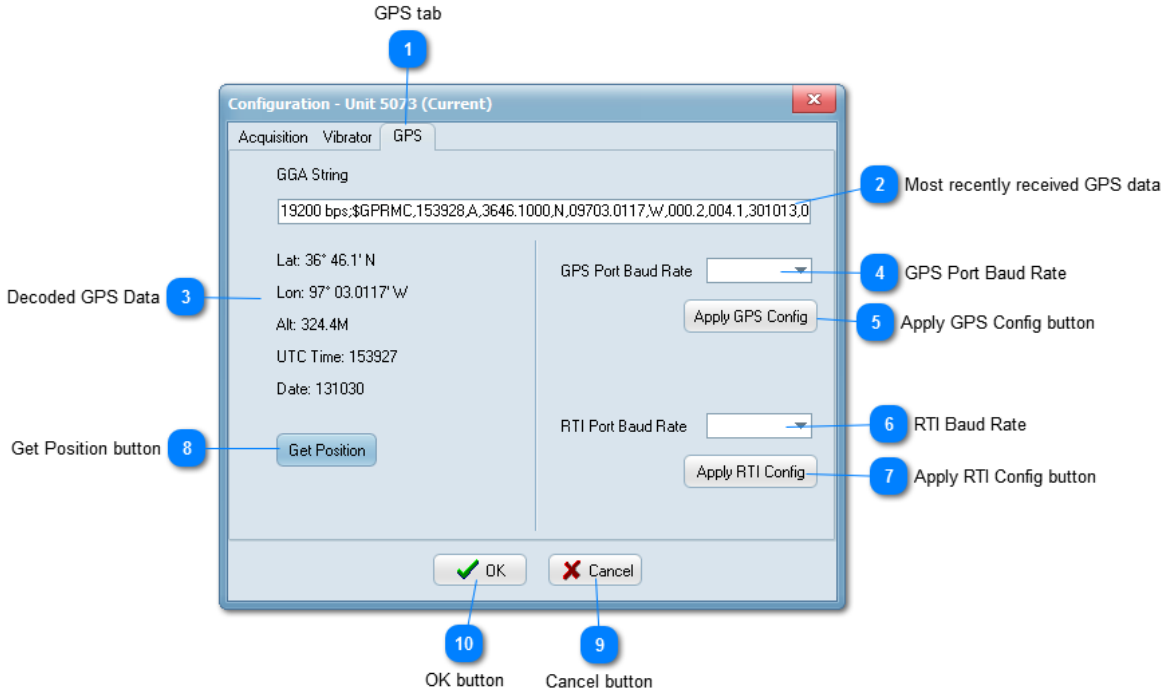
7. Hold Down Weight
Enter the hold down weight. Any units are acceptable if reaction mass, base plate, and hold down weights are all in the same weight system.

8. Accelerometer Sensitivities

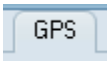


System accelerometer sensitivities. Seismic Source system accelerometers all have 25mv/g sensitivity. Magnetic mount accelerometers typically have 10mv/g sensitivity.

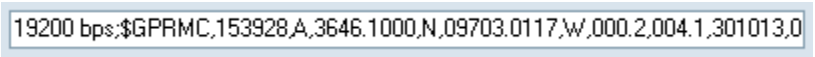
4.1.13 Configuration – GPS



1. GPS tab

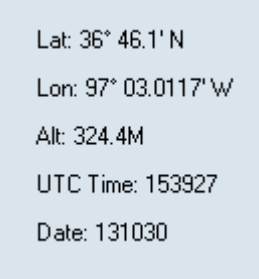


2. Most recently received GPS data



Left click on the Get Position button to load data from a GPS unit. Data can be viewed to see if it appears to be valid. This display shows a valid message.

3. Decoded GPS Data

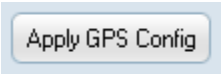


Will show the position, time, and date if valid GPS data is being received. Will show N/A if GPS data is not valid or not being received.

4. GPS Port Baud Rate

Select a different baud rate if the GGA string does not appear correctly after selecting Get Position.

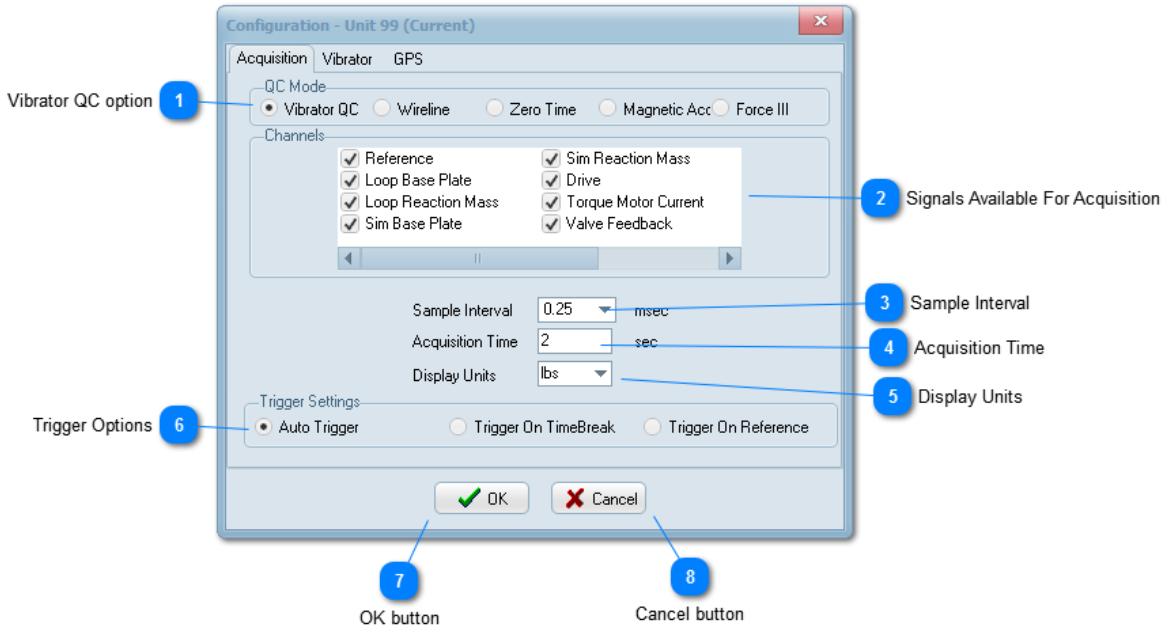
5. Apply GPS Config button



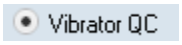
6. RTI Baud Rate

For setting the baud rate for sending data to the recording system.

4.1.14 Vibrator QC Mode



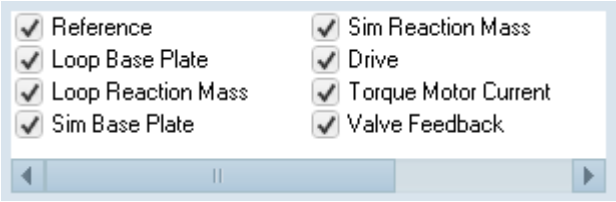
1. Vibrator QC option



Attention!

The power supply for accelerometer tests may be on when the Bird Dog unit is powered up if it was last used for a test requiring that power, e.g. Magnetic Accelerometer or Accelerometer Test modes. Make sure the CURR REG LED is off before connecting the unit to vibrator control units for Vibrator QC, Wireline, or Zero Time tests. If the LED is on, the accelerometer testing power supply may be turned off by entering the DAQ Setup mode, then selecting one of these modes, and then by left clicking on the OK button at the bottom of the DAQ Configuration window.

2. Signals Available For Acquisition

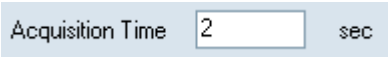


Move the slider below this window to access all the signals that are available. Click on signals to enable or disable them for acquisition.

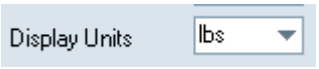
3. Sample Interval

From 0.021ms to 8ms per sample, in preset intervals. Channels 9, 10, and 11 cannot sample faster than 0.25 msec.

4. Acquisition Time

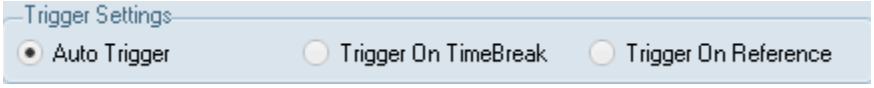


5. Display Units



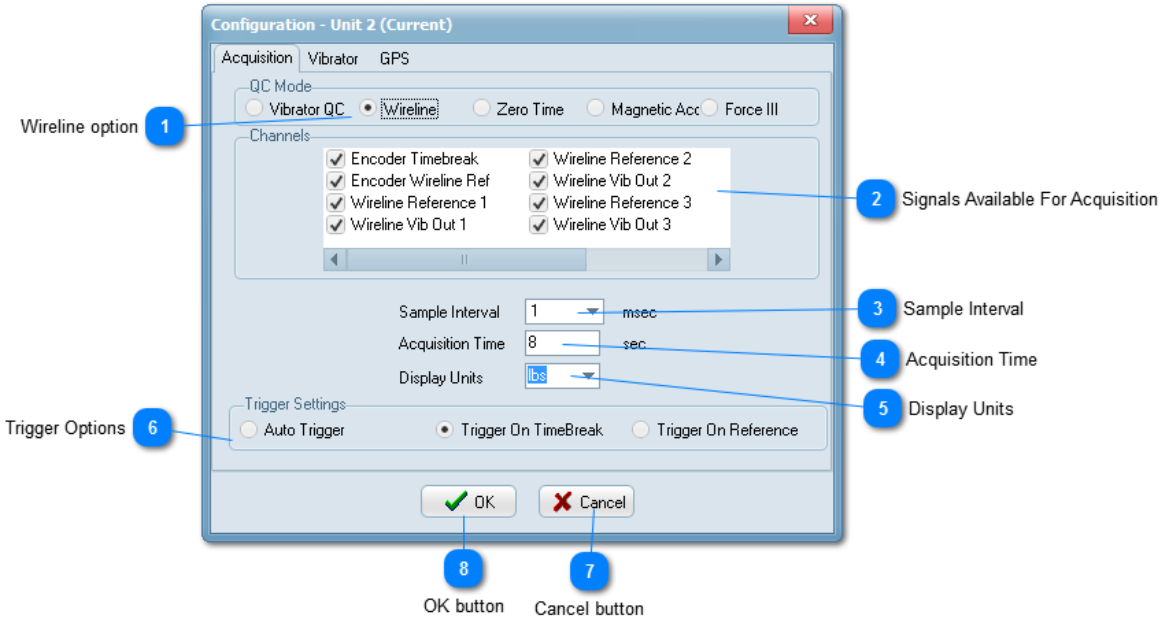
Pounds, KG, or Newtons are the options.

6. Trigger Options



Triggering on Time Break usually gives the best results.

4.1.15 Wireline Mode

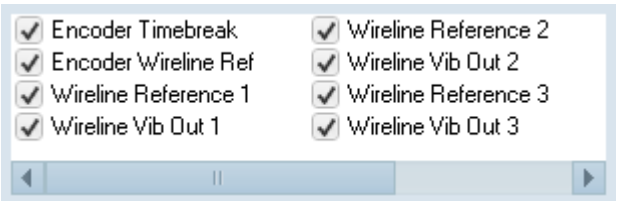


1. Wireline option

Attention!

The power supply for accelerometer tests may be on when the Bird Dog unit is powered up if it was last used for a test requiring that power, e.g. Magnetic Accelerometer or Accelerometer Test modes. Make sure the CURR REG LED is off before connecting the unit to vibrator control units for Vibrator QC, Wireline, or Zero Time tests. If the LED is on, the accelerometer testing power supply may be turned off by entering the DAQ Setup mode, then selecting one of these modes, and then by left clicking on the OK button at the bottom of the DAQ Configuration window.

2. Signals Available for Acquisition



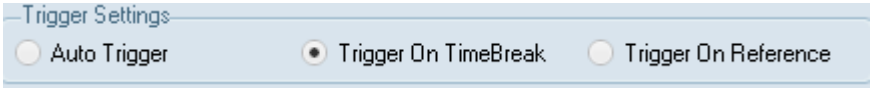
Move the slider below this window to access all the signals that are available. Click on signals to enable or disable them for acquisition.

3. Sample Interval
Set as desired. Channels 9, 10, and 11 cannot sample faster than 0.25 msec.

4. Acquisition Time
Set as desired.

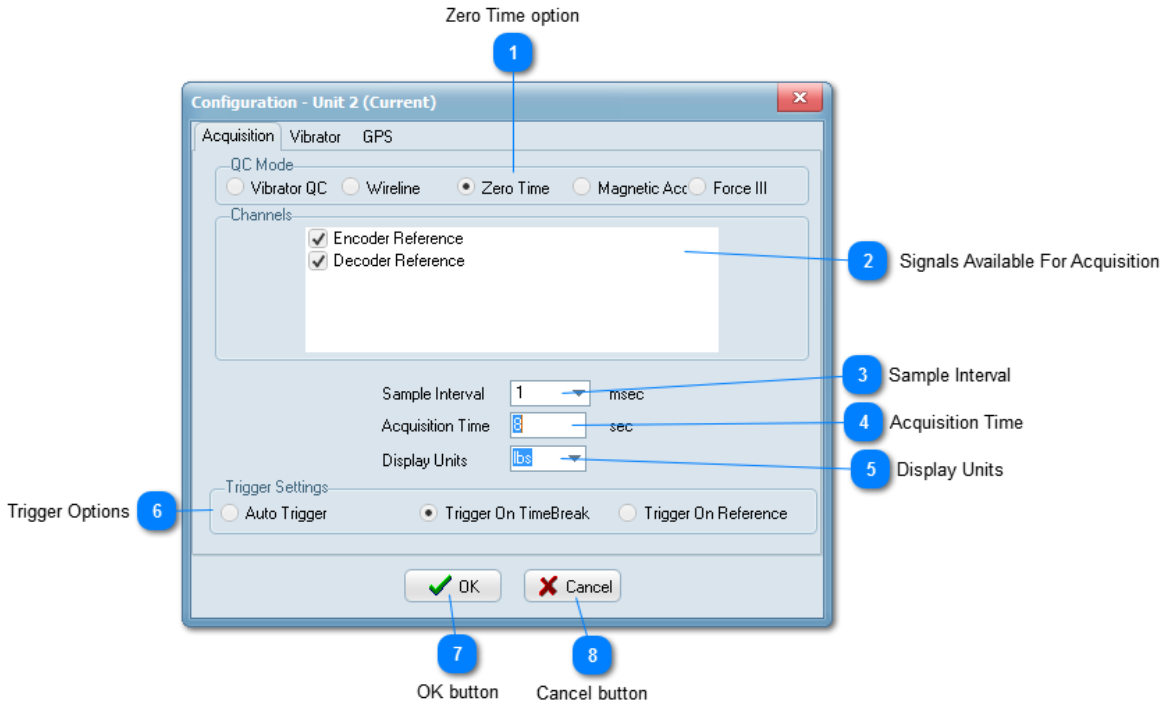
5. Display Units
Set as desired

6. Trigger Options

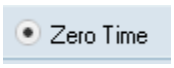


Set as desired. Trigger on Time Break recommended. 'Pre' and post trigger are available in the Advanced mode.

4.1.16 Zero Time Mode



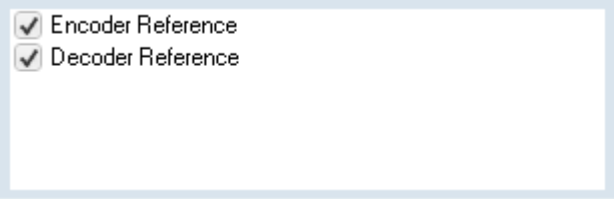
1. Zero Time option



Attention!

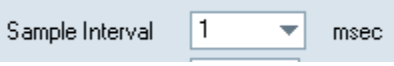
The power supply for accelerometer tests may be on when the Bird Dog unit is powered up if it was last used for a test requiring that power, e.g. Magnetic Accelerometer or Accelerometer Test modes. Make sure the CURR REG LED is off before connecting the unit to vibrator control units for Vibrator QC, Wireline, or Zero Time tests. If the LED is on, the accelerometer testing power supply may be turned off by entering the DAQ Setup mode, then selecting one of these modes, and then by left clicking on the OK button at the bottom of the DAQ Configuration window.

2. Signals Available For Acquisition



Ensure both signals are enabled.

3. Sample Interval

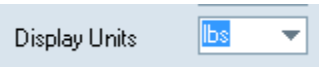


Select as desired. 1 or 2msec is recommended.

4. Acquisition Time

Set as desired. Sweep length is recommended

5. Display Units

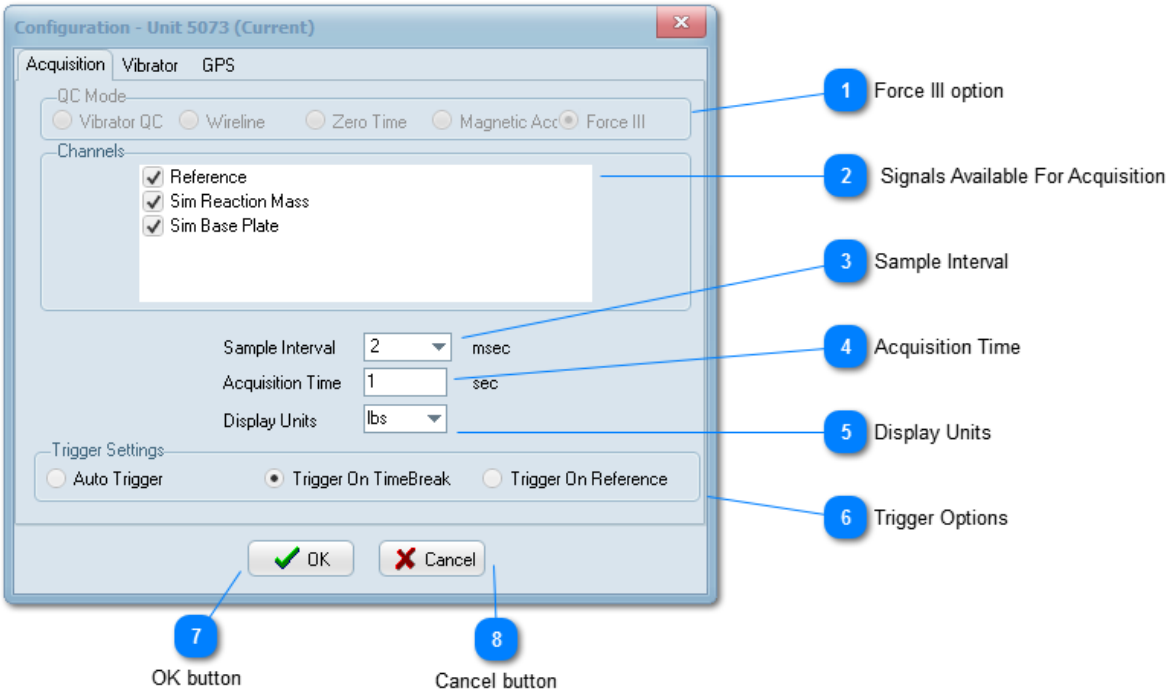


6. Trigger Options

Set as desired.

4.1.17 Force III Mode

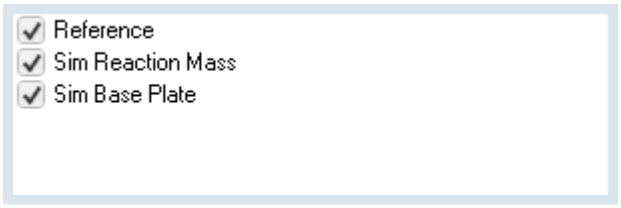
This is for situations where the Ethernet cable is connected to a Force III instead of a Bird Dog 3 unit.



1. Force III option

When connected to a Force III unit, this is QC mode will automatically be selected. No others will be available.

2. Signals Available For Acquisition



This is the only signals that will be shown, but if Vib QC Files is selected in the Options/Auto Download menu, signals like those acquired in typical VibQC operations will be recorded. The Vib Record function must be set to ON in the SERVICE/TESTS menu on the Force III for the Vib QC function to work.

3. Sample Interval

Not used when connected to a Force III.

4. Acquisition Time

Not used when connected to a Force III. Will automatically acquire data for the length of the sweep.

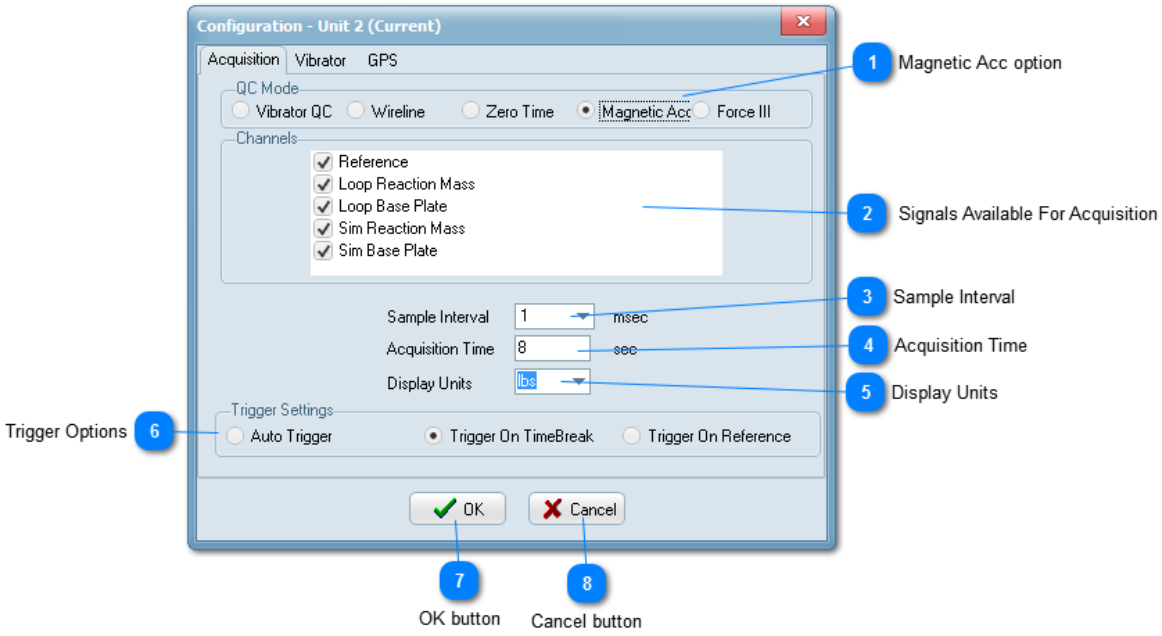
5. Display Units

Not used when connected to a Force III.

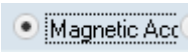
6. Trigger Options

Not used when connected to a Force III. Will automatically trigger on Time Break.

4.1.18 Magnetic Accelerometers Mode

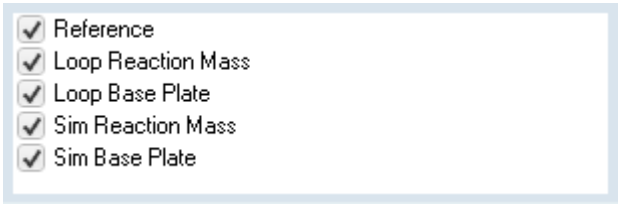


1. Magnetic Acc option



Source Signature turns on power supplies for independent accelerometers for BNC inputs 2 through 5 when not in the advanced mode. Power supplies can be turned on or off for these and other BNCs when in the advanced mode. Power supplies are not available for channels 9, 10, and 11. See the Mag Acc Advanced section of this manual for instructions.

2. Signals Available For Acquisition



Other signals can be added in the advanced mode. See the Mag Acc Advanced section for instructions.

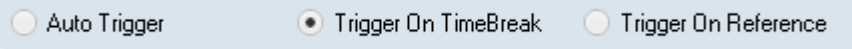
3. Sample Interval

Set as desired.

4. Acquisition Time
Set as desired.

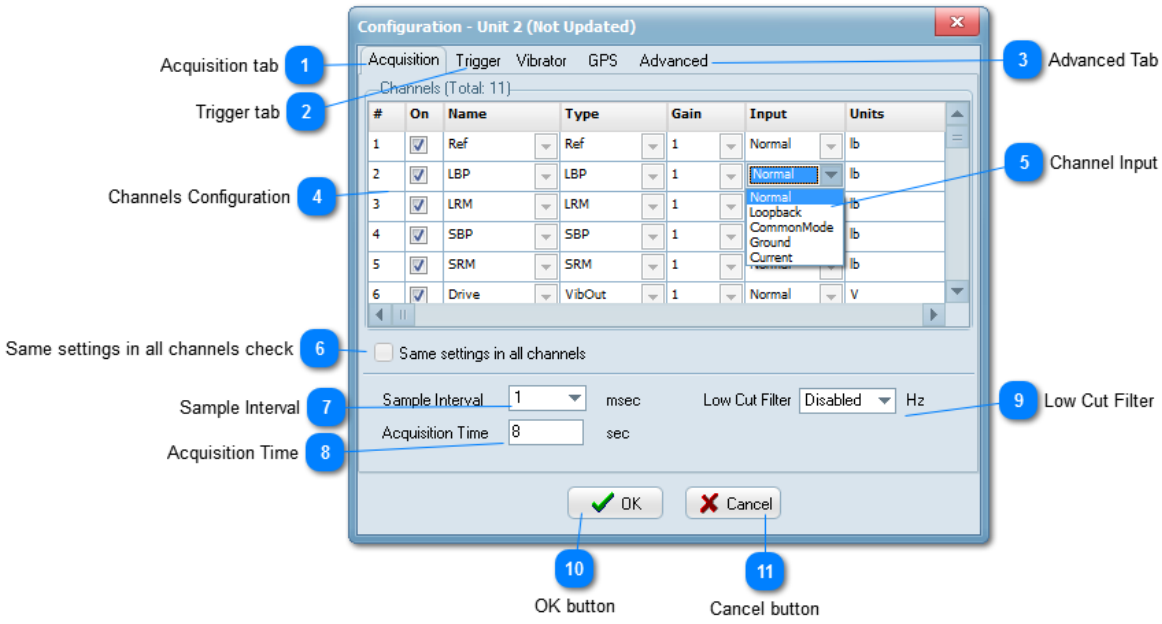
5. Display Units
Set as desired.

6. Trigger Options



Set as desired. Trigger on Time Break is recommended.

4.1.19 Mag Acc Advanced Mode



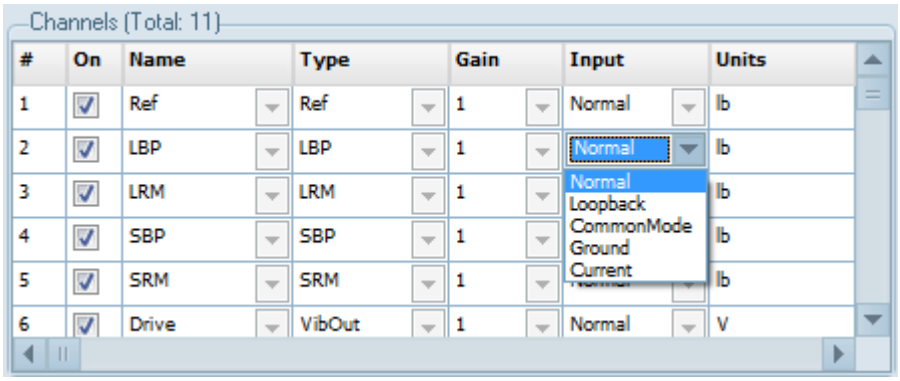
Advanced Mode in the Options/Preferences window offers many capabilities not available when Advanced Mode is not selected. It is easy to accidentally make some changes to configuration settings while in the Advanced Mode. These accidental setting changes may affect the program's operation in undesirable ways. Most configuration settings can be restored to proper entries by going into the not-Advanced Mode and then configuring the unit by going to the Options/Device/DAQ settings window then clicking on OK to send the non-advanced settings to the unit.

1. Acquisition tab
This section of the manual is about the Magnetic Acc mode when the Advanced Mode is selected in the Options/Preferences menu of Source Signature. The Advanced Mode also makes added options available in modes other than Magnetic Acc.

2. Trigger tab
The Trigger tab is only present in the Advanced Mode. Additional trigger options are available in Advanced mode of VibQC and other modes. Things such as ‘pre’ and post trigger, trigger channel selection, triggering on a specified GPS time, etc. are available in Advanced mode.

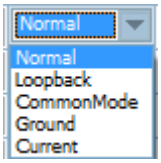
3. Advanced Tab
The Advanced tab is only present in the Advanced Mode. Functions available in this tab are not needed in most situations.

4. Channels Configuration



The configuration of all the channels may be defined in this widow. The types Ref, LBP, LRM, SBP, and SRM should not assigned to more than one channel for each type, e.g. assign only one channel with Ref type, one as LBP, etc.

5. Channel Input



The channel input for each channel may be defined by clicking on the pull-down button for that channel. The only inputs useful for field use are Normal and Current. The other inputs are for testing by Seismic Source personnel. Selecting the Current mode turns on the power supply and current regulator for the channel. Current regulators may be selected for any channel(s) but there are no current regulators (hardware) for channels 9, 10, and 11.

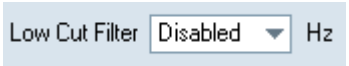
6. Same settings in all channels check

The configurations of all the channels may be copied from the channel currently being configured if this feature is enabled. This is typically not desirable.

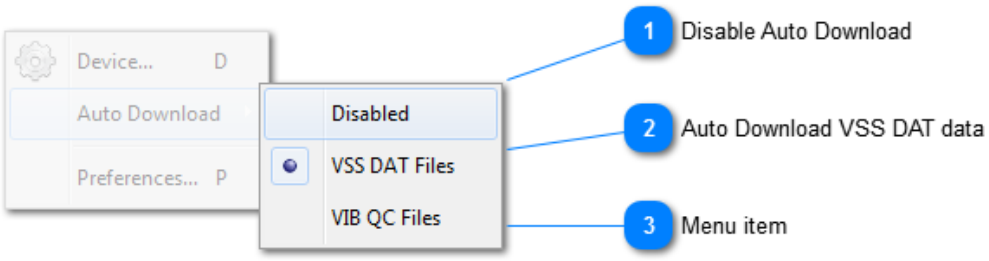
7. Sample Interval

8. Acquisition Time

9. Low Cut Filter



4.1.20 Auto Download Menu



1. Disable Auto Download

Only use this option when it is not desired to download data from a connected unit.

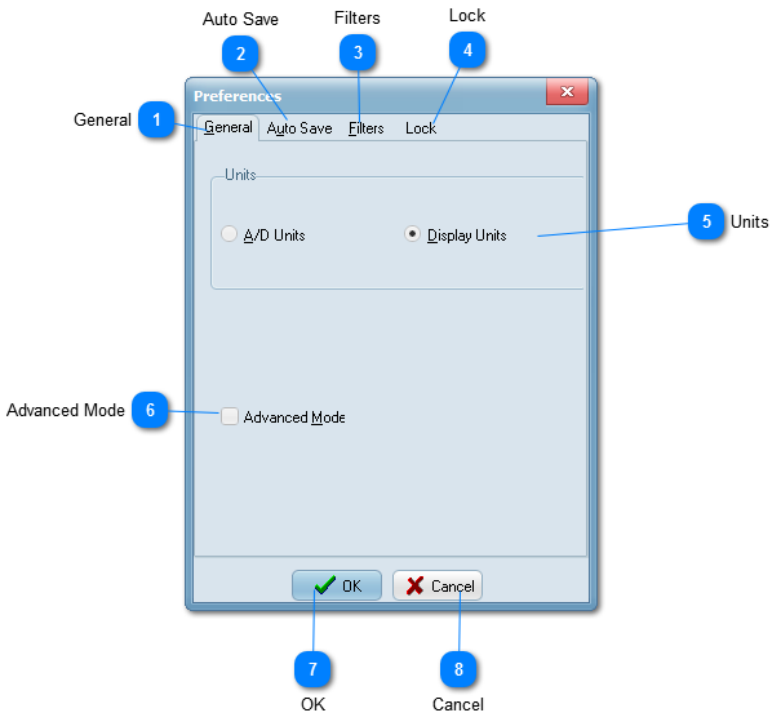
2. Auto Download VSS DAT data

Select this option for automatic data downloading from a Bird Dog 3-11 Vib QC unit and 3 channel data from a Force III.

3. Menu item

Select this option for automatic data downloading 11 channel data from a Force III. The Force III must have the Vib Record set to ON in the SERVICE/TESTS menu on the front panel of the Force III for this feature to work.

4.1.21 Preferences window



1. General
Opens the General window, which is displayed here.

2. Auto Save
Opens the Auto Save window.

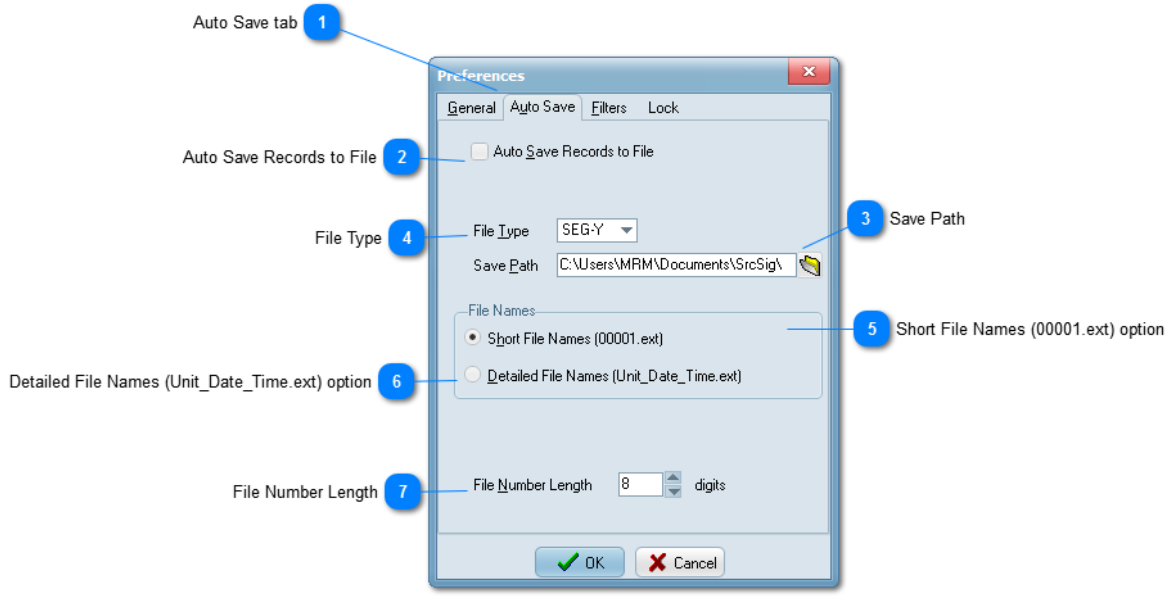
3. Filters
Opens the Filters window.

4. Lock
Opens the window to allow locking selections.

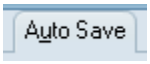
5. Units
Select as desired.

6. Advanced Mode
Should not be selected for most work.

4.1.22 Auto Save



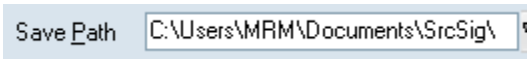
1. Auto Save tab



2. Auto Save Records to File

If enabled, another option will be available, Confirm Before Saving to File.

3. Save Path

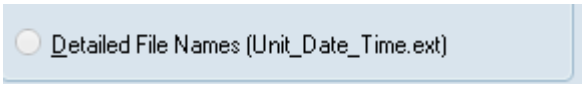


4. File Type

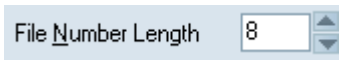
Can select SEG-Y, SEG-2, or ASII CSV.

5. Short File Names (00001.ext) option

6. Detailed File Names (Unit_Date_Time.ext) option

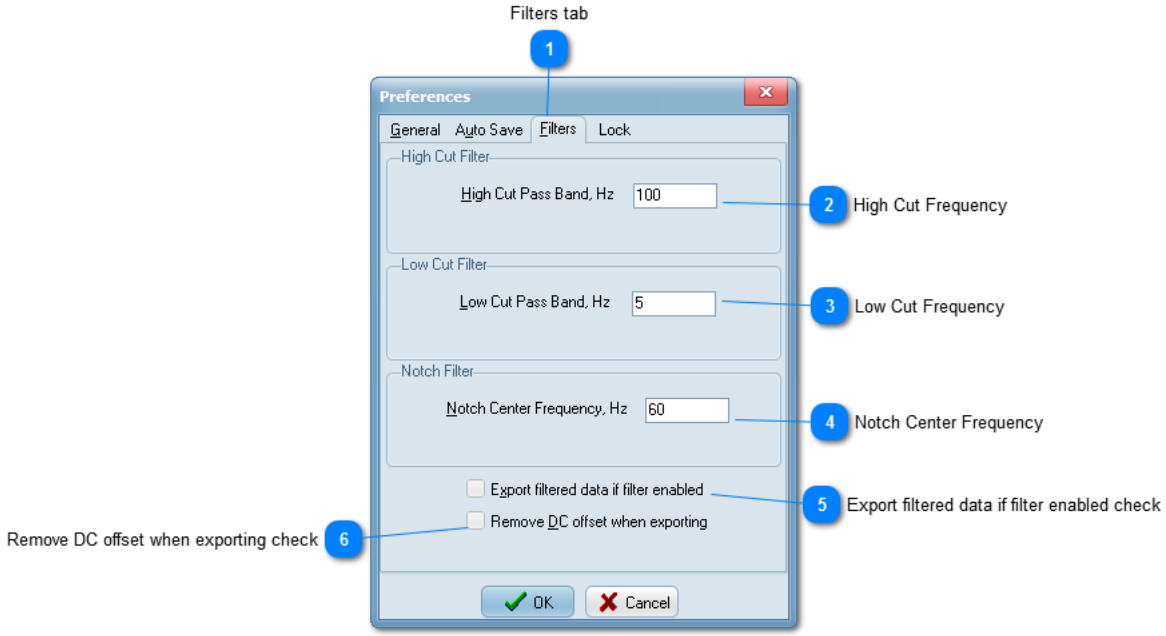


7. File Number Length



Sets the number of digits to be used in the file number.

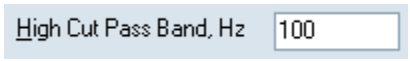
4.1.23 Filters



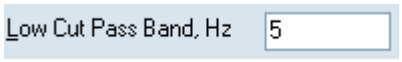
1. Filters tab

Settings in this tab control filtering of plots but not of saved data.

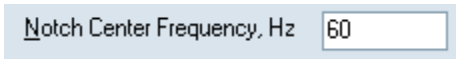
2. High Cut Frequency



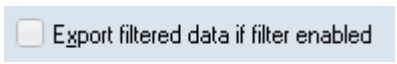
3. Low Cut Frequency



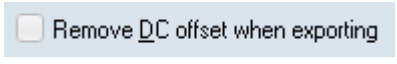
4. Notch Center Frequency



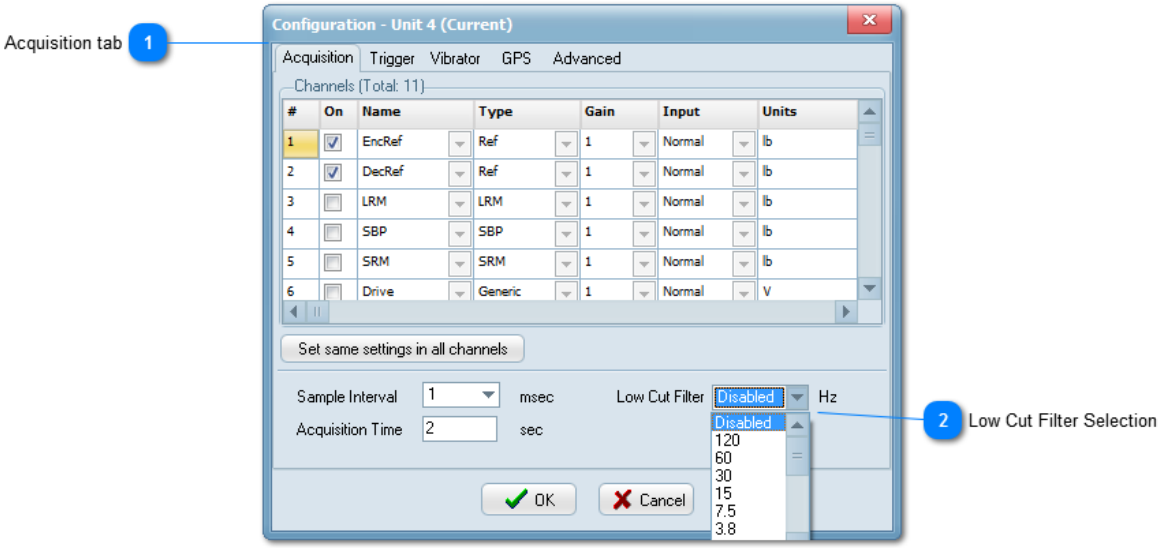
5. Export filtered data if filter enabled check



6. Remove DC offset when exporting check



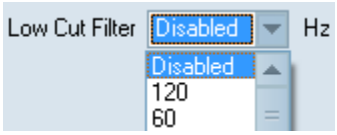
4.1.24 Disabling Low Cut Filters



1. Acquisition tab

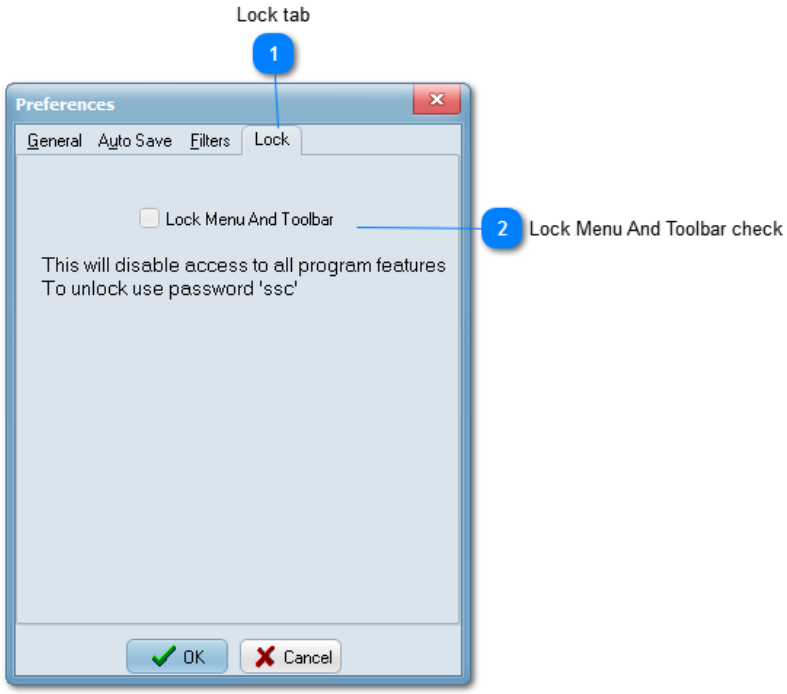
In the Options/Device/DAQ Setup/Configuration window.

2. Low Cut Filter Selection

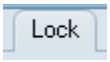


Some plots or test results may be bad if the low-cut hardware filters are enabled. When using a Bird Dog 3-11 unit, the low-cut hardware filters should be disabled. To do this, go to the Options/Preferences menu and select Advanced Mode then go to the Options/Device/DAQ Setup/Configuration window and select Low Cut Filter - Disabled then left click on the OK then Close buttons. After doing that it is almost always best to go to the Options/Preferences menu and deselect the Advanced Mode.

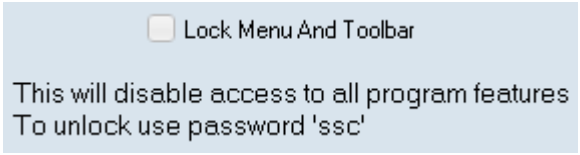
4.1.25 Lock



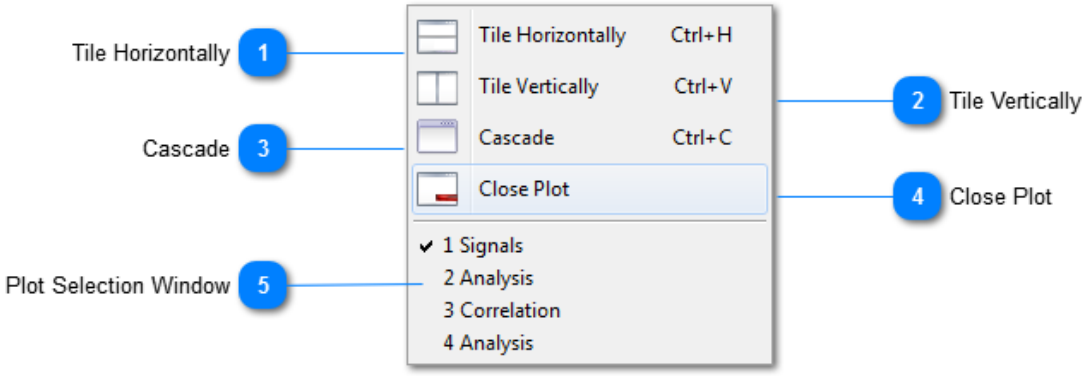
3. Lock tab



4. Lock Menu and Toolbar check

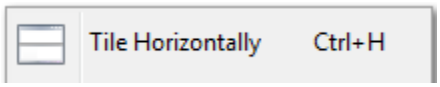


4.1.26 Window Menu



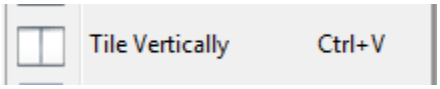
These are standard operating system windows control functions except for Close Plot.

1. Tile Horizontally



The active plot will be moved to the top or top left plot when Tile Horizontally is selected. This allows one to re-order the plots on a multi-plot screen.

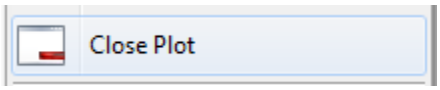
2. Tile Vertically



The active plot will be moved to the left or top left plot when Tile Vertically is selected. This allows one to re-order the plots on a multi-plot screen.

3. Cascade

4. Close Plot



Closes the plot that is currently selected plot window

5. Plot Selection Window

A list of the active plots is displayed here. Clicking on a plot will make it the currently selected plot. Another way of making a plot the currently selected plot is to click somewhere in that window, including the title bar for that plot.

4.1.27 Tool Bar

Note: Tools with a toggle function will be highlighted when selected.

1. File Control Area

Click here to clear current data, open or save a file, or send a screen shot to a printer.

2. Plot Zoom Controls

Control the axes of the graphs or zoom out so that all the plot is visible.

3. Plot Processing Controls

Features here include inverting signal plots (except reference), remove DC, smooth most plots (not correlation envelope), low and high cut filters and notch filter. These functions do not affect saved data except for exported files when the save filtered features are selected in the Preferences/Filters menu.

4. Plot Type Selection

Click here to open a new plot, or change the currently selected plot to a new plot type, such as signal, spectrum, correlation. analysis, distortion, and comparison.

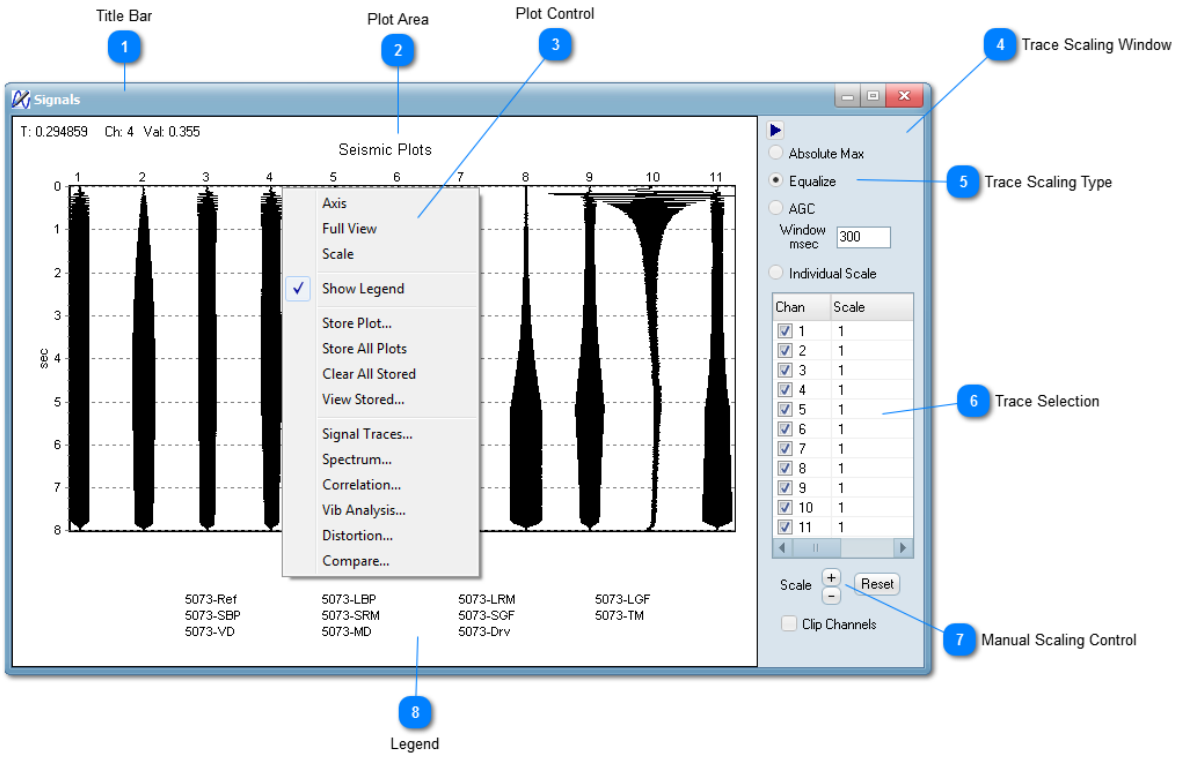
5. Overlay Control

Automatic plot overlay of all plots or clearing overlays are available here.

6. Acquisition Control

Click on the left or center button to enable or disable data acquisition when connected to a Bird Dog 3-11 VibQC unit. Click on the right button or open the Device menu to allow selection and setup of devices connected to the computer.

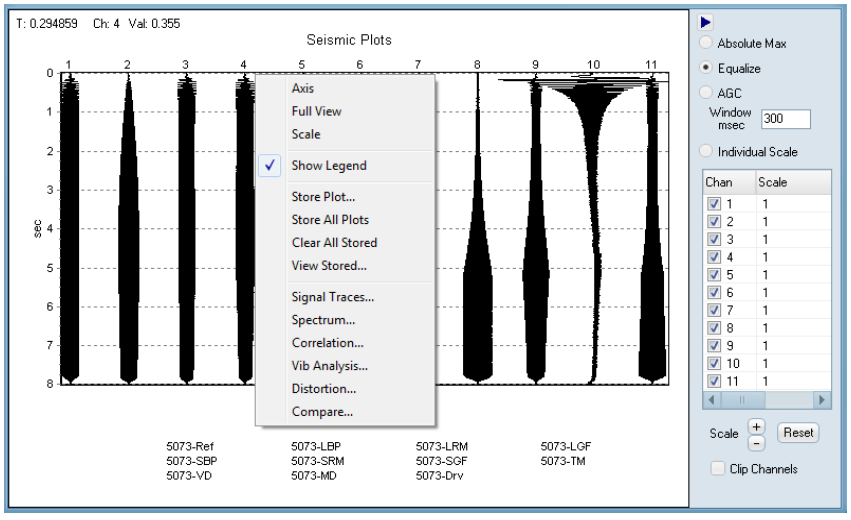
4.1.28 Plot Functions



1. Title Bar

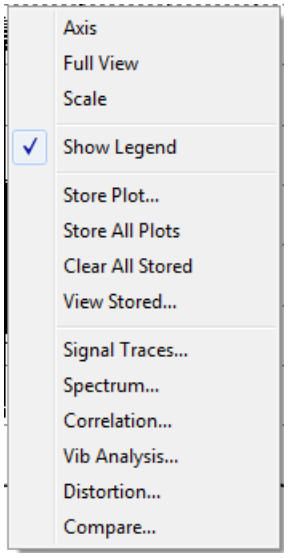
Shows plot type and operating system buttons to control the plot window.

2. Plot Area



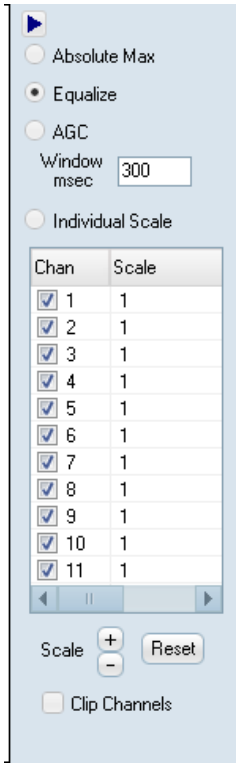
This is the area that may be occupied by the plot.

3. Plot Control



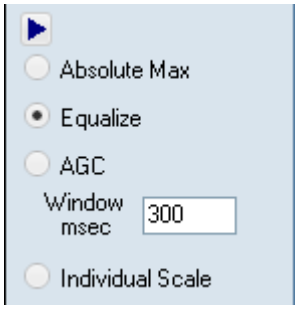
Right clicking inside the graph opens this window. Store plot only stores one of the traces in a multi-trace plot. Up to 8 traces may be stored. The Plot Type may also be changed from this menu.

4. Trace Scaling Window

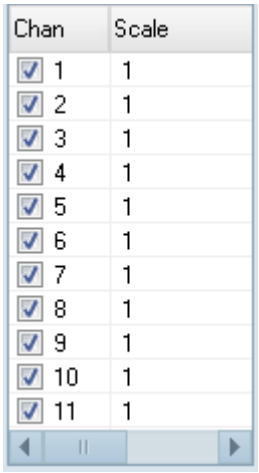


This window is shown when Scale is selected in the Plot Control window. The button in the top left corner closes this window. Examples of the effects of scaling functions follows this section.

5. Trace Scaling Type



6. Trace Selection



Individual traces of a multi-trace graph may be suppressed or enabled.

7. Manual Scaling Control

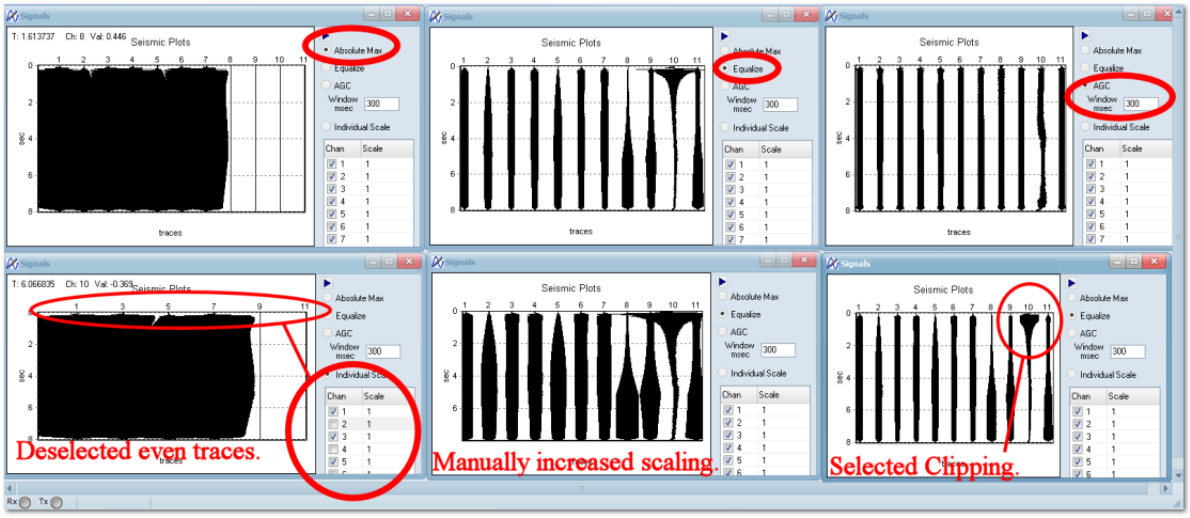
Scaling of all traces may be increased, decreased or reset. Channels may also be subjected to clipping.

8. Legend

Shows the trace names for multi-trace graphs.

Examples of Scaling Control Selections

These are all the same data signal plots with different scaling options selected.



5 Ethernet Setup Information

The following section explains how to set up your ethernet configuration to connect with the BirdDog III.

5.1 Windows VISTA Operation

When using Windows Vista Operating System, the VScope program cannot be installed in the Program Files subdirectory. A new subdirectory on the C drive should be made and the VScope.exe should be copied to this subdirectory.

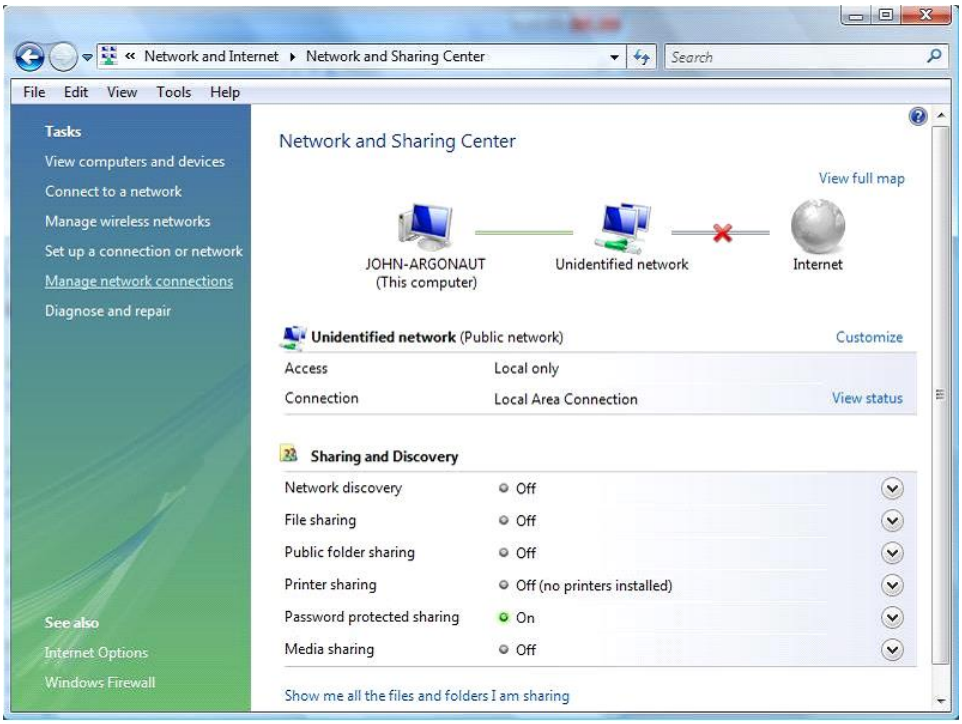
IP address setup must be set to a fixed IP address and all firewalls must be disabled.

Disable the Windows Firewall by selecting the Firewall selection in the "Network and Internet" selection in the Control Panel

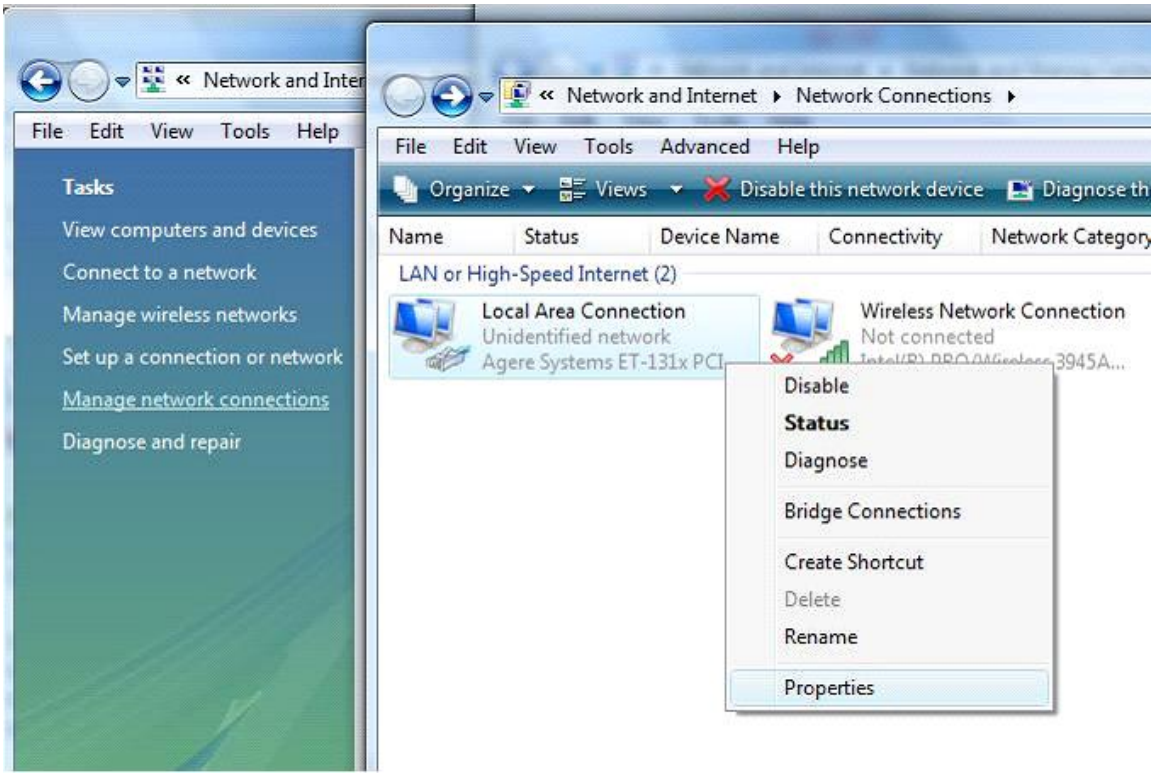
With Windows Vista computer, the Ethernet setup is done by the following procedure:

1. Go to the Control Panel and select "View network status and tasks".

2. Select "Manage network connections"



3. Right Click on the “Local Area Connections” and select “Properties”



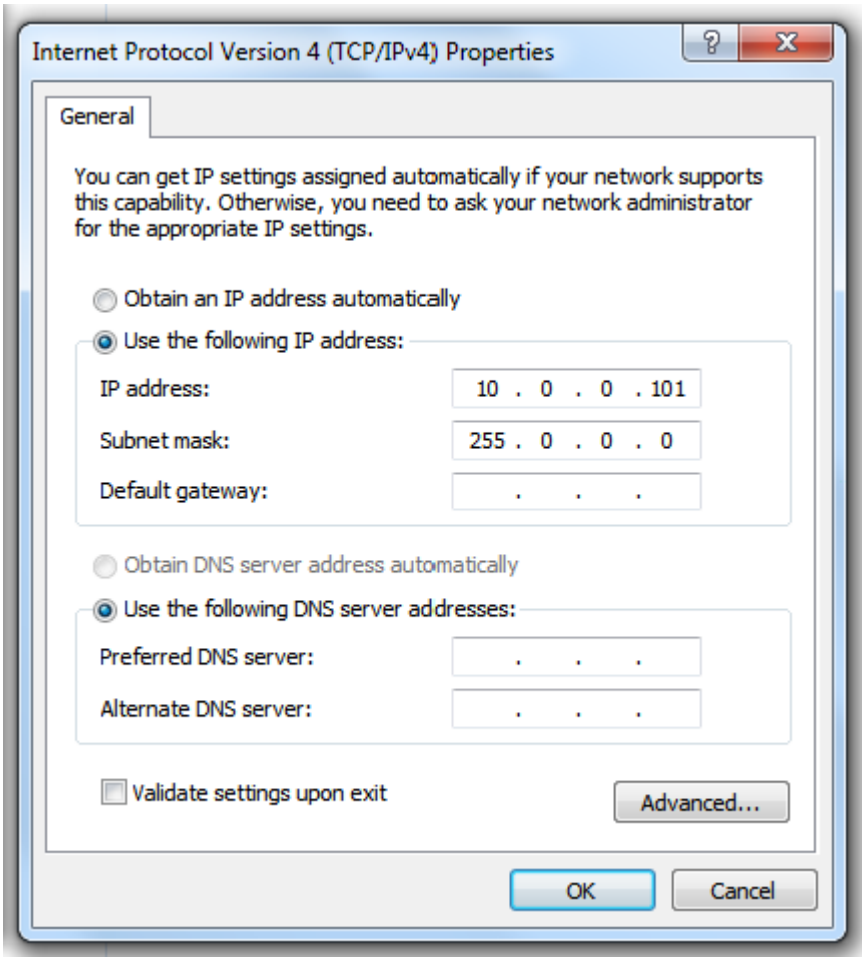
4. It is also recommended to disable all other Network connections. Highlight the other Network Connections (like Wireless) select “Connectivity” and Disable.
5. Highlight the “Internet Protocol Version 4 (TCP/IP)” and Click on Properties button.

Use following IP address:

IP address: 10.0.0.101

Subnet Mask: 255.0.0.0

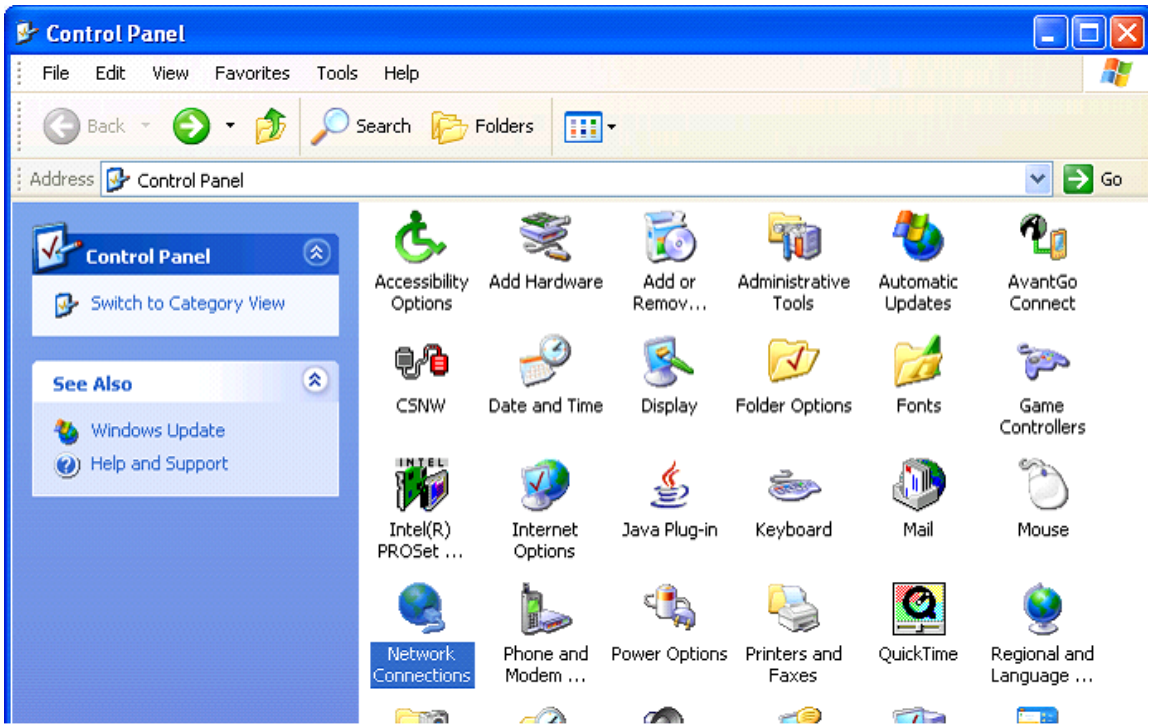
Press OK to accept entries.



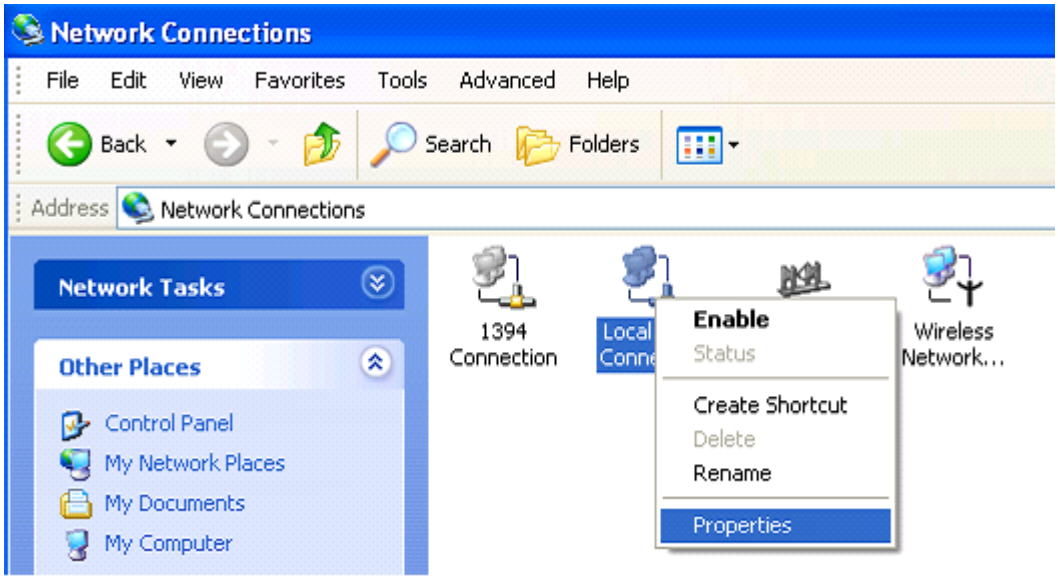
5.2 Windows XP Ethernet setup

With Windows XP computer setup in classic mode, the Ethernet setup is done by the following procedure:

Go to the Control Panel and open the Network Connections.



Right Click on the Local Area Connection Icon and select properties.



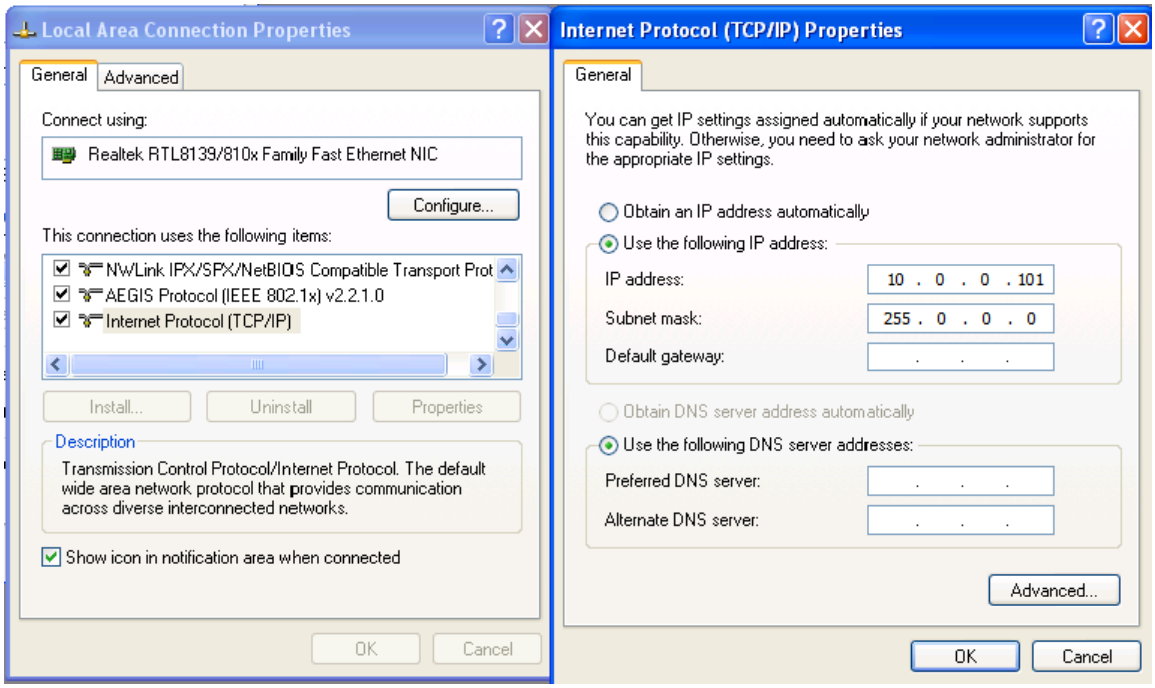
Scroll Down to the Internet Protocol TCP/IP selection and click on this icon. Click on Properties button.

Use following IP address:

IP address10.0.0.101

Subnet Mask255.0.0.0

Press OK to accept entries.



It is sometimes necessary to reboot the computer to have the new address take effect.

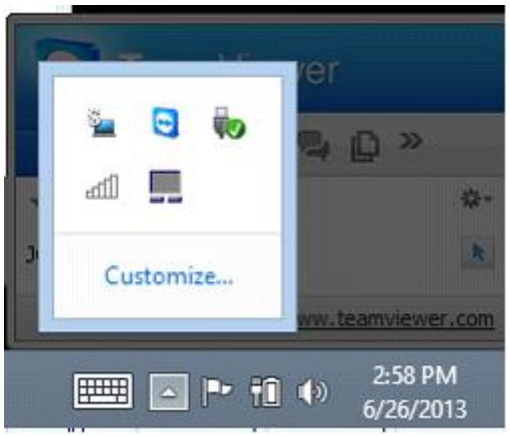
If the Bird Dog 3-11 unit was previously communicating with a computer with a different address, then the Bird Dog 3-11 unit must be reset (power off then on) for the unit to communicate to the new address.

With Windows XP there is an additional Authentication Tab. The Authentication must be disabled to operate with the Bird Dog 3-3 unit.

5.3 Windows 7 and Windows 8

With Windows 7 and Windows 8 there is normally a quick access to the IP settings.

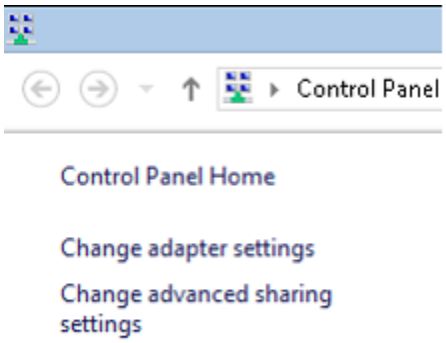
In the lower left-hand corner, there are multiple icons.



Right Click on the WiFi Icon 

Then Select “Open Network and Sharing Center”

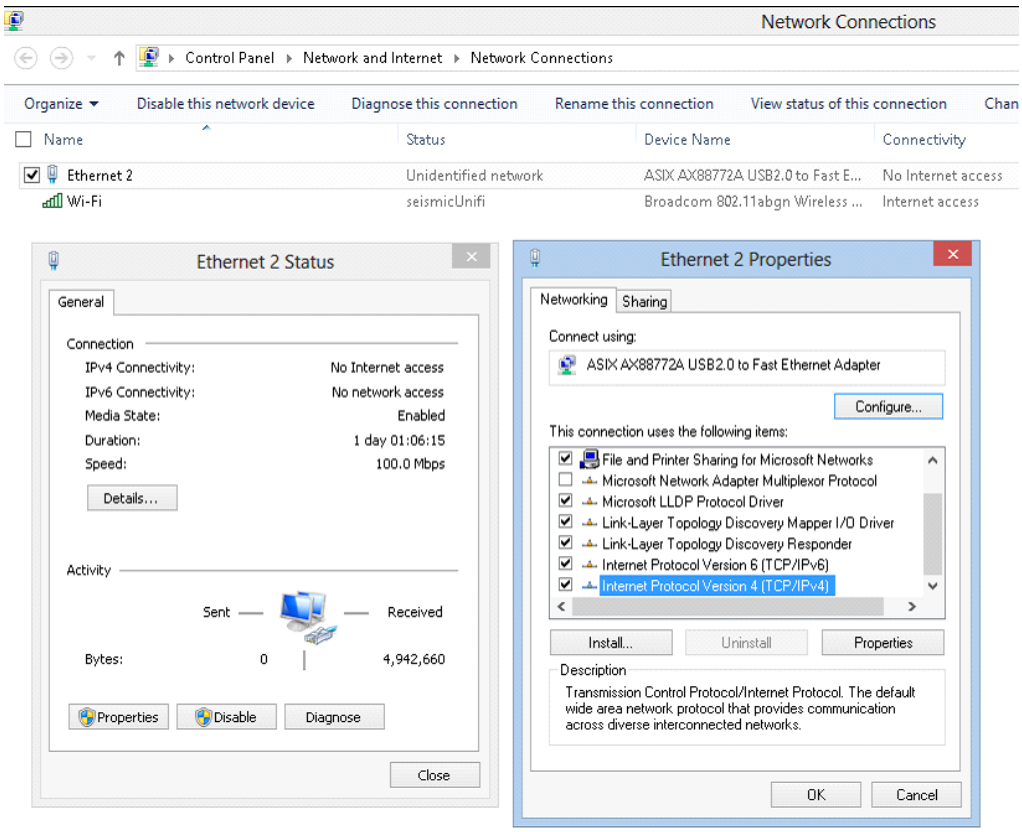
Then select “Change adapter Settings”



Double Click the Wired Ethernet used by the Bird Dog 3-3 unit.

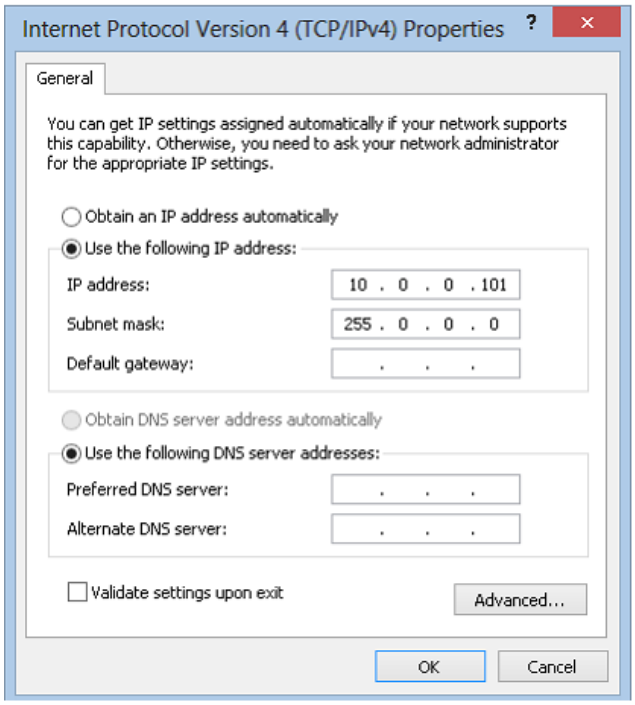
On the Ethernet status screen – click the “Properties” button at the bottom.

On the Ethernet Properties screen select the “Internet Protocol Version 4 (TCP/IPv4).

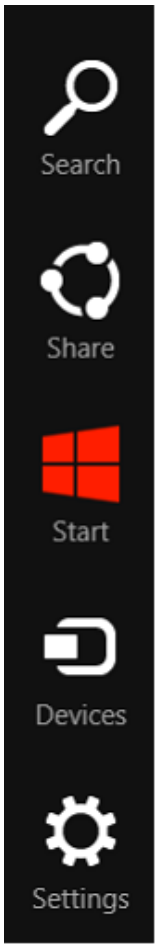


Then, set the IP address to a fixed IP.

It is suggested to use 10.0.0.101 for the computer, with 255.0.0.0 as the Subnet mask.

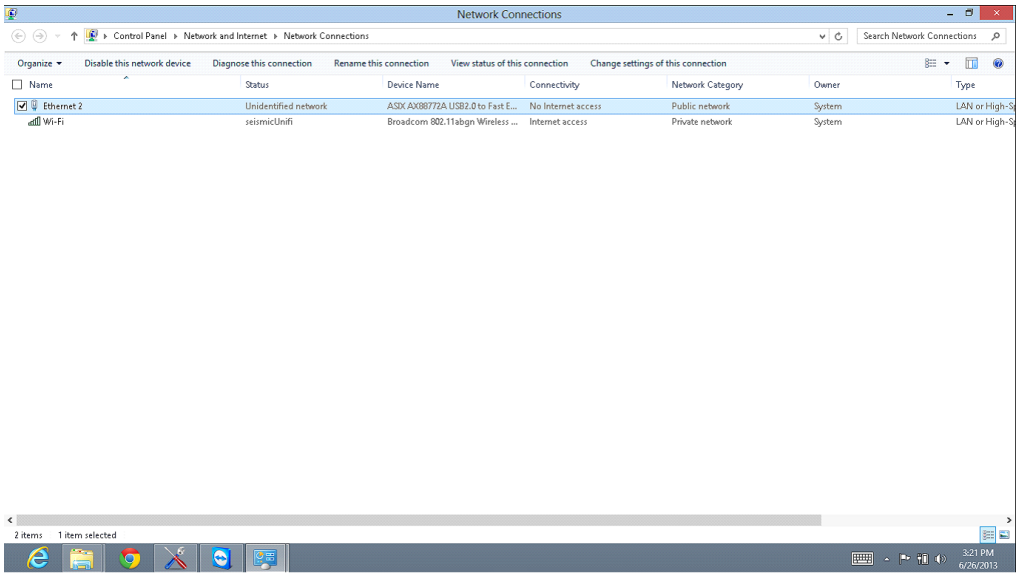


The Network selections can also be access via the windows 8 start menu.



Search for the “network” app

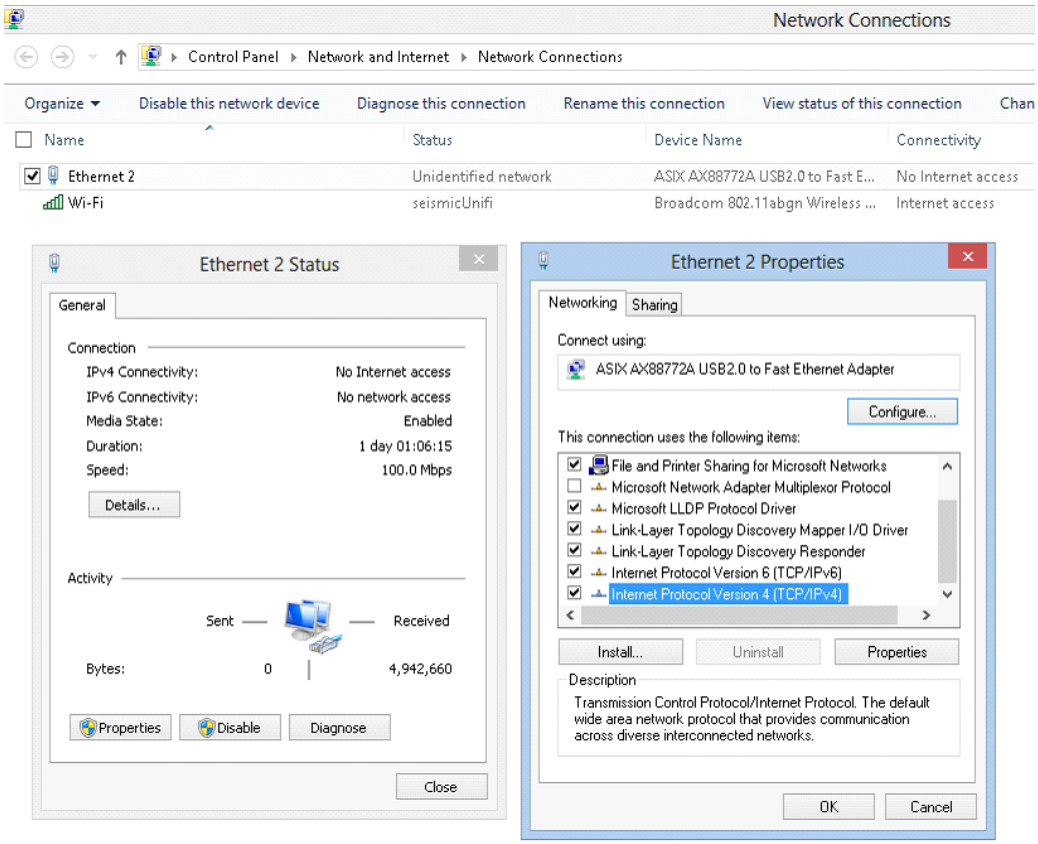
Click on the Network application



Double Click the Wired Ethernet used by the Bird Dog 3-3 unit.

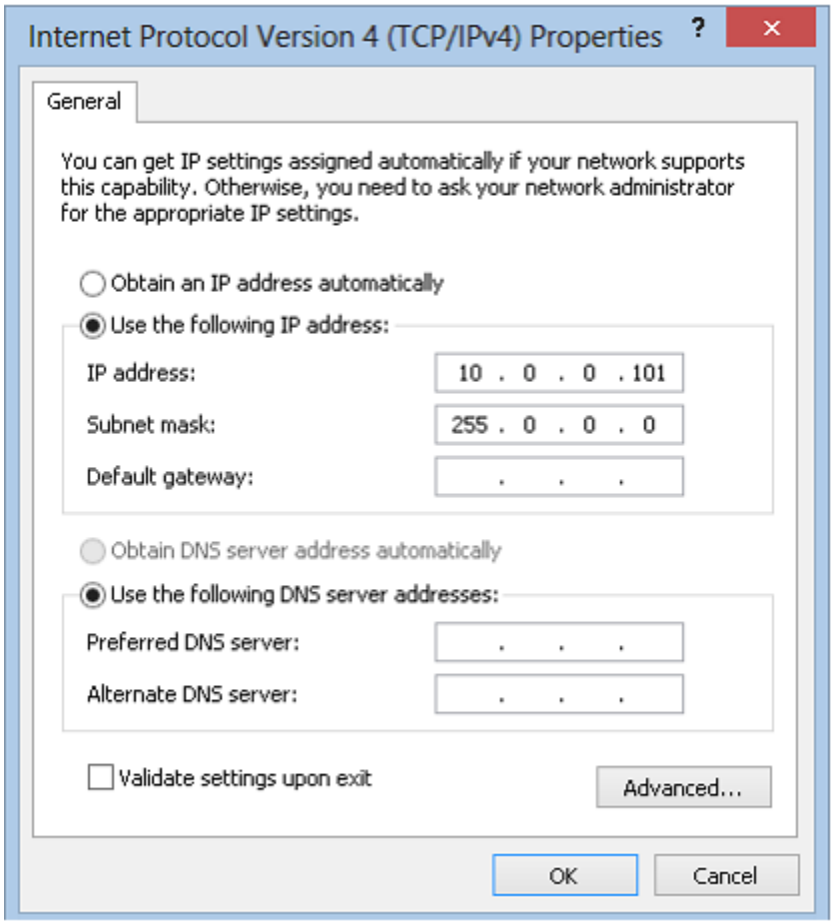
On the Ethernet status screen – click the “Properties” button at the bottom.

On the Ethernet Properties screen select the “Internet Protocol Version 4 (TCP/IPv4).



Then, set the IP address to a fixed IP.

It is suggested to use 10.0.0.101 for the computer, with 255.0.0.0 as the Subnet mask.



5.4 Firewall

It is important to disable all Firewalls on the computer. Third party firewall from Norton, McAfee or other companies can completely disable the operation of the BD3 Recording system unit. Typically, the Firewall will allow the “ping” command to operate, but will block all other commands and messages.

There is a built in Firewall with Windows XP. This should be disabled. Go to the Advanced Menu of the Local Area Properties and disable the Firewall.

Typical Firewalls will ask if the program should be “blocked”,

always select “Unblock this program” if asked.

5.5 TCP/IP Verification

To verify that the IP address is correct, select “Start”, then “Run”, then type in “CMD”. This starts the command prompt in Windows (This is like the old DOS command prompt). Type the command “ipconfig”. The current IP address 192.168.0.101 should be shown.

Viewing the Network Tab at the bottom of the VScope program can also check the IP address.

The Network Tab shows the current IP address detected by the VScope program.

Also, if the Bird Dog 3-3 unit was previously communicating with a computer with a different address, then the Bird Dog 3-3 unit must be reset (power off then on) for the unit to communicate to the new address.

With some of the Windows versions there is an additional Authentication Tab. The Authentication must be disabled to operate with the Bird Dog 3-3 unit.

6 Schematics

Power LED – Illuminates when power is applied to box.

Caution if Battery voltage drops below 11 volts, LED will light but DAQlink will not perform properly

3 pin trigger Connector

A– TB active – A

B– TB return (GND)– B

C- +12 volt through 5 Kohm resistor

When DAQlink trigger option is set to trigger on Time Break, then this input is used to trigger the box. This input drives an optoisolated input and requires about 3 volts minimum to trigger. Positive Voltage should be applied to pin A, and negative voltage to pin B. Maximum voltage should be less than 60 volts.

When using the ST-01 trigger switch, connect Pin A to Pin C and to the High voltage side of the ST-01 switch. Connect pin B to the Low voltage side of the ST-01 switch.

4 pin GPS Connector (PT06-08-4S)

A - +Battery

B- RS232 Receive

C – PPS pulse

D– GND (jumper JP1 on DAQlink needs to be installed

An external GPS receiver can be connected to the 4 pin GPS connector using a PT06A-08-4P. The GPS receiver must be setup for:

- 4800 baud
- $GPGGA and $GPRMC messages only

Power 2pin MS to X9 connector

A – positive battery – A

B – negative battery - B

The DAQlink unit has a bridge rectifier built into the power circuit, so the unit will power with either polarity on the battery connection. There are two internal fuses on the board to prevent damage to the unit. However, we still recommend using an external fast blow fuse of 2 amps. The unit can be powered from any DC source supplying a minimum of 11 VDC to a maximum of 37 VDC.

Ethernet – 10 base T

Standard Patch cable to Computer

PT 22-55 connector

A- Ch 1 pos
B- Ch 1 neg
C- Ch 2 pos
D- Ch 2 neg
E- Ch 3 pos
F- Ch 3 neg
G- Ch 4 pos
H- Ch 4 neg
J- Ch 5 pos
K- Ch 5 neg
L- Ch 6 pos
M- Ch 6 neg
N- Ch 7 pos
P- Ch 7 neg
R- Ch 8 pos
S- Ch 8 neg
T- Ch 9 pos
U- Ch 9 neg
V- Ch 10 pos
W- Ch 10 neg
X- Ch 11 pos
Y- Ch 11 neg
Z- Ch 12 pos
a - Ch 12 neg
b- Ch 13 pos
c– Ch 13 neg
d– Ch 14 pos
e – Ch 14 neg
f– Ch 15 pos
g– Ch 15 neg
h – Ch 16 pos
i – Ch 16 neg
j – Ch 17 pos
k – Ch 17 neg
m – Ch 18 pos
n – Ch 18 neg
p – Ch 19 pos
q – Ch 19 neg
r – Ch 20 pos
s – Ch 20 neg
t – Ch 21 pos
u – Ch 21 neg
v- Ch 22 pos
w- Ch 22 neg
x- Ch 23 pos
y- Ch 23 neg
z- Ch 32 pos
AA- Ch 32 neg

D/A wiring
CC – Aout
GG – Aout FB
HH - GND

DD – TB (A)
EE – TB (R)

FF - + 32 volts