Bird Dog 3-11 VibQC

August 2015

User's Manual

Bird Dog 3-11 VibQC User's Manual
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Seismic Source reserves the right to make changes and
improvements to its products without providing notice.

Seismic Source Co.
2391 East Coleman Road
Ponca City, OK 74604
USA
Telephone: (580) 762-8233
Fax: (580) 762-1785
Email: mail@seismicsource.com

www.seismicsource.com

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System Description

The Bird Dog 3-11 System consists of a Bird Dog 3-11 Unit and one or more options.

The options available are:

Vibrator QC Option - Includes cables for connecting a unit to a Force III, Force II, or Sercel Vibrator control electronics unit. When taking similarities with this option, the accelerometer signals used for calculating Ground Force come from the accelerometers connected to the control electronics unit. If the Force III or Force II interface cables are used, several other signals, such as TM Current, Valve Feedback, etc., can be acquired for analysis. Cables are included in this option for doing zero time tests.

Independent Accelerometer Option - Includes hardware for using independent accelerometers for taking similarities from one vibrator at a time.

Wireline Option - Includes cables for taking wireline similarity signals from an encoder and up to 5 vibrators simultaneously.

Unit Description

The Bird Dog 3 - 11 VibQC Unit consists of a hardware unit, software, a power cable, and an Ethernet cable.

The hardware unit, shown on the Unit Description Drawing pages, has:

- Hardware for digitizing analog signals,
- Trigger inputs for measuring timing differences between Time Breaks from two units.
- Data storage,
- GPS data interface for storing the position, time, and date of each acquisition in the data files,
- Ethernet interface for connecting a computer for unit setup, signal analysis, and data storage. The Ethernet interface is 100 base T with an TCP/IPv4 address in the 10.0.X.X range where the X.X will be assigned to the unit at when it is manufactured. The Subnet Mask will be 255.0.0.0

The hardware unit is ruggedized and designed to be easily usable by all levels of crew personnel.

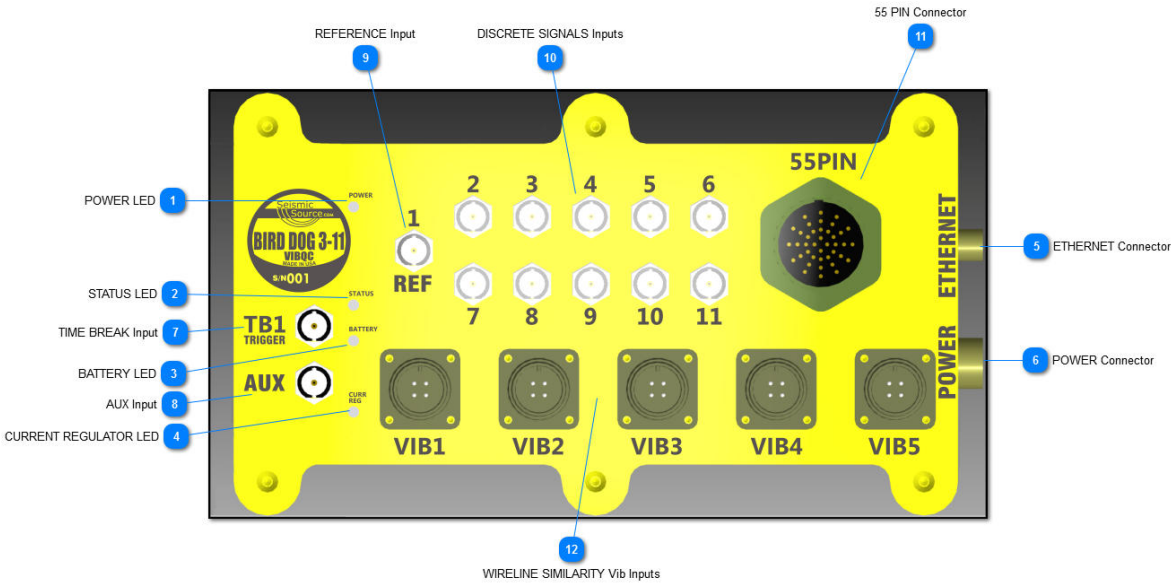
Unit specifications:
Unit Weight: 7.6 lb (3.45 kg)
Unit Dimensions: Handle Down - 6.75" X 4" X 11.1875" (17.15 X 10.6 X 28.4 cm)
Handle up - 6.125" X 6.75" X 11.1875" (15.6 X 17.15 X 28.4 cm)
System dimensions and weight will depend on the packaging selected.

Power Required 9.5 to 26.5 VDC, 6 Watts (430 ma with 14 Volts input power) when not supplying power to accelerometers.
Maximum Analog Signal Input Levels: $\pm$ 15V.
Time Break Input Maximum Voltage: + 15V.
Signal input options:

- Time break from Encoder/Decoder - NISO inputs to check start time
- Wireline signals from Connector Panel, WL REF and SV OUT
- REF Input (BNC #1) can be TRUE REF or WL REF, depending on the kind of testing being done
- BNC Inputs 1 through 8 - can be magnetically mounted accelerometers that require power from the unit or other analog signals.
- BNC Inputs 9, 10, and 11 can be analog signals.
- 55 Pin Service Connector - connects to service cables that may be connected to various vibrator control units to record such signals as reference, accelerometer signals, actuator control and instrumentation signals, etc.
- GPS - Receives RS232 $GPGGA messages at 19.2KBaud and PPS pulses and stores GPS time and date with data files if GPS signal is present when the data is acquired. The BD3-11 VibQC records whether a valid GPS message was being received or not.

Software - SourceSignature or VibraScope from Seismic Source Company can be used to interface a computer with the unit. The two applications function similarly, however Source Signature has features that VibraScope does not have. These additional features make SourceSignature better suited for use with the Bird Dog 3-11 VibQC and Force 3 units.

Front Panel



1 POWER LED

POWER

On when the unit has power supplied.

2 STATUS LED

STATUS

On dimly for a few seconds while powering up then on brightly when the unit is acquiring data.

3 BATTERY LED

BATTERY

On dimly for a few seconds while powering up then flashes brightly when the unit is operating.

4 CURRENT REGULATOR LED

CURR REG

On when the power for magnetic accelerometers or M6 (Vibrator Control System) accelerometer test is on. Attention! The power supply may be on when the Bird Dog unit is powered up if it was last used for testing requiring that power, e.g. Magnetic Accelerometer or Accelerometer

Test modes. Make sure this 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 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.

5 **ETHERNET Connector**

Ethernet to a computer, switch, etc. should be connected here

6 **POWER Connector**

9.5 to 26.5 VDC approximately 0.5 Amps should be supplied

7 **TIME BREAK Input**

A Time Break signal may be connected here to start acquisition.

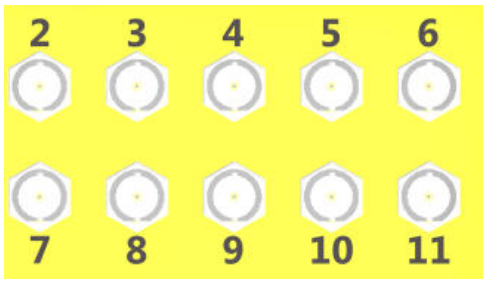
8 **AUX Input**

Not currently used.

9 **REFERENCE Input**

Reference from an encoder is usually input here. The signal may be True Reference or Wireline Reference, depending on the operation in progress. Reference from another device, such as a vibrator controller may be used.

10 **DISCRETE SIGNALS Inputs**



Signals from discrete sources may be input to these BNC connectors.

11 55 PIN Connector

Seismic Source service cables, typically for connecting to vibrator control units, connect to this.

12 WIRELINE SIMILARITY Vib Inputs

Connect to the WIRELINE connectors on vibrator connector panels.

Operational Modes

Vibrator QC Mode

The Bird Dog 3-11 unit supports doing quality control testing of seismic vibrators both with the accelerometers that are installed on the actuator as part of the control electronics unit, and also with independent accelerometers. The independent accelerometers provided with the Independent Accelerometer Option are often attached to the actuator with magnetic bases supplied as part of the option.

The unit supports Zero Time testing to ensure or aid in setting start timing of an encoder with decoders.

Wireline Mode

The unit supports the acquisition of Wireline Similarities, by simultaneously recording two signals each from up to five vibrators, typically wireline reference and vibrator output, and wireline reference from an encoder.

Independent Accelerometer Mode

The unit has BNC connectors that support the input of Time Break, Reference, and up to 10 additional signals. The signal inputs are differential. Channels 1 through 8 can also provide power for independent accelerometers. Channel 1 is typically used as a reference signal input, but it can be used for an independent accelerometer in the Advanced mode. Reference may be connected to channels 9, 10, or 11 and those channels may be assigned to the reference function for analysis functions.

Accelerometer Test Mode

The Bird Dog 3-11 will also test Seismic Source M5/M6 accelerometers.

Force III Mode

A computer running the Source Signature program can be connected directly to the Ethernet port of a Force III vibrator control unit without using a Bird Dog 3-11 for VibQC testing.

Downloading Stored Data

The Source Signature program can also download data previously acquired and stored in a Bird Dog 3-11 or Force III unit.

Vibrator QC Option

Includes cables for connecting a unit to a Force III, Force II, or Sercel Vibrator control electronics unit. Wiring diagrams for the various cables are included in the External Cables section of this manual.

When connecting a Bird Dog 3-11 to a Force II or Force III vibrator control unit, the service cable for that control unit connects all the signals needed for QC data acquisition.

When taking similarities with this option, the accelerometer signals used for calculating Ground Force are the same signals the control electronics unit uses to control the actuator. The accelerometer sensitivity for all systems other than Sercel is 25mV/g.

If the Force III or Force II interface cables are used, several other signals, such as TM Current, Valve Feedback, etc., can be acquired for analysis. The Force III cable can be used to connect the Bird Dog to a Vib Pro. When using a Force III cable to connect to a Vib Pro, the Drive signal will not be connected. All other signals will be connected.

Either the VibraScope or Source Signature program may be used for collecting and analyzing data.

When connecting a Bird Dog 3-11 to a Sercel vibrator control unit, use BNC cables to connect the signals to the Bird Dog 3-11 as shown in the following list:

Signal Conection on DSDConnection on Bird Dog 3-11 Unit
Time Break.....TB BNC.....TB 1 TRIGGER
True Reference.....REF BNC.....BNC 1 REF
Ground Force..... Force BNC.....BNC 2

Optional force signals may be acquired by connecting to the Similarity connector on Sercel control electronics. The cable is not supplied for connecting to that connector. MASS ACC and PLATE ACC signals are available on that connector on pins:
E.... MASS ACC+
F.... MASS ACC-
H.... PLATE ACC+
J.... PLATE ACC-

If connecting to these signals, use the VibraScope program and select Sercel Control Electronics in the Vibrator Configuration menu.
If connecting to these signals, connect the PLATE ACC signals to BNC2, + to center and - to ring; the MASS ACC signals to BNC3, + to center and - to ring.

Data that is acquired will be stored in the unit and may be downloaded later.

Cables are also included in this option for doing zero time tests.

Independent Accelerometer Option

Includes cables for connecting a unit to independent accelerometers that may be mounted on the actuator magnetically or physically attached used provided studs, or screws or clamps or other ways.

Cables are provided to connect the unit to a decoder or encoder for reference and time break signals.

Source Signature program must be used for collecting and analyzing data. Source Signature turns the power for the independent accelerometers on.

Data that is acquired will be stored in the unit and may be downloaded later.

The sensitivity of the provided accelerometers is 10mv/g.

Wireline Option

Includes cables for connecting a unit to as many as five vibrators for simultaneously acquiring wireline similarities.

Cables are provided to connect the unit to a decoder or encoder for reference and time break signals. Using wireline reference from the encoder is recommended.

Either the VibraScope or Source Signature program may be used for collecting and analyzing data.

Data that is acquired will be stored in the unit and may be downloaded later.

Accelerometer Test Option

The Accelerometer Test Option provides a way to test M5 or M6 accelerometers used with vibrator control electronics units.

The Accelerometer Test Option includes:

- One M5/M6 Accelerometer Test Cable for connecting the Bird Dog 3-11 to the accelerometer to be tested.
- Accelerometer Test program for computer running Windows operating system.

The test is a static test and does not requre the use of a vibrator, shaker table, etc. The loop and sim acceleroemters under test are checked for:

- Proper DC Voltage on the accelerometer signal line
- Noise
- Sensitivity at $\pm$ 1g

Inside each M5 or M6 accelerometer unit is one Loop accelerometer and one Similarity accelerometer. The two accelerometers should have identical performance. The accelerometer test option measures and displays the signals from the Loop and Similarity accelerometers in the accelerometer unit under test.

Quick Start

Wireline Similarities-

Make sure the Bird Dog unit is powered up and the CURR REG LED is off before connecting any cables to the encoder or vibrator control unit.

The following can be done an any order:

- Connect the Ethernet cable from the BD3 (Bird Dog 3-11 VibQC) unit to the computer.
- Connect Wireline Reference from the Encoder or a vib to the 1- REF input on the BD3.
- Connect Time Break from the Encoder to the TB1 input on the BD3. Note: See the DAQ Setup/Configuration/Acquisition section.
- Connect the BD3 to DC power and ensure the POWER LED is on and the BATTERY LED starts flashing a few seconds after power-up.
- Connect the wireline cables from the vibs to the BD3.

The following must be done in this order:

1.Start the Source Signature program.

2.In the Options/Preferences/General menu, Advanced Mode not selected.

3.Open the DAQ Setup menu. See the DAQ Setup section.

4.Enable and select the Bird Dog that is connected to the computer. If it does not appear, see the Ethernet Setup section. (IP Address 10.0.0.101; Subnet mask 255.0.0.0; firewalls off; TCP/IP Verification off)

5.Select Wireline Mode

6.Enable the channels to be used.

7.Set the Sample Rate, Acquisition Time and trigger mode

8.Vibrator settings are not used.

9.OK & Close

10.Press the A key on the computer keyboard or click on a START button on Source Signature.

11.Start a sweep.

12.Check for signals on all channels in a Signal Traces plot in the Seismic, Vertical mode to ensure signals are received.

13.Analyze signals using desired plots.

14.Save the data

Repeat the procedure, starting with setp 10, "Press the A key…", to acquire additional data if desired.

Detailed Quick Start Wireline Similarities

Warning! Powering up the Bird Dog unit while it is connected to a wireline similarity acquisition system may apply DC voltages to the signal inputs. Make sure the Bird Dog unit is powered up and the CURR REG LED is off before connecting any cables to the encoder or vibrator control unit, including the wireline connector or the True Reference BNC on the connector panel. If it is on, see the Source Signature Program/Source Signature Program Operation/Options Menu/Wireline Mode or the Mag Acc Advanced Mode section of this menu for instructions about how to turn that power supply off.

The following can be done an any order:

- Connect the **Ethernet** cable from the BD3 (Bird Dog 3-11 VibQC) unit to the computer.
- Connect **Wireline Reference** from the Encoder or a vib to the 1- REF input on the BD3.
- Connect **Time Break** from the Encoder to the TB1 input on the BD3. Note: This is optional. Acquisition may be started on Time Break, when the Reference signal becomes active, or when the user starts acquisition with the A key on the keyboard or clicks on the START button on the Source Signature program.
- Connect the BD3 to DC **power** and ensure the POWER LED is on and the BATTERY LED starts flashing a few seconds after power-up.

- Connect the **wireline cables** from the vibs to the BD3.

The following must be done in this order:

1.Start the **Source Signature** program.
2.In the Options/Preferences/General menu, make sure the **Advanced Mode is not selected**.
3.In the Options/Preferences/ other menus, set them as you prefer.
4.Click on the **OK** button at the bottom of the Preferences window.
5.Press the D key on the computer keyboard. Notes: 1. This is the same as clicking on the Device button in the Options menu or clicking on the Device button at the right end of the tool bar. 2. This should open the **DAQ Setup** window.
6.If the BD3 you are connected to appears in the DAQ Setup window make sure the box to the left of the BD3 serial number is checked and the line containing the serial number and IP address is highlighted (yellow background, black text).
7.If the BD3 does not appear, click on the Auto Detect button.
8.If it does not appear, check on the TCP/IPv4 Properties. Set the IP address for the computer to something like 10.0.0.101 and subnet mask to 255.0.0.0 then try the Auto Detect again.
9.Click on DAQ Settings. The progress bar should stop after going about ½ way across the window and the Configuration window should appear.
10.Left Click on the **Wireline** option.
11.Enable the **channels** you plan to use in the Channels window
12.Set the Sample Rate and Acquisition Time as you desire. Set the Trigger to Trigger on Time Break if you have a time break cable connected. Set it to Auto Trigger if you want it to start acquisition as soon as you press the A key on the computer or click on the START button on the program. Set it to Trigger On Reference if triggering on time break does not work. When you start a sweep.
13.The settings in the Vibrator tab are not used and do not matter for wireline similarities.
14.Click on the **OK** button at the bottom of the Configuration window and the Configuration window should close.
15.Click on the **Close** button at the bottom of the DAQ Setup window.
16.In the Options/Auto Download menu, select **VSS DAT Files**.
17.Near the bottom of the Source Signature program window, click on the **STATUS** tab.
18.Press the **A key** on the computer keyboard or click on a START button on Source Signature.
19."**START received**" should appear in the Status window.
20.Then "**waiting for trigger**" should appear in the Status window.
21."**Waiting…**" should appear to the right of the Tx light.
22.Start a sweep.
23."triggered" should appear in the Status window, at the bottom of the Source Signature window.
24."**Recording: NNs**" should appear to the right of the Tx light. NN is a counter counting up the seconds of acquisition.
25.The STATUS LED on the unit should come on and stay on until the sweep ends.
26.There should be some activity on the **Rx and Tx lights**, at the bottom of the Source

Signature window. The Rx light should come on for a longer time after the sweep is finished, while the BD3 downloads data to the computer.
27."**Receiving…**" should appear to the right of the Tx light while data is downloaded from the BD3.
28.Looking at all channels in a **Signal Traces** plot in the Seismic, Vertical mode would be a good starting place, to see that all the expected channels have signal on them.
29.After a good similarity is received, do **Ctrl+S** to start the file save function.
30.Enter desired **text** in the Save window then press the Yes button.
31.Enter a **path and file name** in the Save As window.
32.Select the **file type** in the Save as type window using the pull-down button to the right end of that window.
33.Click on the **Save** button.
Repeat the procedure, starting with setp 18, "Press the **A** key…", to acquire additional data if desired.

Vibrator Quality Control Test

Make sure Bird Dog unit is powered up and the CURR REG LED is off before connecting any cables to the encoder or vibrator control unit.

The following can be done an any order:

- Connect the Ethernet cable from the BD3 (Bird Dog 3-11 VibQC) unit to the computer.
- Connect the BD3 to DC power and ensure the POWER LED is on and the BATTERY LED starts flashing a few seconds after power-up.
- Connect a cable from the 55 Pin connector on the Bird Dog unit to a test connector on a vibrator control electronics unit.

Notes: 1. The Force III cable may be used to connect to a Vib Pro controller. In this case, the Drive signal will not be connected.

2. If connecting the Bird Dog unit to a Sercel vibrator control electronics unit, refer to the Operational Modes/Vibrator QC Option section for cabling.

The following must be done in this order:

1.Start the Source Signature program.

2.In the Options/Preferences/General menu, make sure the Advanced Mode is not selected.

3.Open the DAQ Setup menu. See the DAQ Setup section.

4.Enable and select the Bird Dog that is connected to the computer. If it does not appear, see the Ethernet Setup section. (IP Address 10.0.0.101; Subnet mask 255.0.0.0; firewalls off; TCP/IP Verification off)

5.Select the Vibrator QC Mode.

6.Enable the channels to be used.

7.Set the Sample Interval, Acquisition Time, trigger mode, and Display Units.

8.Ensure the settings in the Vibrator tab are correct.

9.OK and Close.

10.Press the A key on the computer keyboard or click on a START button on Source Signature.

11.Start a sweep.

12.Check for signals on all channels in a Signal Traces plot in the Seismic, Vertical mode to ensure signals are received.

13.Analyze the vibrator's performance using the desired plots.

14.Save the data.

Repeat the procedure, starting with setp 10 "Press the A key…", to acquire additional data if desired.

Detailed Vibrator Quality Control Test

Warning! Powering up the Bird Dog unit while it is connected to vibrator control unit may apply DC voltages to the control unit or the actuator. This may result in the reaction mass pulsing. Make sure Bird Dog unit is powered up and the CURR REG LED is off before connecting any cables to the encoder or vibrator control unit, including the wireline connector or the True Reference BNC on the connector panel. If it is on, see the Source Signature Program/Source Signature Program Operation/Options Menu/Wireline Mode or the Mag Acc Advanced Mode section of this menu for instructions about how to turn that power supply off.

The following can be done an any order:

- Connect the **Ethernet** cable from the BD3 (Bird Dog 3-11 VibQC) unit to the computer.
- Connect **True Reference** from the Encoder or a vib to the 1- REF input on the BD3.
- Connect **Time Break** from the Encoder to the TB1 input on the BD3. Note: This is optional. Acquisition may be started on Time Break, when the Reference signal becomes active, or when the user starts acquisition with the A key on the keyboard or clicks on the START button on the Source Signature program.
- Connect the BD3 to DC **power** and ensure the POWER LED is on and the BATTERY LED starts flashing a few seconds after power-up.
- Connect a cable from the 55 Pin connector on the Bird Dog unit to a test connector on a vibrator control electronics unit. Wiring diagrams for cables to connect to some commonly used control electronics are in the Externals Cables section of this manual. When using the service cable with Force II or Force III

vibrator control units, it is not necessary to connect True Reference and Time Break signals, listed above.

The following must be done in this order:

1.Start the **Source Signature** program.
2.In the Options/Preferences/General menu, make sure the **Advanced Mode is not selected**.
3.In the Options/Preferences/ other menus, set them as you prefer.
4.Click on the **OK** button at the bottom of the Preferences window.
5.Press the D key on the computer keyboard. Notes: 1. This is the same as clicking on the Device button in the Options menu or clicking on the Device button at the right end of the tool bar. 2. This should open the **DAQ Setup** window.
6.If the BD3 you are connected to appears in the DAQ Setup window make sure the box to the left of the BD3 serial number is checked and the line containing the serial number and IP address is highlighted (yellow background, black text).
7.If the BD3 does not appear, click on the Auto Detect button.
8.If it does not appear, check on the TCP/IPv4 Properties. Set the IP address for the computer to something like 10.0.0.101 and subnet mask to 255.0.0.0 then try the Auto Detect again.
9.Click on DAQ Settings. The progress bar should stop after going about ½ way across the window and the Configuration window should appear.
10.Left Click on the **Vibrator QC** Mode.
11.Enable the **channels** you plan to use in the Channels window. Enabling all channels is recommended.
12.Set the Sample Interval, Acquisition Time, and Display Units as you desire. Set the Trigger to Trigger on Time Break if you have a time break cable connected. Set it to Auto Trigger if you want it to start acquisition as soon as you press the A key on the computer or click on the START button on the program. Set it to Trigger On Reference if triggering on time break does not work. When you start a sweep.
13.The settings in the Vibrator tab are critical. If they are not set to correct values, the force plots will not be calculated properly.
14.If a GPS receiver is connected to the Bird Dog unit, click on the GPS tab then on the Get Position button to make sure the GPS receiver is sending time and position data to the unit.
15.Click on the **OK** button at the bottom of the Configuration window and the Configuration window should close.
16.Click on the **Close** button at the bottom of the DAQ Setup window.
17.In the Options/Auto Download menu, select **VSS DAT Files**.
18.Near the bottom of the Source Signature program window, click on the **STATUS** tab.
19.Press the **A key** on the computer keyboard or click on a START button on Source Signature.
20."**Waiting for trigger**" should appear in the Status window.
21."**Waiting…**" should appear to the right of the Tx light.
22.Start a sweep.
23."triggered" should appear in the Status window, at the bottom of the Source Signature window.

24.“**Recording: NNs**” should appear to the right of the Tx light. NN is a counter counting up the seconds of acquisition.a
25.The STATUS LED on the unit should come on and stay on until the sweep ends.
26.There should be some activity on the **Rx and Tx lights**, at the bottom of the Source Signature window. The Rx light should come on for a longer time after the sweep is finished, while the BD3 downloads data to the computer.
27.“**Receiving…**” should appear to the right of the Tx light while data is downloaded from the BD3.
28.Looking at all channels in a **Signal Traces** plot in the Seismic, Vertical mode would be a good starting place, to see that all the expected channels have signal on them.
29.Open plot windows and plot data as desired to analyze the vibrator’s performance.
30.After a good similarity is received, do **Ctrl+S** to start the file save function.
31.Enter desired **text** in the Save window then press the Yes button.
32.Enter a **path and file name** in the Save As window.
33.Select the **file type** in the Save as type window using the pull-down button to the right end of that window.
34.Click on the **Save** button.
Repeat the procedure, starting with setp 19, “Press the **A** key…”, to acquire additional data if desired.

Zero Time Test

Make sure the Bird Dog unit is powered up and the CURR REG LED is off before connecting any cables to the encoder or vibrator control unit.

The following can be done an any order:

- Connect the Ethernet cable from the BD3 (Bird Dog 3-11 VibQC) unit to the computer.
- Connect True Reference from the Encoder to the 1-REF input BNC on the BD3.
- Connect True Reference from the Decoder to the 2 input BNC on the BD3.
- Connect Time Break from the Encoder to the TB1 input on the BD3.
- Connect the BD3 to DC power and ensure the POWER LED is on and the BATTERY LED starts flashing a few seconds after power-up.

The following must be done in this order:

1.Start the Source Signature program.

2.In the Options/Preferences/General menu, Advanced Mode not selected.

3.Open the DAQ Setup menu. See the DAQ Setup section.

4.Enable and select the Bird Dog that is connected to the computer. If it does not appear, see the Ethernet Setup section. (IP Address 10.0.0.101; Subnet mask 255.0.0.0; firewalls off; TCP/IP Verification off)

5.Select Zero Time Mode

6.Enable the channels to be used.

7.Set the Sample Rate, Acquisition Time and trigger mode.

8.Vibrator settings are not used.

9.OK & Close

10.Press the A key on the computer keyboard or click on a START button on Source Signature.

11.Start a sweep.

12.Check for signals on all channels in a Signal Traces to ensure signals are received.

13.Analyze signals using desired plots.

14.Adjust parameter settings for the encoder and/or decoder(s), repeating acquisitions and sweeps as necessary, for minimum phase error on the phase plot.

15.Repeat the test for all decoders, starting with setp 10, “Press the A key…”.

16.Save the data (optional).

Detailed Zero Time Test

Warning! Powering up the Bird Dog unit while it is connected to zero time test cabling may apply DC voltages to the signal inputs. Make sure the Bird Dog unit is powered up and the CURR REG LED is off before connecting any cables to the encoder or vibrator control unit, including the wireline connector or the True Reference BNC on the connector panel. If it is on, see the Source Signature Program/Source Signature Program Operation/Options Menu/Wireline Mode or the Mag Acc Advanced Mode section of this menu for instructions about how to turn that power supply off.

The following can be done an any order:

- Connect the **Ethernet** cable from the BD3 (Bird Dog 3-11 VibQC) unit to the computer.
- Connect **True Reference** from the Encoder to the 1-REF input BNC on the BD3.
- Connect **True Reference** from the Decoder to the 2 input BNC on the BD3.
- Connect **Time Break** from the Encoder to the TB1 input on the BD3. Note: This is optional. Acquisition may be started on Time Break, when the Reference signal becomes active, or when the user starts acquisition with the A key on the keyboard or clicks on the START button on the Source Signature program.
- Connect the BD3 to DC **power** and ensure the POWER LED is on and the BATTERY LED starts flashing a few seconds after power-up.

The following must be done in this order:

1.Start the **Source Signature** program.

2.In the Options/Preferences/General menu, make sure the **Advanced Mode is not selected**.
3.In the Options/Preferences/ other menus, set them as you prefer.
4.Click on the **OK** button at the bottom of the Preferences window.
5.Press the D key on the computer keyboard. Notes: 1. This is the same as clicking on the Device button in the Options menu or clicking on the Device button at the right end of the tool bar. 2. This should open the **DAQ Setup** window.
6.If the BD3 you are connected to appears in the DAQ Setup window make sure the box to the left of the BD3 serial number is checked and the line containing the serial number and IP address is highlighted (yellow background, black text).
7.If the BD3 does not appear, click on the Auto Detect button.
8.If it does not appear, check on the TCP/IPv4 Properties. Set the IP address for the computer to something like 10.0.0.101 and subnet mask to 255.0.0.0 then try the Auto Detect again.
9.Click on DAQ Settings. The progress bar should stop after going about ½ way across the window and the Configuration window should appear.
10.Left Click on the **Zero Time** Mode.
11.Ensure the Encoder Reference and Decoder Reference **channels** are enabled in the Channels window.
12.Set the Sample Interval, Acquisition Time, and Display Units as you desire. Set the Trigger to Trigger on Time Break if you have a time break cable connected. Set it to Auto Trigger if you want it to start acquisition as soon as you press the A key on the computer or click on the START button on the program. Set it to Trigger On Reference if triggering on time break does not work. When you start a sweep.
13.The settings in the Vibrator tab are not used in this test and are not critical.
14.If a GPS receiver is connected to the Bird Dog unit, click on the GPS tab then on the Get Position button to make sure the GPS receiver is sending time and position data to the unit.
15.Click on the **OK** button at the bottom of the Configuration window and the Configuration window should close.
16.Click on the **Close** button at the bottom of the DAQ Setup window.
17.In the Options/Auto Download menu, select **VSS DAT Files**.
18.Near the bottom of the Source Signature program window, click on the **STATUS** tab.
19.Press the **A key** on the computer keyboard or click on a START button on Source Signature.
20."**Waiting for trigger**" should appear in the Status window.
21."**Waiting…**" should appear to the right of the Tx light.
22.Start a sweep.
23."triggered" should appear in the Status window, at the bottom of the Source Signature window.
24."**Recording: NNs**" should appear to the right of the Tx light. NN is a counter counting up the seconds of acquisition.a
25.The STATUS LED on the unit should come on and stay on until the sweep ends.
26.There should be some activity on the **Rx and Tx lights**, at the bottom of the Source Signature window. The Rx light should come on for a longer time after the sweep is finished, while the BD3 downloads data to the computer.

27.“**Receiving…**” should appear to the right of the Tx light while data is downloaded from the BD3.
28.Looking at all channels in a **Signal Traces** plot in the Seismic, Vertical mode would be a good starting place, to see that all the expected channels have signal on them.
29.Open a Vib Analysis/Phase plot windows and enable the DecRef Channel and Assigned Ref or Assigned Ref is selected for the Reference Channel.
30.Adjust parameter settings for the encoder and/or decoder(s), repeating acquisitions and sweeps as necessary, for minimum phase error on the phase plot.
31.Repeat the test for all decoders.
32. If it is desired to save the data, left click on the File/Save menu item or press the Ctrl+S keys.
33. Enter a Comment in the Save window, then click on the Yes button.
34.Enter a **path and file name** in the Save As window.
35.Select the **file type** in the Save as type window using the pull-down button to the right end of that window.
36.Click on the **Save** button.
Repeat the procedure, starting with setp 19, “Press the **A** key…”, to acquire additional data if desired.

Independent Accelerometer Mode

- Connect Bird Dog to computer with patch cable provided
- Connect 9.5 to 26.5 VDC supply to the Bird Dog power cable.
- Connect the True Reference Signal (Pilot signal) from the vibrator electronics or encoder to the 1 REF BNC on the Bird Dog.
- Connect the Time Break input from the vibrator electronics or encoder to the TB 1 TRIGGER BNC input on the Bird Dog.
- Connect the independent accelerometers to the VibQC the 2 and 3 BNCs on the Bird Dog
- The accelerometer mounted on the Baseplate of the vibrator should be connected to BNC 2.
- The accelerometer mounted on the Reaction Mass of the vibrator should be connected to BNC 3.
- The independent accelerometers should be mounted as close to the accelerometers connected to the control electronics as possible.
- Magnetically mounting of the independent accelerometers may not be secure enough for good QC testing. To help making the mounts secure:
    - Make sure the surface is flat.
    - Clean the surface.
    - It may be necessary to scrape the paint from the surface.
    - It may be necessary to use mounting studs instead of magnets on some locations.
- When using the independent magnetic accelerometers, the power supplies in the Bird Dog must be turned on. This is done by selecting Magnetic Acc QC mode in the DAQ Configuration/Acquisition menu.
- Run the VScope or Souce Signature program. See the Quick Start or Source Signature Program sections of this manual for additional information.
- Select Magnetic Acc mode in the DAQ Configuration/Acquisition menu.
- Make sure the CURR REG LED is on.
- When using the supplied independent accelerometers, the Weights and Accelerometer Sensitivity settings must be correct in the DAQ Configuration/Vibrator menu. The supplied accelerometers have a 10mV/g sensitivity.
- Acquire, analyze, and store data.

Force III Data Acquisition

The following can be done an any order:

- Connect the Ethernet cable from the Force III unit to the computer.
- Connect the Force III to DC power and turn it on.

The following must be done in this order:

1.Start the Source Signature program.

2.In the Options/Preferences/General menu, Advanced Mode not selected.

3.Open the DAQ Setup menu. See the DAQ Setup section.

4.Enable and select the Bird Dog that is connected to the computer. If it does not appear, see the Ethernet Setup section. (IP Address 10.0.0.101; Subnet mask 255.0.0.0; firewalls off; TCP/IP Verification off)

5.Select Force III Mode.

6.Enable the channels to be used.

7.Sample Rate, Acquisition Time and trigger mode are not used.

8.Vibrator settings are not used.

9.OK & Close

10.Start a sweep.

11.Check for signals on all channels in a Signal Traces plot in the Seismic, Vertical mode to ensure signals are received.

12.Analyze signals using desired plots.

13.Save the data

Repeat the procedure, starting with setp 10, “Start a sweep” to acquire additional data if desired.

Detailed Quick Start - Force III Data Acquisition

The following can be done an any order:

- Connect the **Ethernet** cable from the Force III unit to the computer.
- Connect the Force III to DC **power** and turn it on.

The following must be done in this order:

1.Start the **Source Signature** program.
2.In the Options/Preferences/General menu, make sure the **Advanced Mode is not selected**.
3.In the Options/Preferences/ other menus, set them as you prefer.
4.Click on the **OK** button at the bottom of the Preferences window.
5.Press the D key on the computer keyboard. Notes: 1. This is the same as clicking on the Device button in the Options menu or clicking on the Device button at the right end of the tool bar. 2. This should open the **DAQ Setup** window.
6.If the Force III you are connected to appears in the DAQ Setup window make sure the box to the left of the Force III's serial number is checked and the line containing the serial number and IP address is highlighted (yellow background, black text).
7.If the Force III does not appear, click on the Auto Detect button.
8.If it does not appear, check on the TCP/IPv4 Properties. Set the IP address for the computer to something like 10.0.0.101 and subnet mask to 255.0.0.0 then try the Auto Detect again.
9.Click on DAQ Settings. The progress bar should stop after going about ½ way across the window and the Configuration window should appear.
10.Left Click on the Force III Mode.
11.Enable the **channels** you plan to use in the Channels window. Enabling all channels is recommended.
12.Sample Interval, Acquisition Time, Display Units, and Trigger Options are not used in this mode.
13.The settings in the Vibrator tab are not used in this mode.
14.If a GPS receiver is connected to the Force III unit, click on the GPS tab then on the Get Position button to make sure the GPS receiver is sending time and position data to the unit.
15.Click on the **OK** button at the bottom of the Configuration window and the Configuration window should close.
16.Click on the **Close** button at the bottom of the DAQ Setup window.
17.In the Options/Auto Download menu, select **VSS DAT Files**.
18.Near the bottom of the Source Signature program window, click on the **STATUS** tab.
19.Start a sweep.
20.“triggered” should appear in the Status window, at the bottom of the Source Signature window.
21.“**Recording: NNs**” should appear to the right of the Tx light. NN is a counter counting up the seconds of acquisition.a
22.The STATUS LED on the unit should come on and stay on until the sweep ends.
23.There should be some activity on the **Rx and Tx lights**, at the bottom of the Source

Signature window. The Rx light should come on for a longer time after the sweep is finished, while the BD3 downloads data to the computer.
24."**Recording…**" should appear to the right of the Tx light while data is downloaded from the Force III while it is sweeping.
25.Looking at all channels in a **Signal Traces** plot in the Seismic, Vertical mode would be a good starting place, to see that all the expected channels have signal on them.
26.Open plot windows and plot data as desired to analyze the vibrator's performance.
27.After a good similarity is received, do **Ctrl+S** to start the file save function.
28.Enter desired **text** in the Save window then press the Yes button.
29.Enter a **path and file name** in the Save As window.
30.Select the **file type** in the Save as type window using the pull-down button to the right end of that window.
31.Click on the **Save** button.
Repeat the procedure, starting with setp 19, "Start a sweep", to acquire additional data if desired.

Downloading Data from BD3-11

A very useful feature of a Bird Dog 3-11 unit is that it stores the data it records. The data files may be downloaded later. Files have the time and date they were acquired saved. This is UTC (Greenwich Mean Time) and date. To download data files:
The following can be done an any order:

- Connect the Ethernet cable from the Bird Dog unit to the computer.
- Power the Bird Dog unit up
- Connect the Force III to DC power and turn it on.

The following should be done in this order:
1.Connect the computer with Source Signature running to the unit. See the Detailed Quick Start section for more information.

2.In the File pull-down menu, select Load From Unit.

3.An FTP Explorer window should open.

4.The number and IP address of the device may appear in the Unit ID window and 00000000, SWEEPS, TEST may appear in the Folders window. If this happens, the computer is communicating with the unit. If not, refer to the detailed procedure for instructions about how to connect to the unit.

5.Left click on 00000000 to open the Folders window.

6.The data files that unit has acquires should be listed in the "Files In Current Folder" window.

7.Scroll up or down to locate a file that appears to have been acquired at the time and date of interest.

8.Left clicking on the file will cause the current plots to show data from that file.

9.To download one or more data files, use the typical Shift+left click or Ctrl+left click to highlight the desired files.

10.Right click while the cursor is on one of the highlighted files. This will open the File Control Window, shown in the example below.

11.Left click on Download in the File Control Window.

12.A "Select a Folder" window will open. An existing folder may be selected or a new folder may be made.

13.Highlight a folder then click on OK at the bottom of the Select a Folder window.

14.The selected data file(s) should be copied to the selected folder.

Detailed Quick Start Downloading Data from Bird Dog 3-11

A very useful feature of a Bird Dog 3 unit is that it stores the data it records. The data files may be downloaded later. Files have the time and date they were acquired saved. This is UTC (Greenwich Mean Time) and date. To download data files:

1. Use the Ethernet cable to connect the computer with Source Signature running to the unit.
2. Connect the unit to DC power.
3. In the File pull-down menu of Source Signature, select Load From Unit.
4. An FTP Explorer window should open. An example of that is shown below.
5. Establish communications between Source Signature and the Bird Dog unit: See the Unit ID section below.
6. If communications is established, a list of folders should appear in the Device Folders window.
7. If that list shows:

DAQ3
FORCE3
SELFTEST
SYS-LOG

Click on DAQ3

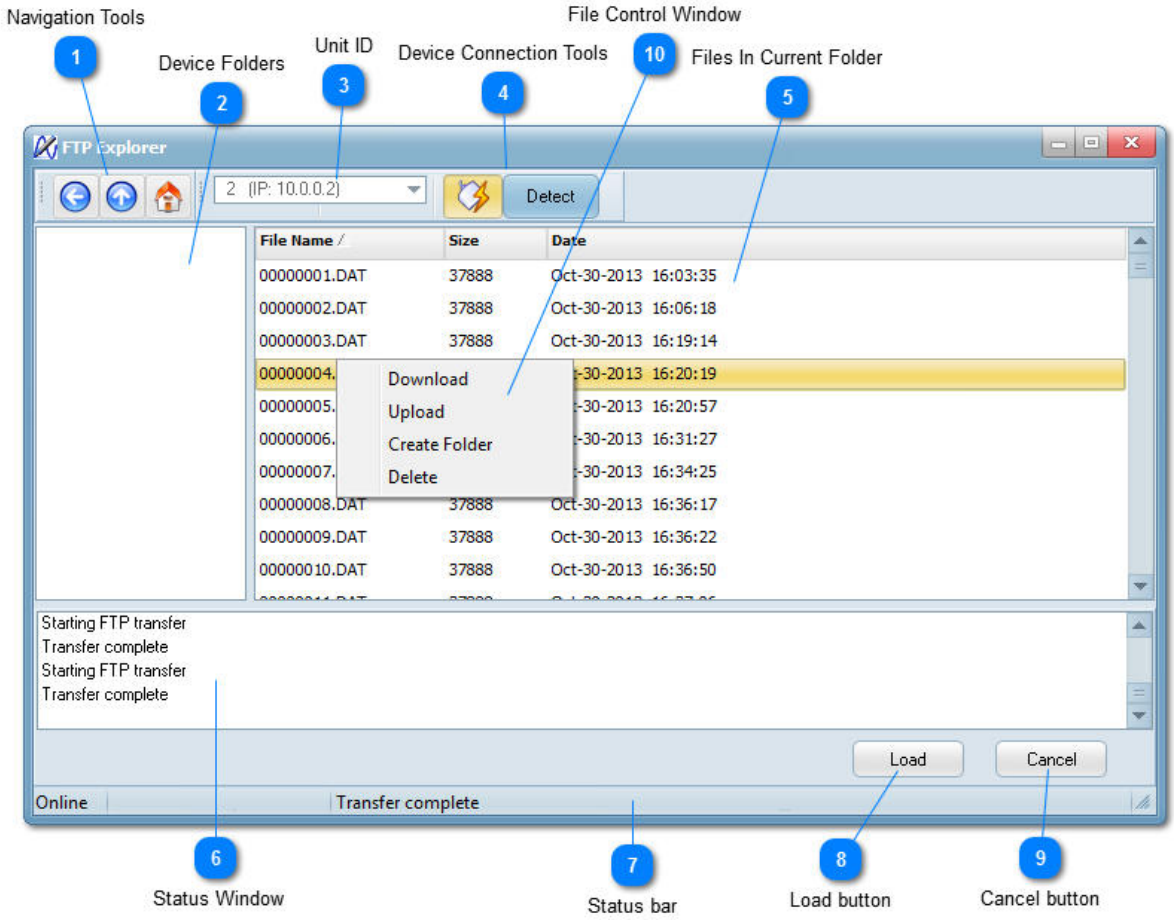
8. The list should then show:

00000000
SWEEPS
TESTS

There may be more than one folder named 0000000X where the X is a different number for multiple folders.

9. Left click on 0000000X to open one of those folders.
10. The .DAT data files that unit has acquires should be listed in the "Files In Current Folder" window.
11. Scroll up or down to locate a file that appears to have been acquired at the time and date of interest.
12. Left clicking on the file will cause the current plots to show data from that file.
13. Left clicking on another file will cause data from that file to be shown. By using this technique, one may preview and select a particular file.

14. The file may then be saved using the File Save feature.
15. To download one or more data files, use the typical Shift+left click or Ctrl+left click to highlight the desired files.
16. Right click while the cursor is on one of the highlighted files. This will open the File Control Window, shown in the example below.
17. Left click on Download in the File Control Window.
18. A "Select a Folder" window will open. An existing folder may be selected or a new folder may be made.
19. Highlight a folder then click on OK at the bottom of the Select a Folder window.
20. The selected data file(s) should be copied to the selected folder.
21. Messages in the Status Window will indicate the operation was done, as shown in the example below.
22. The files may be converted to SEG-Y by using the File/Convert Files... feature in Source Signature.



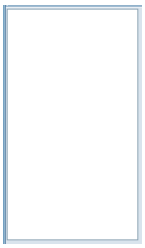
1

Navigation Tools

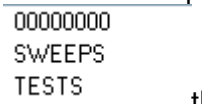
Allows navigation to a previous folder, up one folder level, or to return to this site's home folder.

2

Device Folders



Shows the folders inside the currently selected folder. In this example, there are no folders in the currently selected folder. If there were, the folders inside this folder would appear here. If the window looks similar to this:

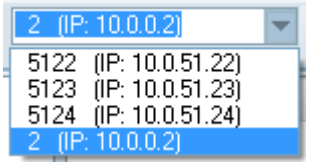


the computer is connected to the Bird Dog 3-11 unit. Left click on the line showing 00000000 to open the folder containing the stored files.

3

Unit ID

The unit connected to will appear here if the computer is currently connected to the unit. In this case, the Connect/Disconnect button  will be highlighted, with a tan background. If the unit is not currently connected to a unit, left clicking on the pull-down arrow will open the list of units previously detected. It should look similar to this:

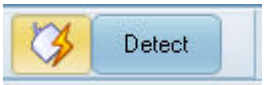


If the unit currently connected to the computer appears, left clicking on the unit's listing then left clicking on the Connect/Diconnect button will initiate the connection process. If the unit is not in the list, left clicking on the Detect button should cause the program to detect the unit and it should then appear in the window. If the unit is not detected, check the Ethernet cable and the TCP/IP settings. etc. Canceling the download and detecting the unit by opening the Options/Device/Auto Detect function may help if the unit cannot be detected using the Detect button. Once the unit appears in the list, left click on it then left

click on the Connect/Disconnect button. When the unit is connected, test should appear in the Device Folders and Status windows. If the Status Window shows connected then disconnected and an error message appears. Try disconnecting the Ethernet cable, then starting a download but selecting a different Unit from the pull down menu, then canceling the download, then reconnecting the Ethernet cable to the unit, then trying a download again.

4

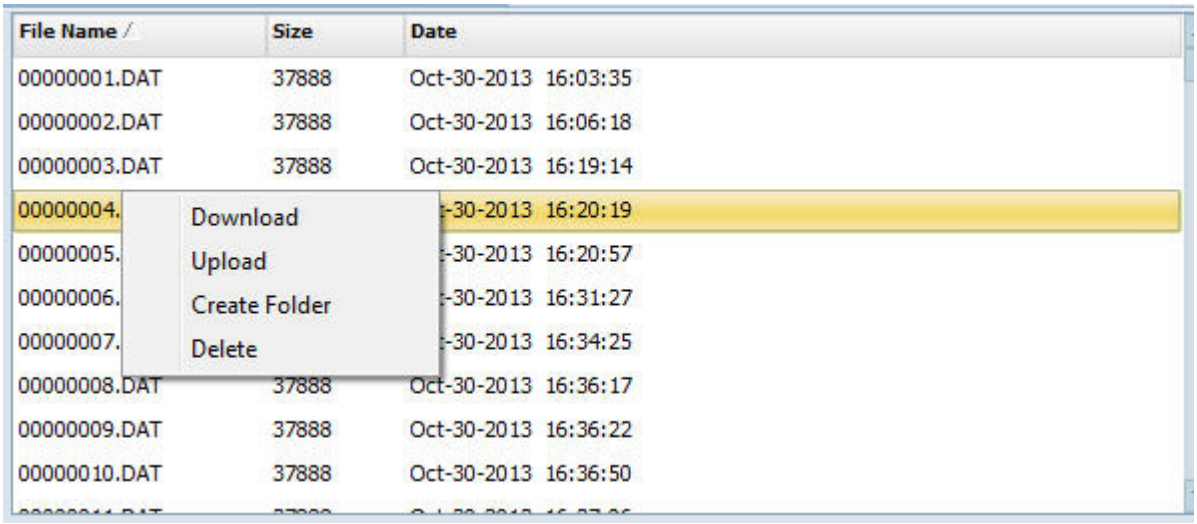
Device Connection Tools



Shows the serial number and IP address of the unit the computer is connected to, has connect/disconnect (toggle) and Detect buttons for breaking or establishing FTP connection with a unit.

5

Files In Current Folder



File(s) in the Current Folder window may be selected using typical Left Click, Shift+Left Click, or Ctrl+Left Click functions. Right clicking on a selected file will open the File Control window. Left clicking on Download in this window will initiate the file download process.

6

Status Window

A brief history of operations completed.

7

Status bar

Shows the current status.

8

Load button

Load the selected file.

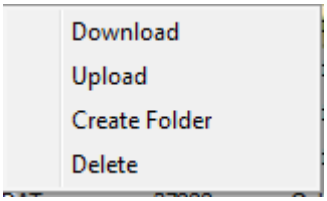
9

Cancel button

Close the FTP Explorer window

10

File Control Window



Click on Download to start the procedure to download selected file(s).

Downloading Data from Force III Unit

A very useful feature of a Force III unit is that it stores the reference, sim accelerometers, and ground force signals in .DAT files. Also, the Force III may store .VIB records of Vibrator QC data for the current day. The .DAT or .FMR files may be downloaded using the Source Signature program.

1. Connect the Ethernet cable from the computer to the Force III unit.

2. Power the Force III unit up.

3. In the File pull-down menu of Source Signature, select Load From Unit. See the Detailed Quick Start section for more information.

4. Establish communications between Source Signature and the Bird Dog unit: See the Unit ID section below.

5. If necessary, use the navigation buttons to find the .DAT or .VIB files of interest.

6. Select the File(s) to be downloaded.

7. To download one or more data files, use the typical Shift+left click or Ctrl+left click to highlight the desired files.

8. Right click while the cursor is on one of the highlighted files. This will open the File Control Window, shown in the example below.

9. Left click on Download in the File Control Window.

10. Right click while the cursor is on one of the highlighted files. This will open the File Control Window, shown in the example below.

11. Left click on Download in the File Control Window.

12. A "Select a Folder" window will open. An existing folder may be selected or a new folder may be made.

13. Highlight a folder then click on OK at the bottom of the Select a Folder window.

14. The selected data file(s) should be copied to the selected folder.

Detailed Quick Start Downloading Data from Force III Unit

A very useful feature of a Force III unit is that it stores the reference, sim accelerometers, and ground force signals in .DAT files. The unit stores many of these files. If the storage gets nearly full, some of the oldest data will automatically be erased. Also, if the Force III SERVICE/TESTS/VIB RECORD menu item is set to ON, the Force III will keep .VIB records of Vibrator QC data for the current day. The .VIB files are automatically erased each day. The .DAT or .FMR files may be downloaded later. Files have the time and date they were acquired saved. This is UTC (Greenwich Mean Time) and date. To download data files:

1. Use an Ethernet cable to connect the computer with Source Signature running to the Force III unit.
2. Power the Force III unit up. It only needs to be powered up. It does not need to be in the operate mode.
3. In the File pull-down menu of Source Signature, select Load From Unit.
4. An FTP Explorer window should open. An example of that is shown in this section of the manual.
5. Establish communications between Source Signature and the Bird Dog unit: See the Unit ID section below.
6. A list of folders should appear in the Device Folders window.
7. If that list shows:

DAQ3
FORCE3
SELFTEST
SYS-LOG

Click on DAQ3 to download .DAT files containing only reference, accelerometer, and force signals or click on FORCE3 to download .VIB files that contain more signals.

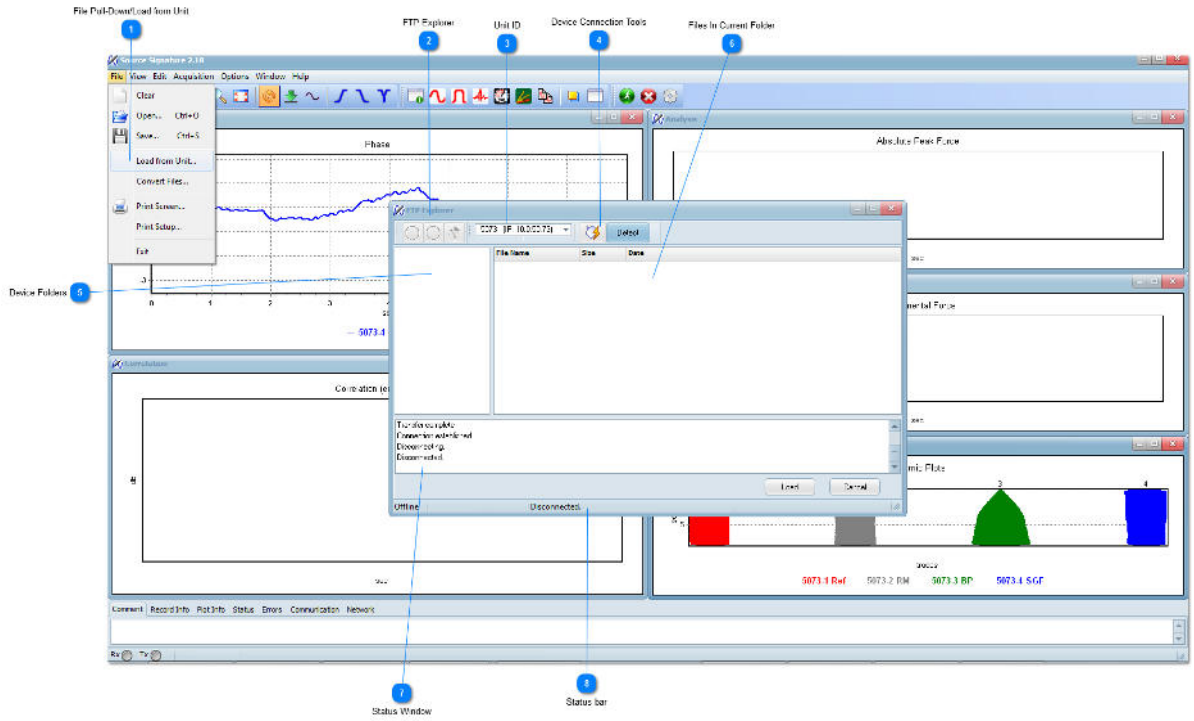
8. If DAQ3 was selected, the list should then show:

00000000
SWEEPS
TESTS

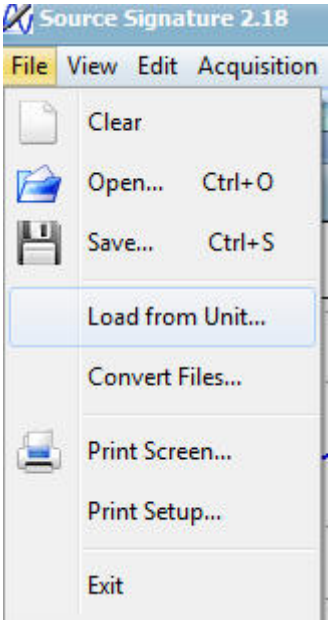
If FORCE3 was selected, see the Device Folders section, below.

9. Left click on 00000000 to open that folder.
10. The data files that unit has acquires should be listed in the "Files In Current Folder" window.
11. Scroll up or down to locate a file that appears to have been acquired at the time and

date of interest.
12. Left clicking on the file will cause the current plots to show data from that file.
13. Left clicking on another file will cause data from that file to be shown. By using this technique, one may preview and select a particular file.
14. The file may then be saved using the File Save feature.
15. To download one or more data files, use the typical Shift+left click or Ctrl+left click to highlight the desired files.
16. Right click while the cursor is on one of the highlighted files. This will open the File Control Window, shown in the example below.
17. Left click on Download in the File Control Window.
18. A "Select a Folder" window will open. An existing folder may be selected or a new folder may be made.
19. Highlight a folder then click on OK at the bottom of the Select a Folder window.
20. The selected data file(s) should be copied to the selected folder.
21. Messages in the Status Window will indicate the operation was done, as shown in the example below.
22. The files may be converted to SEG-Y by using the File/Convert Files... feature in Source Signature.



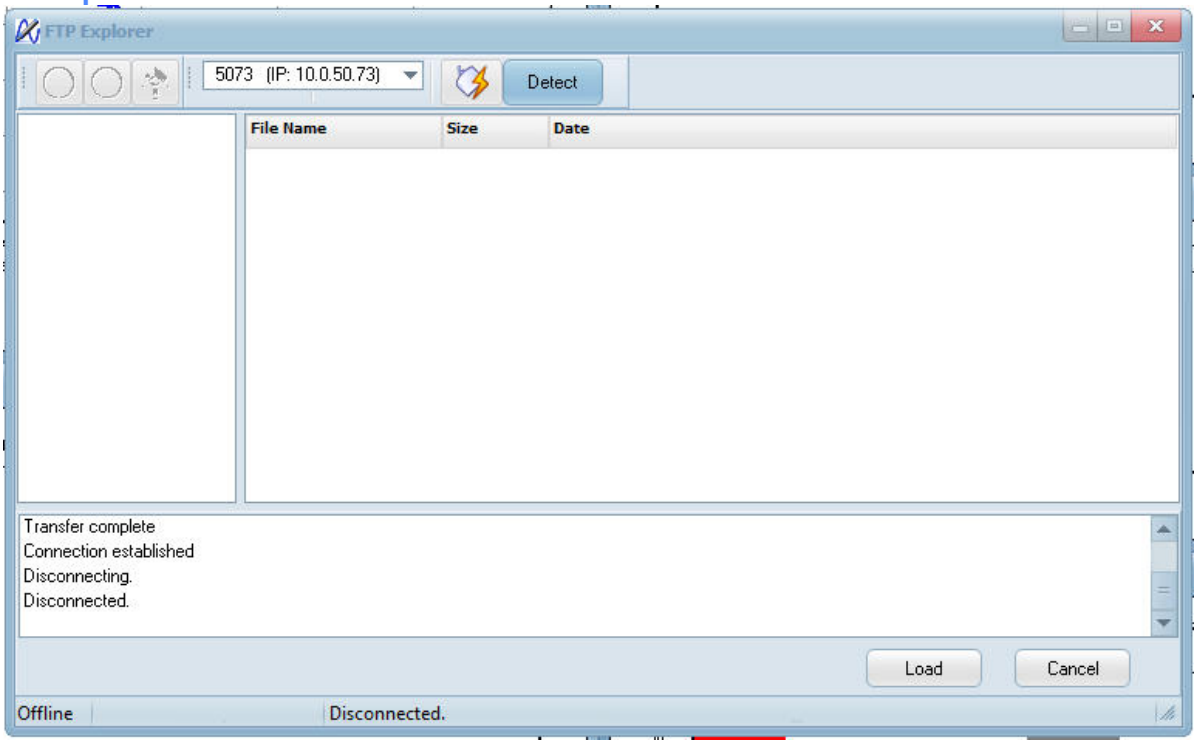
1 File Pull-Down/Load from Unit



Left click on **Load from Unit** to initiate the FTP Explorer process.

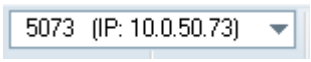
2

FTP Explorer

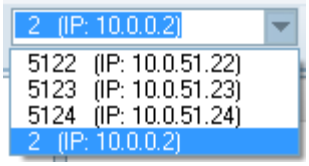


3

Unit ID



The unit connected to will appear here if the computer is currently connected to the unit. In this case, the Connect/Disconnect button  will be highlighted, with a tan background. If the unit is not currently connected to a unit, left clicking on the pull-down arrow will open the list of units previously detected. It should look similar to this:



If the unit currently connected to the computer appears, left clicking on the unit's listing then left clicking on the Connect/Diconnect button will initiate the connection process. If the unit is not in the list, left clicking on the Detect button should cause the program to detect the unit and it should then appear in the window. If the unit is not detected, check the Ethernet cable and the TCP/IP settings. etc. Canceling the download and detecting the unit by opening the Options/Device/Auto Detect function may help if the unit cannot be detected using the Detect button. Once the unit appears in the list, left click on it then left click on the Connect/Disconnect button. When the unit is connected, test should appear in the Device Folders and Status windows. If the Status Window shows connected then disconnected and an error message appears. Try disconnecting the Ethernet cable, then starting a download but selecting a different Unit from the pull down menu, then canceling the download, then reconnecting the Ethernet cable to the unit, then trying a download again.

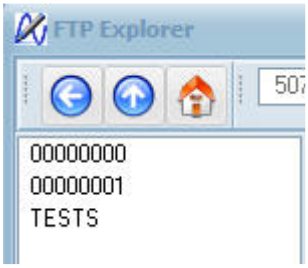
4

Device Connection Tools

Shows the serial number and IP address of the unit the computer is connected to, has connect/disconnect (toggle) and Detect buttons for breaking or establishing FTP connection with a unit.

5

Device Folders



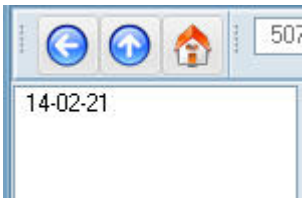
Folders in the current folder will be displayed here. If 00000000, and possibly 00000001, and possibly more and then TESTS appears in this window, files containing refrence, sim accelerometers, and sim ground force may be opened by selecting one of the 0000000X folders.

The up and left arrow buttons may be used to navigate to other folders.

If connected to a Force III unit, navigating up one folder should change the Device Folders to something similar to this:

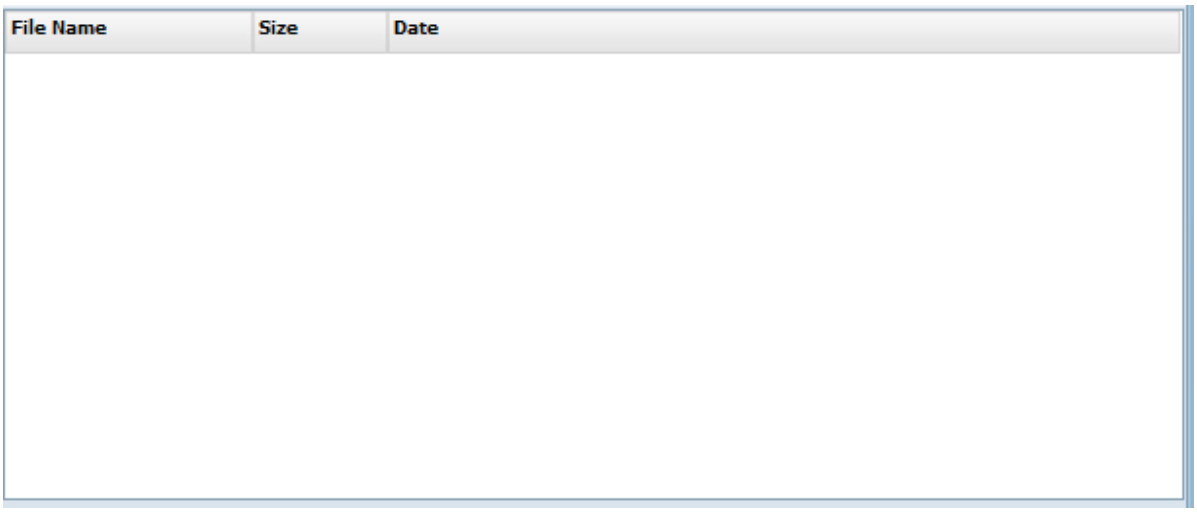
Left clicking on FORCE 3 should change the Device Folders to something like this:

Left clicking on RECORDS should change the Device Folders to something like this:



If the Force III SERVICE/TESTS/VIB RECORD menu item is set to ON, the Force III will keep records of Vibrator QC data for the current day. The folder name will be the current data. 2014, Frebruary 14 is the date shown in this example. The data is automatically erased each day. The data in these files will include Reference, singals from all four accelerometers, loop and sim ground force, and vibrator control signals such as torque motor current, valve and mass feedback, etc.

6 Files In Current Folder



Files may be selected from this area for downloading. The DAQ folder will have .dat files, which contain only ref, acc, and force data. The FORCE3/RECORDS/Date folder will have .vib files, which contain the data in .dat files plus vibrator control data, only if sweeps have been taken while the Force III SERVICE/TESTS/VIB RECORD menu item is set to ON.
This is an example of .DAT files in Files in Current Folder window.

File Name	Size	Date
00001000.DAT	39936	Nov-18-2013 19:47:26
00001001.DAT	39936	Nov-19-2013 19:45:43
00001002.DAT	39936	Nov-19-2013 19:45:55

Here is an example of .VIB files in the Files in Current Folder window.

File Name	Size	Date
1439.VIB	429931	Feb-24-2014 17:09:54
1440.VIB	430581	Feb-24-2014 17:10:04
1441.VIB	430555	Feb-24-2014 17:10:16

7

Status Window

Shows a brief history of operations completed.

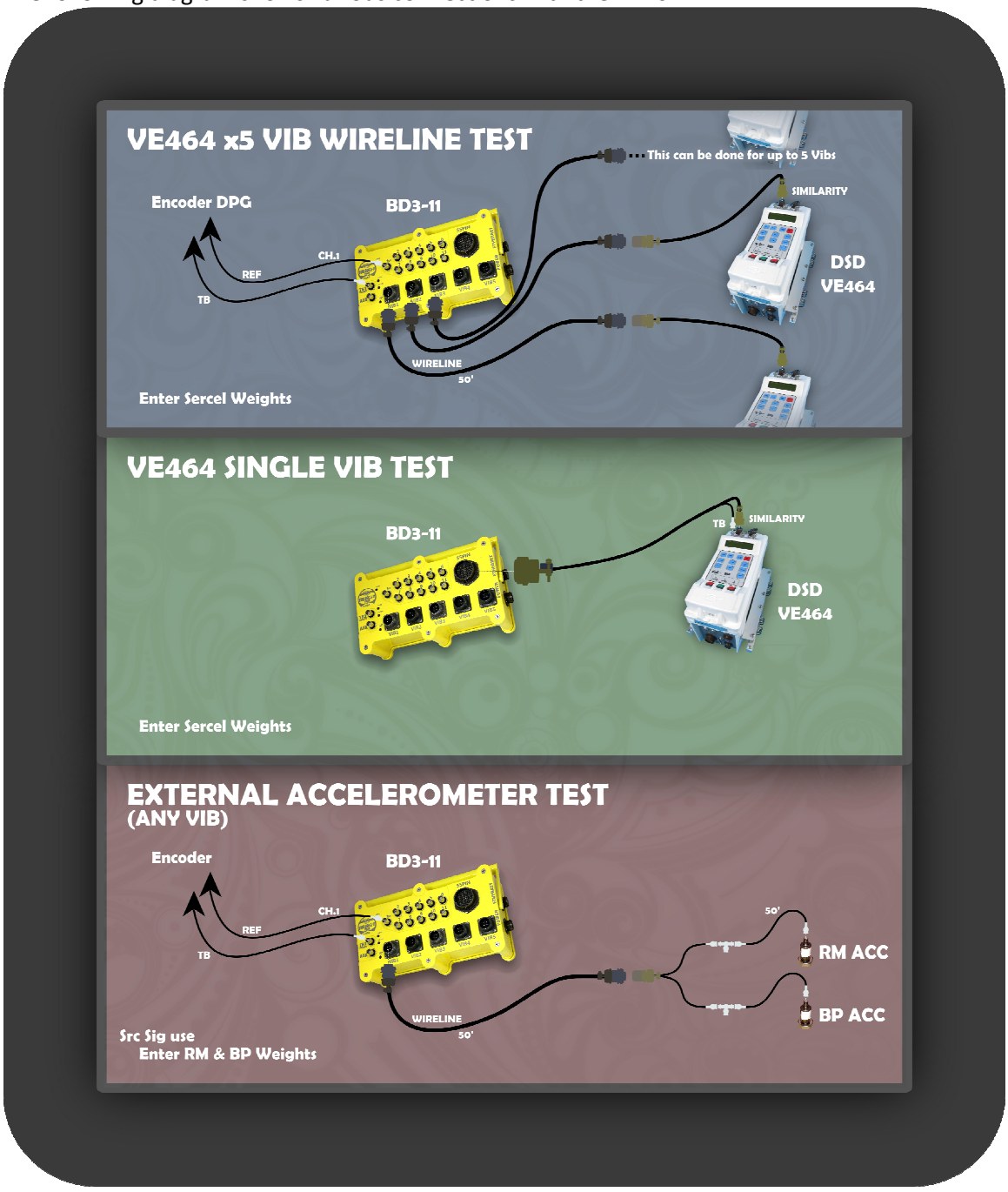
8

Status bar

Shows the current FTP communications status.

BD3-11 with Sercel VE464

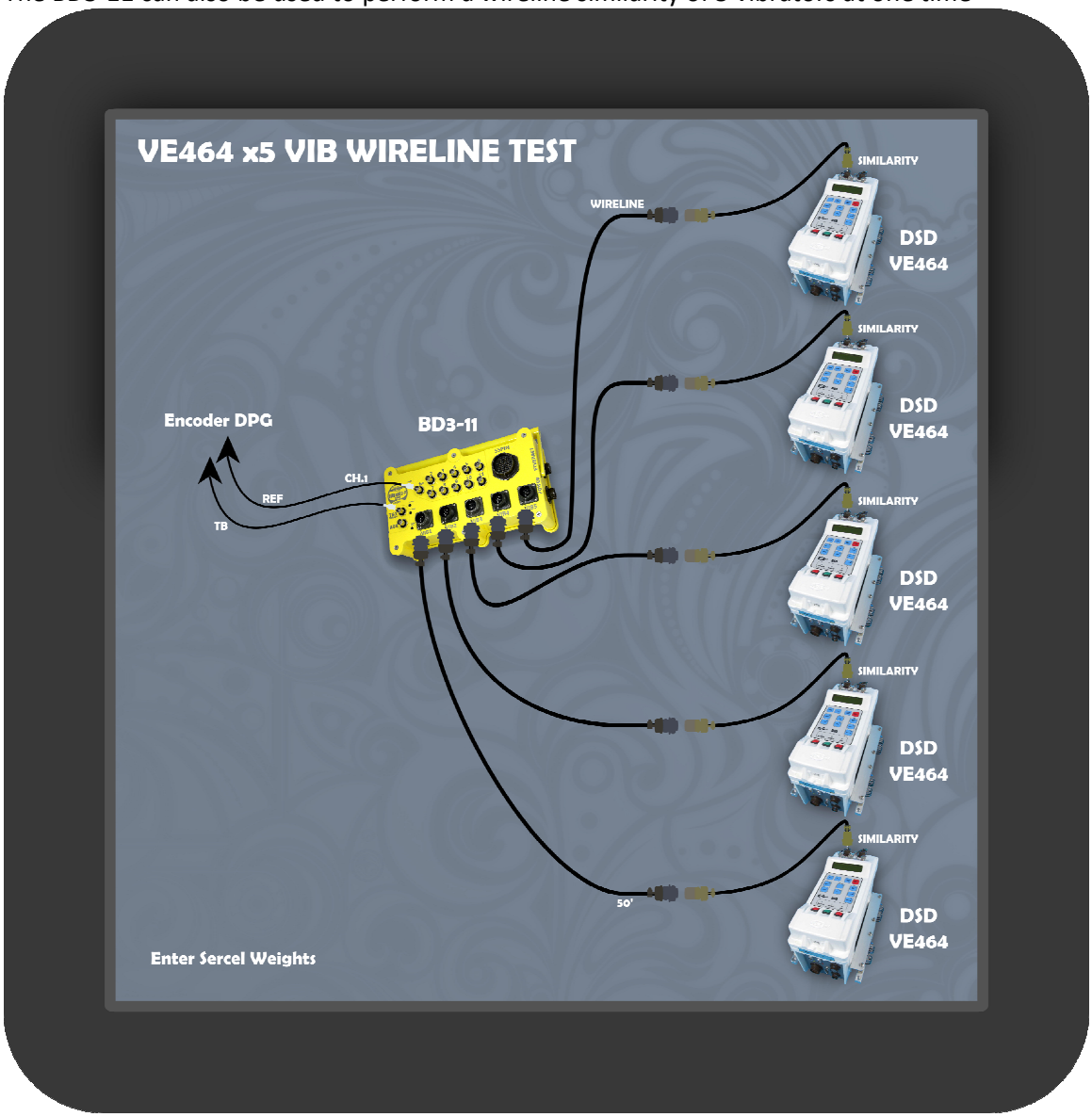
The following diagram shows various connections with the VE464



The VE464 wireline test and the VE464 Single vibrator connections require special scaling of the accelerometer signal as shown in the following paragraphs.

When using the external independent accelerometers the correct 10 mv/G sensitivity of the accelerometer must be entered and the correct weights of the vibrator must be entered.

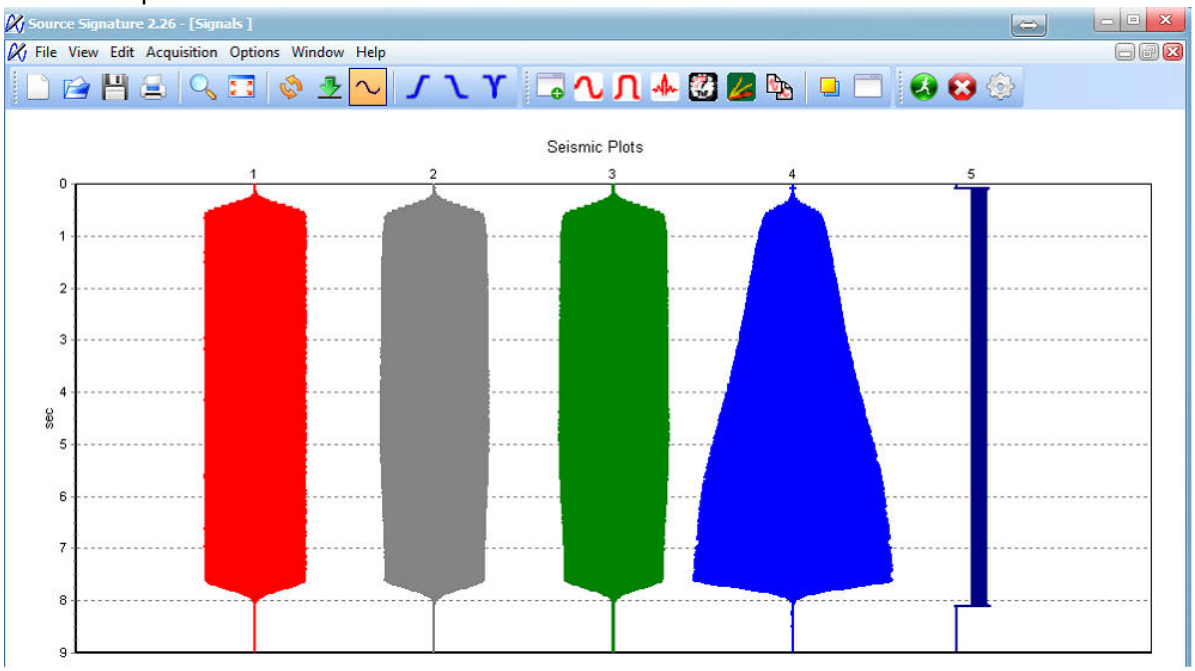
The BD3-11 can also be used to perform a wireline similarity of 5 vibrators at one time



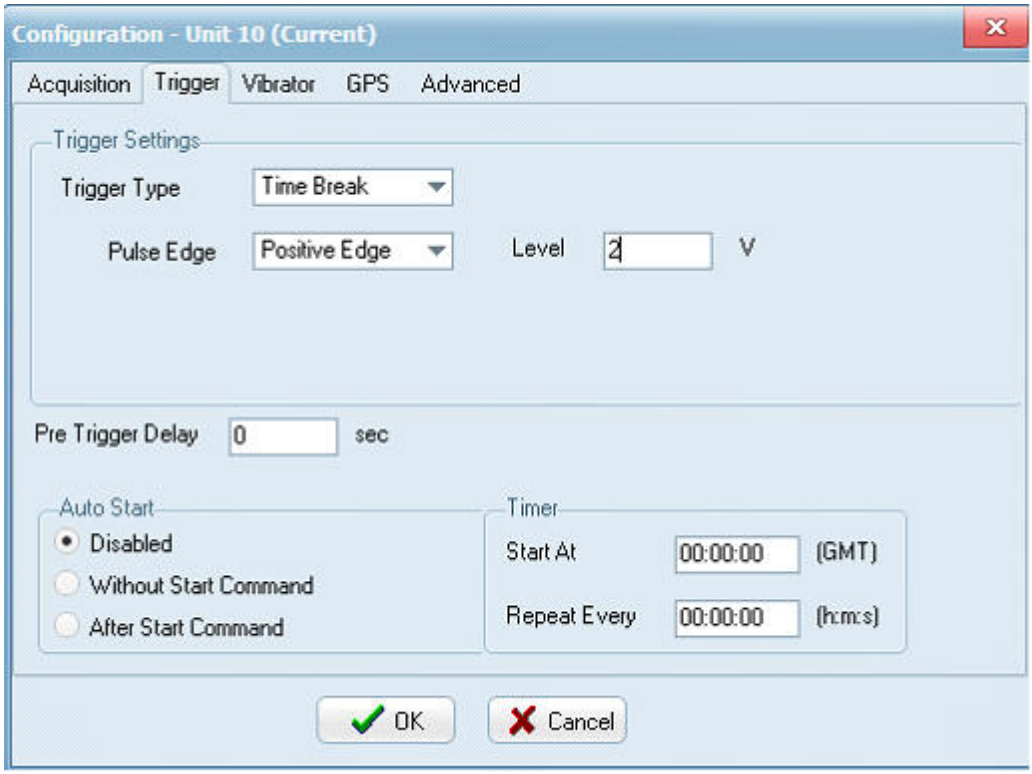
Anytime the signals are produced directly from the VE432/VE464 then the accelerometer scaling must be adjusted as shown in the following paragraphs.

VE464 connection

Connect the 14 pin connector to the Similarities connector on the top of the Sercel VE464, connect the BNC to the TB (Time Break) connector on the Sercel VE464, and connect the 55 pin connector to the 55 pin connector on the BD3-11 unit.
The Time Break signal from the VE464 is zero volts when the unit is not sweeping and about 3.3 volts when the unit is sweeping.
Ch 1 - Reference Sweep
Ch 2 – Weighted Sum approximation of Ground Force
Ch 3 – Reaction Mass Force
Ch 4 – Baseplate Force



Setup the BD3-11 to trigger on positive edge of the TB signal


Configuration - Unit 10 (Current)
Acquisition
Trigger
Vibrator
GPS
Advanced
Trigger Settings
Trigger Type
Time Break
Pulse Edge
Positive Edge
Level
2
V
Pre Trigger Delay
0
sec
Auto Start
Disabled
Without Start Command
After Start Command
Timer
Start At
00:00:00
(GMT)
Repeat Every
00:00:00
(h:m:s)
OK
Cancel

The following description is from the Sercel VE464 manual

SIMILARITIES

Pin	Signal
A	REF+
B	REF-
C	FORCE+
D	FORCE-
E	MASS ACC+
F	MASS ACC-
H	PLATE ACC+
J	PLATE ACC-
M	AGND
N	AGND
P	not used
R	not used

Figure 9-24 SIMILARITIES connector

REF: 31833 daN/V = 71564 lbf/V (differential outputs).

FORCE: 31833 daN/V = 71564 lbf/V (differential outputs).

Mass acceleration (differential outputs):

$$\frac{318330}{Mass\ mass\ (kg)} m.s^{-2}/V \quad = \quad \frac{27629823}{Mass\ mass\ (lbs)} inch.s^{-2}/V$$

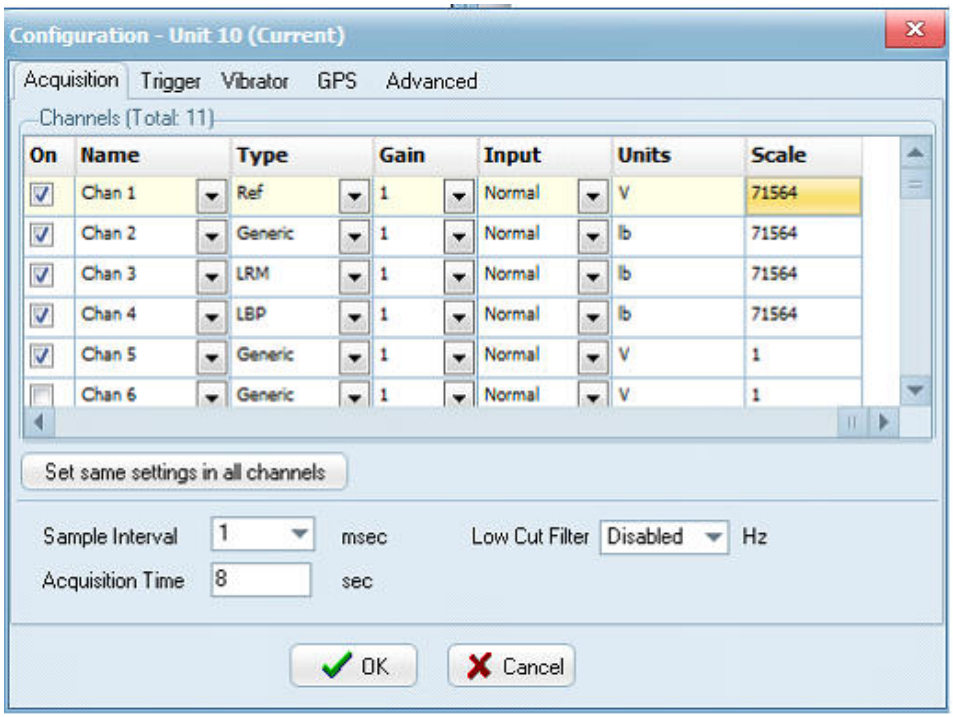
Baseplate acceleration (differential outputs):

$$\frac{318330}{Base\ mass\ (kg)} m.s^{-2}/V \quad = \quad \frac{27629823}{Base\ mass\ (lbs)} inch.s^{-2}/V$$

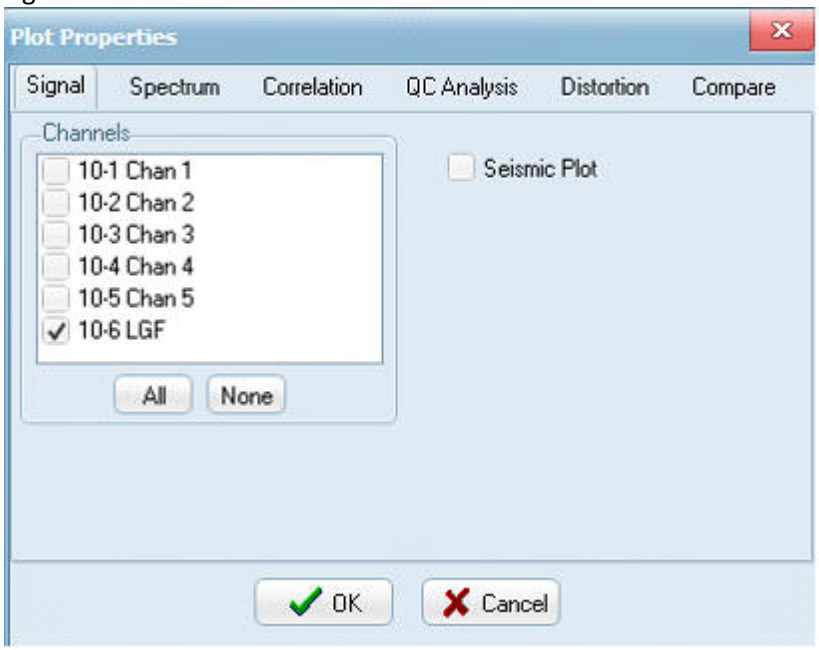
WARNING

Positive output for *downward* acceleration.

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



After acquiring a new record an additional LGF signal will appear in the list. This “Loop Ground Force” signal will be the combination of channel 3 (LRM) and channel 4 (LBP). The new LGF signal should be identical to channel 2 from the VE464.



Source Signature Program

Source Signature Installation

The recommended ways to install Source Signature are:

- As part of an installation from the Seismic Source Software installation.
- Manually installed from files downloaded from SSC (Seismic Source Company), etc.

Seismic Source Software Installation

During the installation process, include Source Signature and other items you desire to be installed.

Manual Installation

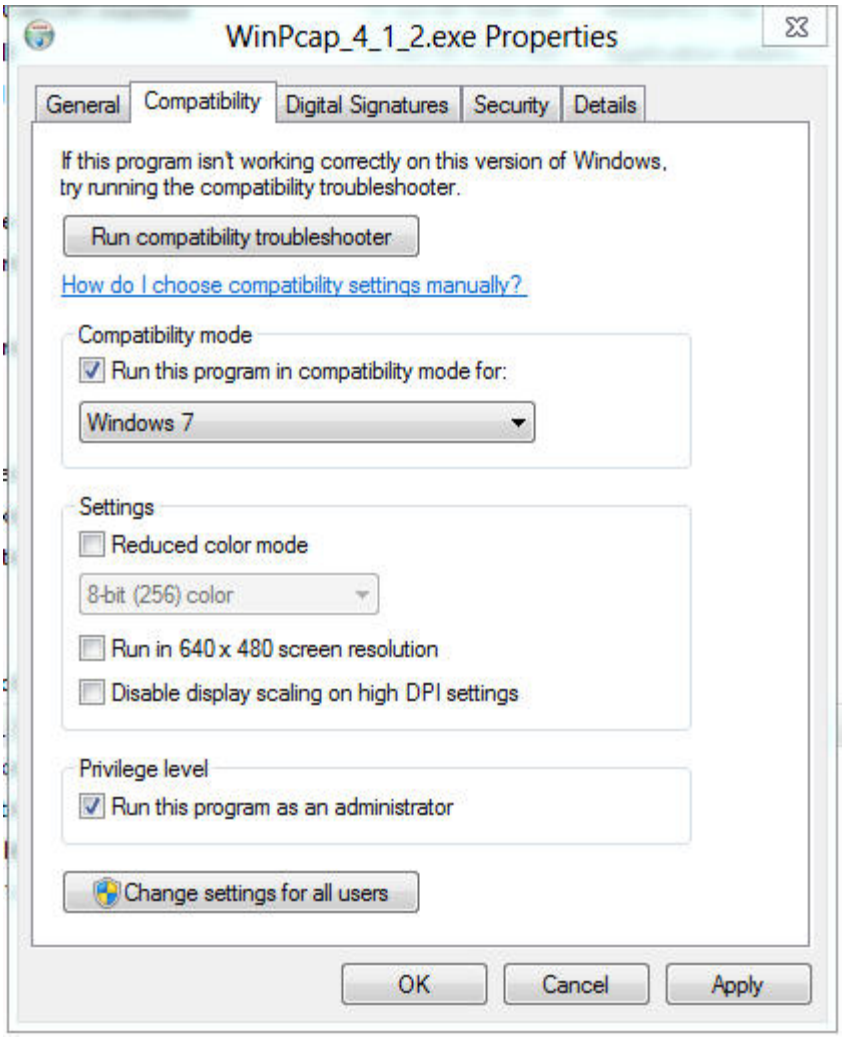
Windows 7:

- Download and install WinPcap. That can be downloaded from the WinPcap website at http://www.winpcap.org/install/ or other sites such as CNET.

The instructions from WinPcap at are:

1. Download and run the executable
2. Follow the instructions on the screen. The installation applet will automatically detect the operating system and install the correct drivers
3. The WinPcap-based applications are now ready to work
4. To remove WinPcap from the system, go to the Control Panel, click on "Add/Remove programs" and then select "WinPcap"

With Windows 8,
1. Download winpcap.. www.winpcap.org
2. Right click on this file ---> WinPcap_4_1_2.exe
3. Click properties, then click the compatibility tab
4. Under compatibility mode, use the dropdown box to choose windows 7
5. Click apply and save.



- Download the desired Source Signature file. It is likely to be a compressed file, such as srcsig212.zip. That file is typically about 4MB so it may be too large to attach to an email, so a link to the SSC FTP site for automatic download may be sent to you.
- If the file is compressed, uncompress it. The resulting file should be something like srcsig.exe and should be about 11MB.
- Save srcsig.exe in the directory of your choice.
- Start Source Signature using the technique normal to your operating system.

Ethernet Setup

TCP/IPv4 Settings

Before the Computer can be connected to the Bird Dog 3-3 unit, it is necessary to setup the Ethernet port. Normally, it is necessary to set up a fixed TCP/IPv4 address for the computer to communicate with the Bird Dog 3-3 unit.

IPv4 Address SET to FIXED IP ADDRESS – 10.0.0.101

Subnet mask set to 255.0.0.0

All Firewalls Disabled

Changing To A Different Computer

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 computer with the new address.

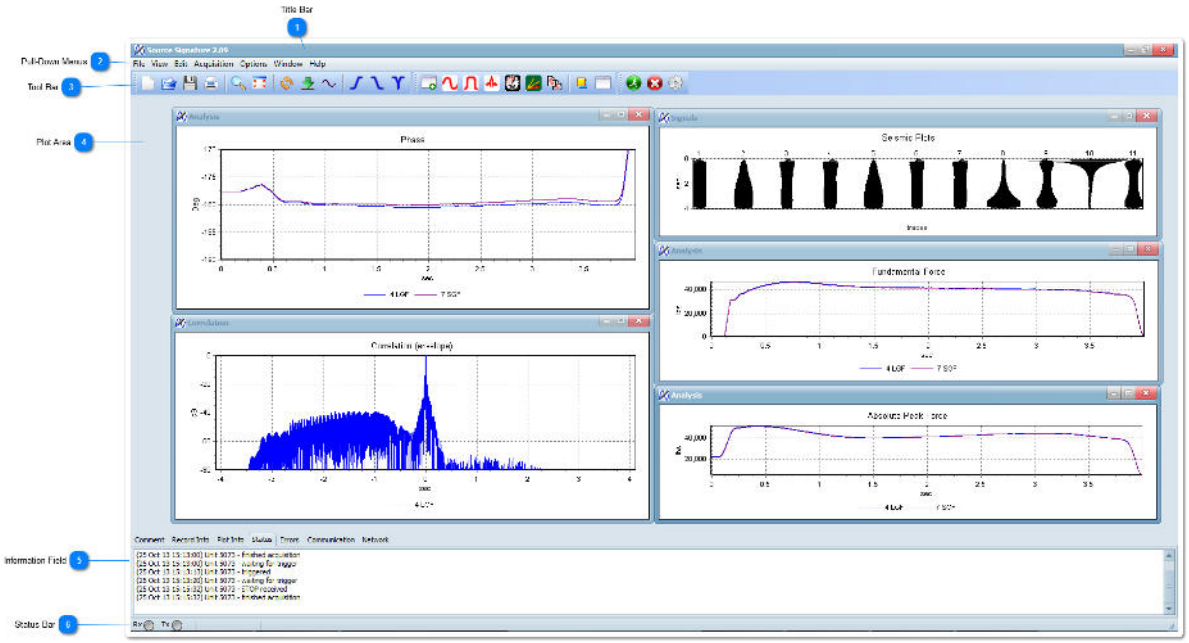
Authentication

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.

Additional Ethernet Setup Information

See Additional Ethernet Setup Information section near the end of this manual for more information about setting up the Ethernet connection.

Source Signature Program Operation



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

File View Edit Acquisition Options Window Help

Typical menus to access the program's features.

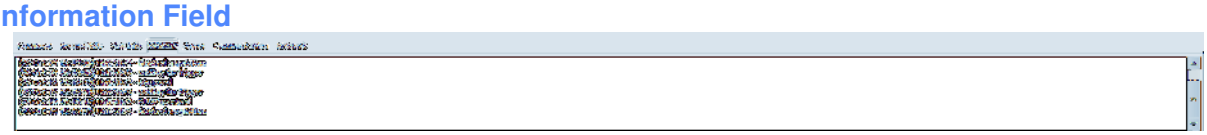
3 Tool Bar

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



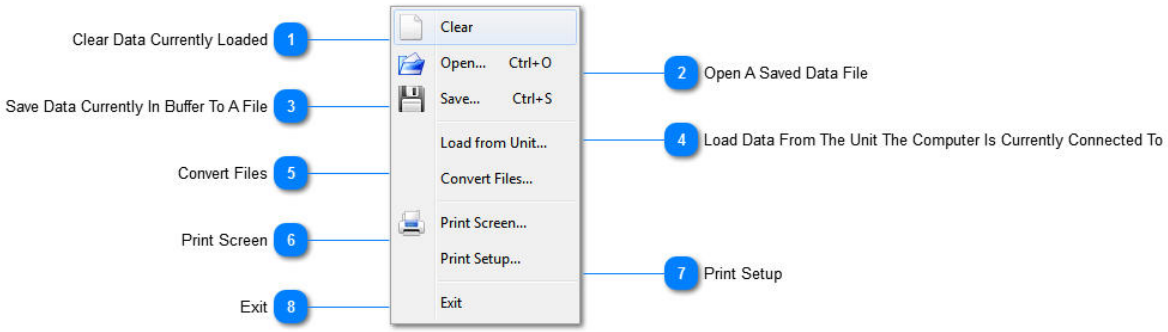
Various kinds of information about the data and program status can be displayed here.

6

Status Bar

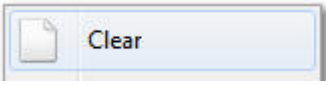
Receiving and transmitting data and recording progress messages are displayed in this bar.

File Pull-Down Menu



1

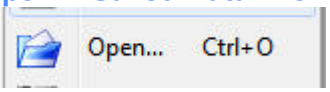
Clear Data Currently Loaded



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

2

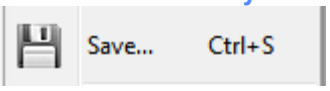
Open A Saved Data File



A standard operating system Open function.

3

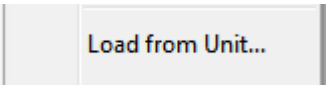
Save Data Currently In Buffer To A File



A standard operating system Save function.

4

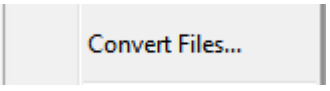
Load Data From The Unit The Computer Is Currently Connected To



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

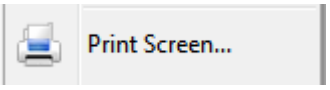
Convert Files



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

6

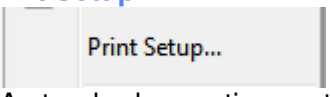
Print Screen



A standard operating system Print Screen function.

7

Print Setup



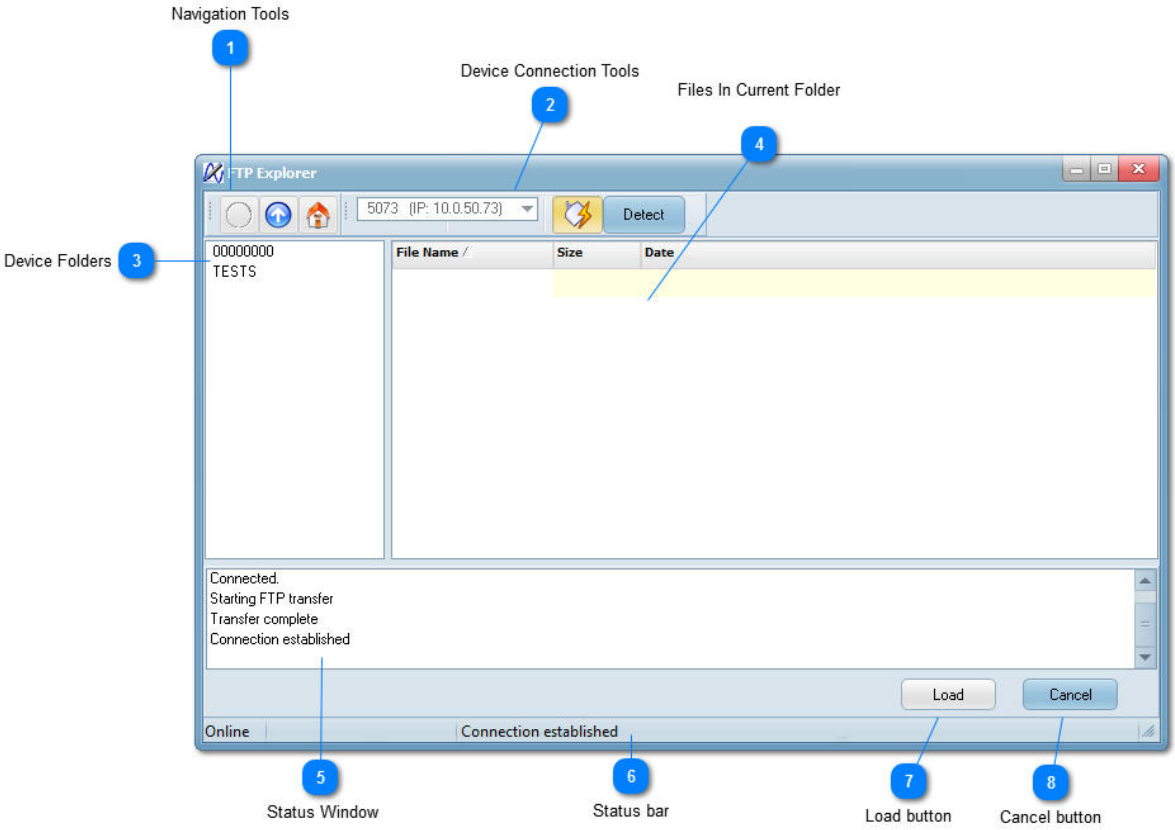
A standard operating system Print Setup function.

8

Exit

A standard operating system Exit function.

Load From Unit Menu



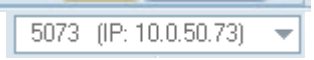
1

Navigation Tools

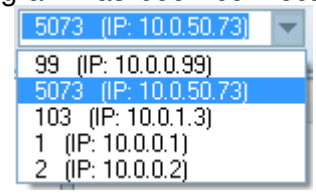
Tools to move up a folder, back, etc.

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.



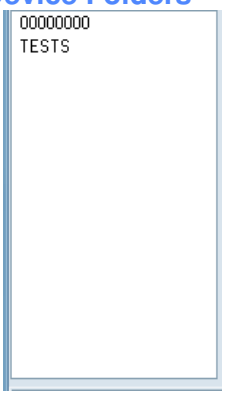
Left click on the connect/disconnect (toggle) button  to connect or

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 

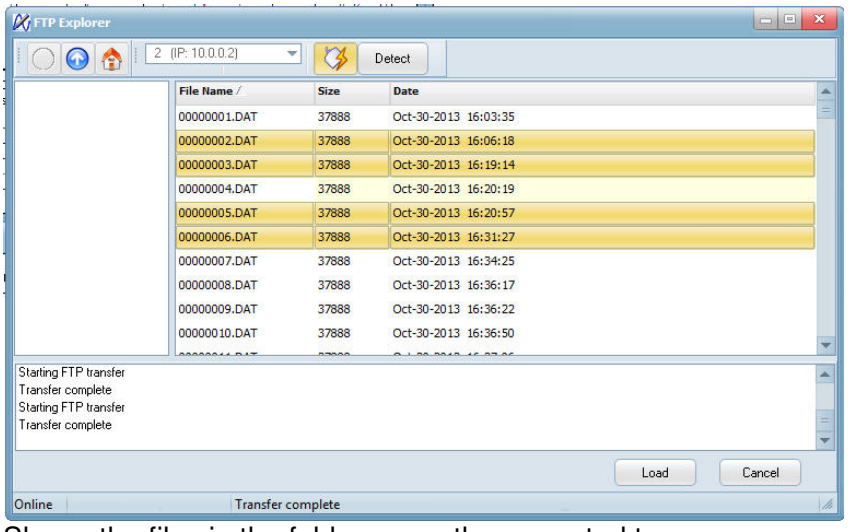
for the computer to detect the unit it is connected to and to open the Device Folder window to the initial folder.

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.

6

Status bar

7

Load button

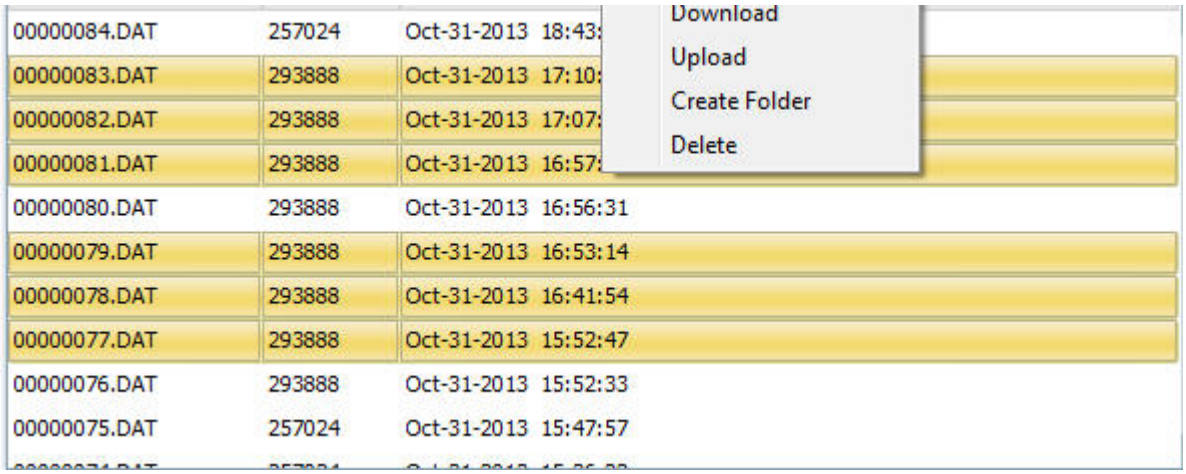
8

Cancel button

Download Files

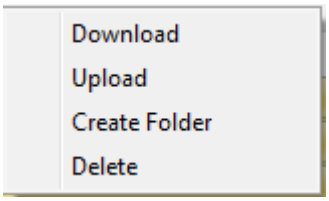
1

Files In Current Folder Window



2

File Transfer Control Window



Left click on Download to copy selected files to open the Select a Folder window.

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.

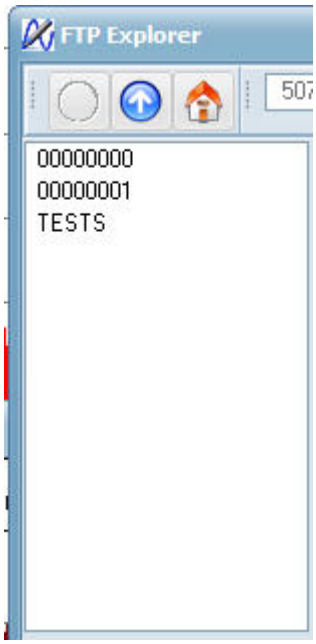
DAT files from a Force III will contain Reference and sim Baseplate and Reaction Mass acceleration and Ground Force signals. Dat files from a Bird Dog 3-3 or 3-11 unit will contain as many signals as were recorded in each file, e.g. 8 recorded data traces plus two more Ground Force signals for VibQC 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 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 similar to this:



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

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

PSS
RECORDS
SWEEPS

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

13-12-17 where the folder shown is the current GPS date.

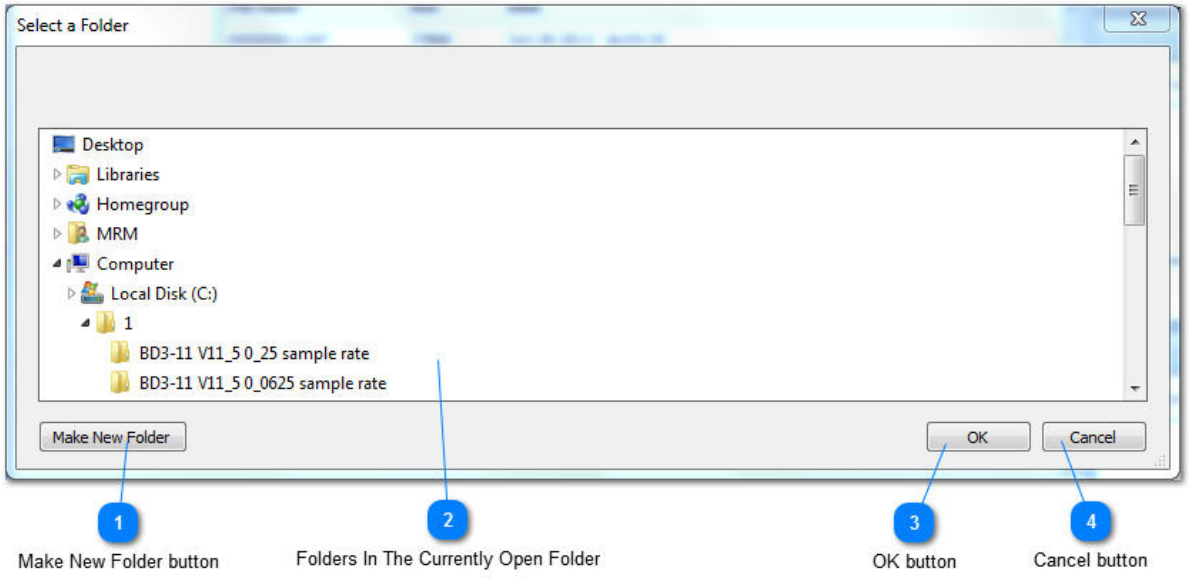
Double left click on the date to open the date folder. Then the Device Folders window should be empty and the Files In Current Folder should show a listing of the saved VIB files. It may look similar to this:

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.

Select a Folder window



1

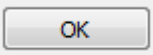
Make New Folder button

2

Folders In The Currently Open Folder

3

OK button

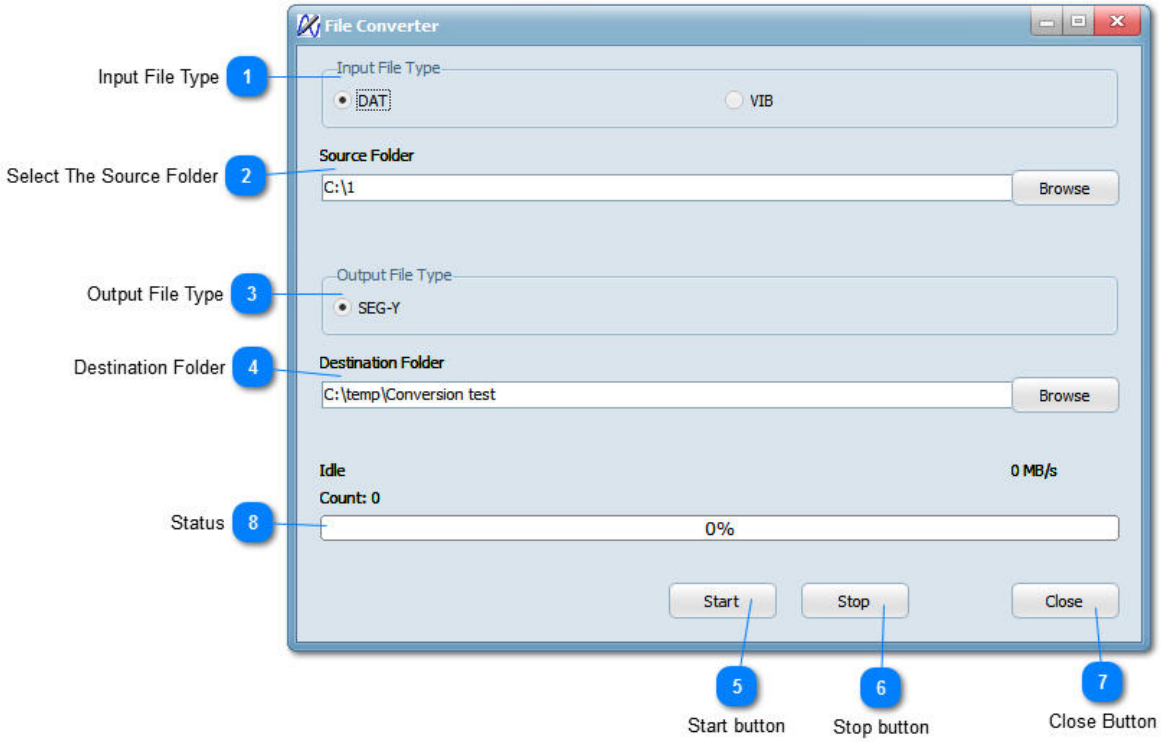


After selecting the desired destination folder, left click here to start the file copy function.

4

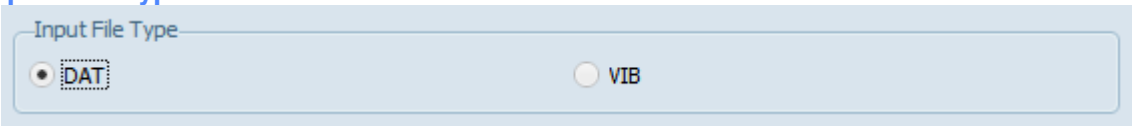
Cancel button

File Converter window



1

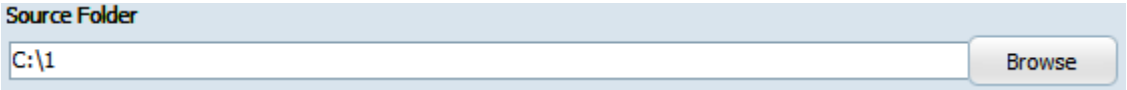
Input File Type



Select the type of file to be converted.

2

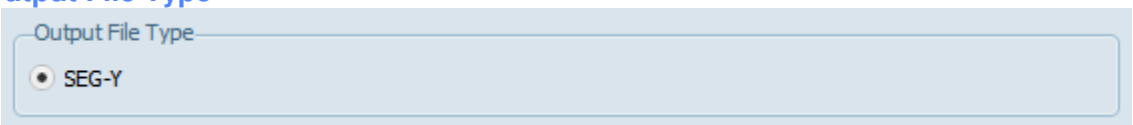
Select The Source Folder



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

3

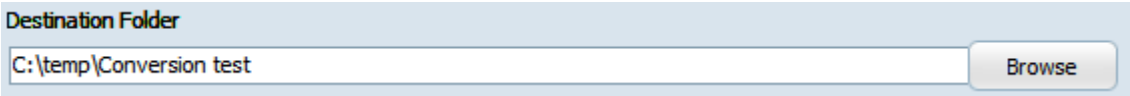
Output File Type



At this time, only SEG-Y file type is available.

4

Destination Folder



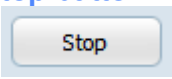
Select the folder the converted files should be written to.

5

Start button

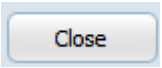
6

Stop button



7

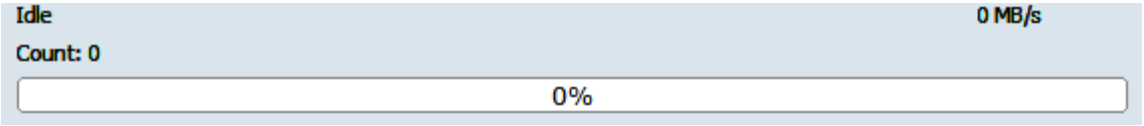
Close Button



Closes the File Converter window

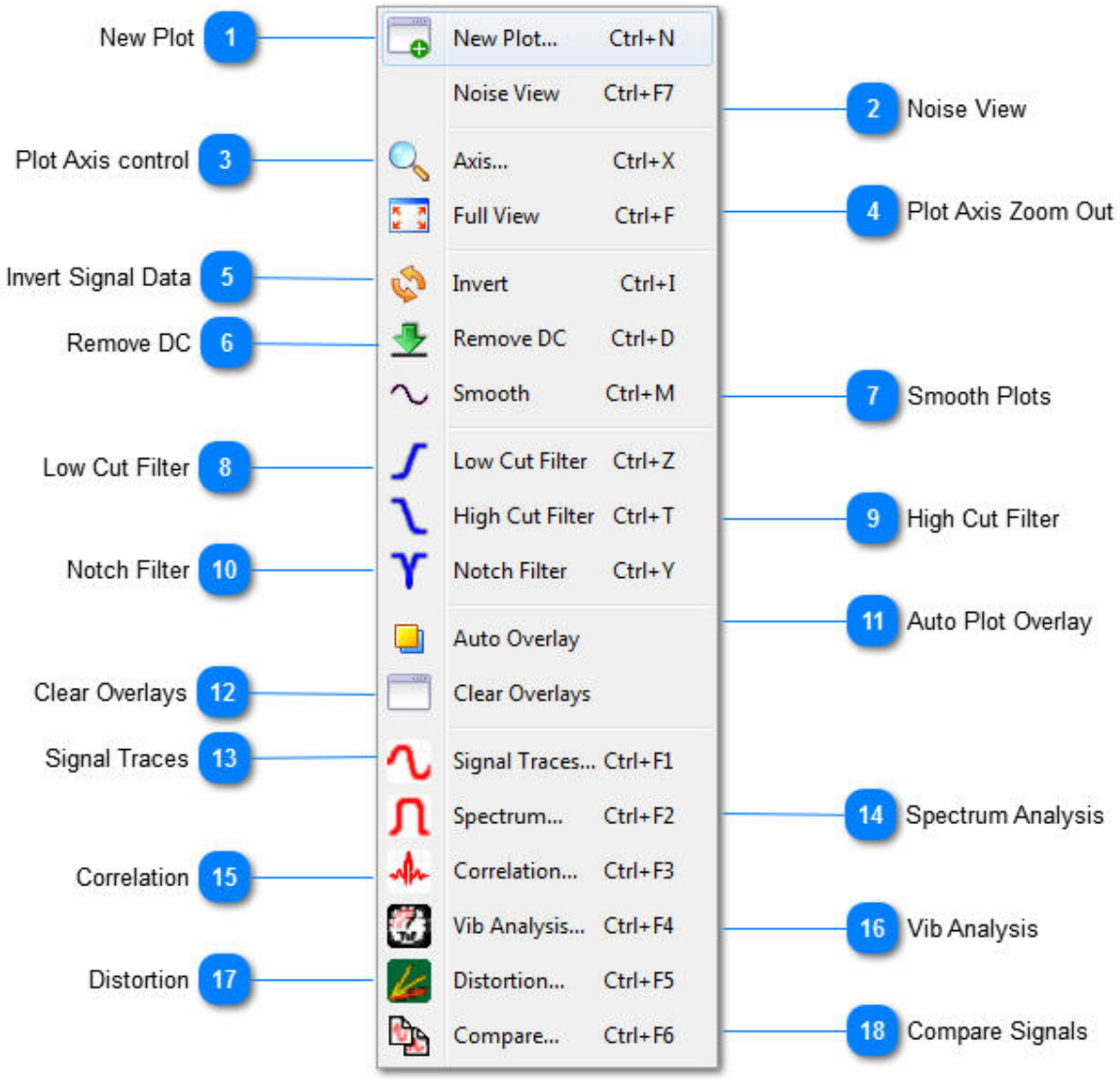
8

Status



Shows the status/progress of the file conversion process.

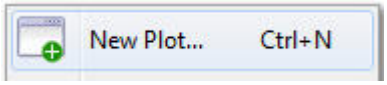
View Pull-Down Menu



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

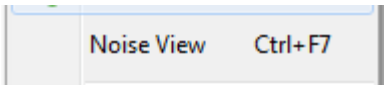
New Plot



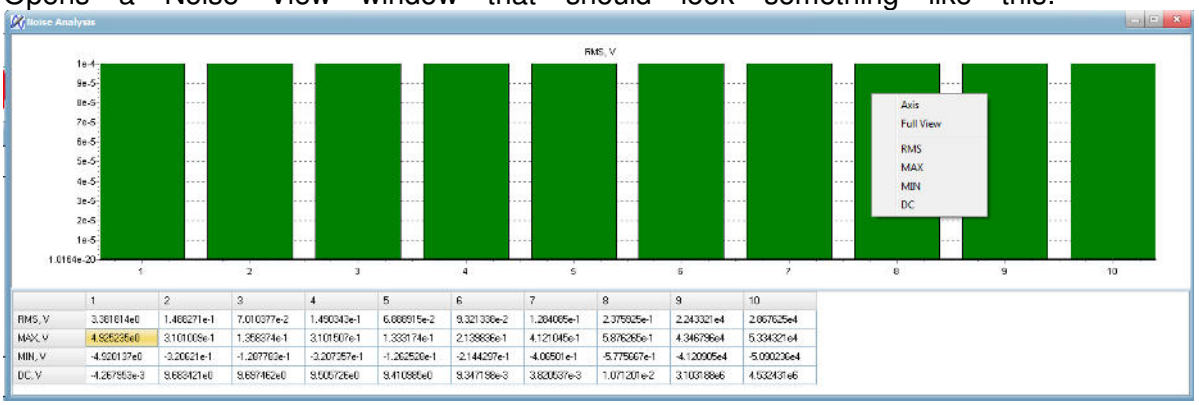
Adds a plot window to the Plot Area

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.

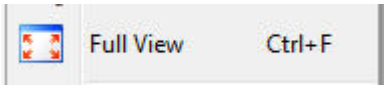
3

Plot Axis control

Opens a window to allow changing the axes of the currently selected plot.

4

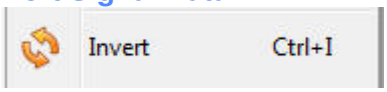
Plot Axis Zoom Out



Sets the axes of the currently selected plot to be great enough to show the complete plot of the currently displayed data.

5

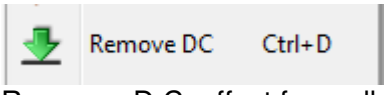
Invert Signal Data



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

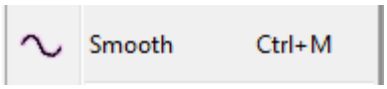
Remove DC



Removes D.C. offset from all signals.

7

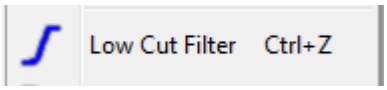
Smooth Plots



Smooths all data for most types of plots.

8

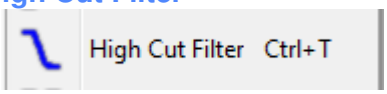
Low Cut Filter



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

9

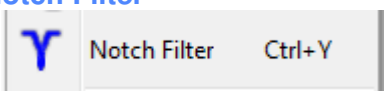
High Cut Filter



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

10

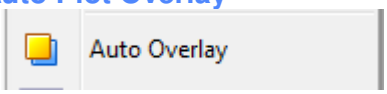
Notch Filter



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

11

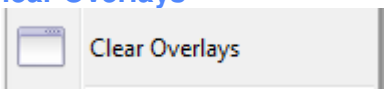
Auto Plot Overlay



Captures the current plots so that newer data plots overlay the current plots.

12

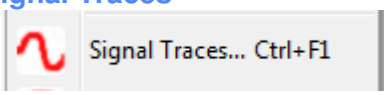
Clear Overlays



Removes the captured overlays from the plots.

13

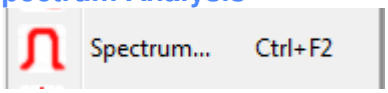
Signal Traces



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

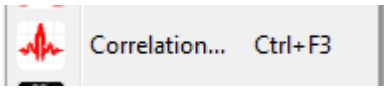
Spectrum Analysis



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

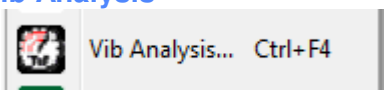
Correlation



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

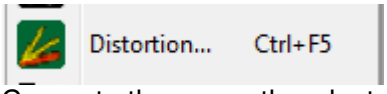
Vib Analysis



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

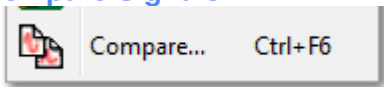
Distortion



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

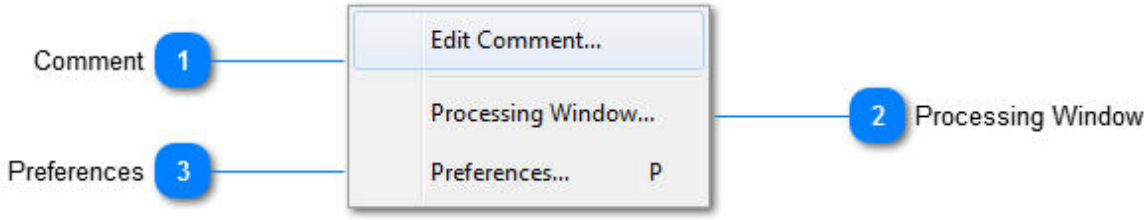
18

Compare Signals



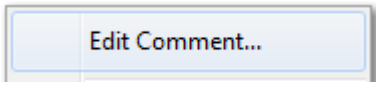
Converts the currently selected plot to compare selected plots, e.g. plotting reference versus baseplate phase, etc. This can be a phase or amplitude comparison,

Edit Pull-Down Menu



1

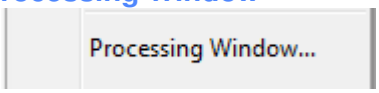
Comment



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

2

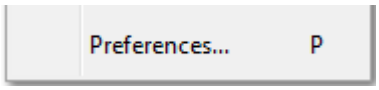
Processing Window



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

3

Preferences

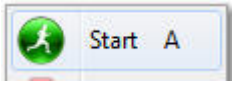


Opens the application Preferences setup window. Can also be accessed through the Options pull-down menu.

Acquisition Menu

1

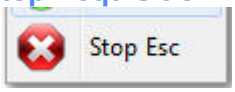
Start Acquistion



Enables data acquisition when used wth 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.

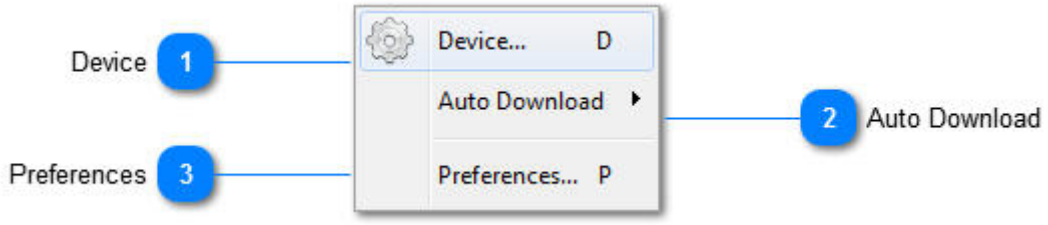
2

Stop Acquisition



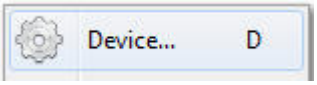
Stops data acquisition when used wth a Bird Dog 3-11 VibQC unit. Pressing the ESC key on the keyboard also stops acquisition. The Stop button has no effect when connected to a F3.

Options Menu



1

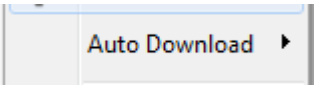
Device



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

2

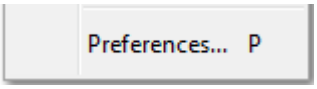
Auto Download



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.

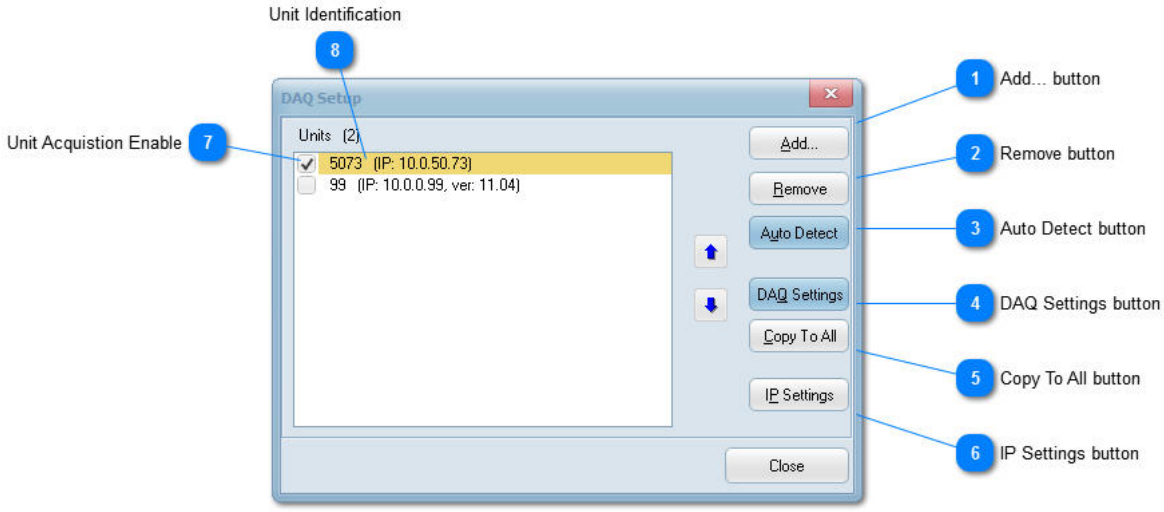
3

Preferences



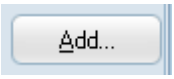
Opens the application Preferences setup window. Can also be accessed through the Edit pull-down menu.

DAQ Setup window



1

Add... button



Allows one to add a serial number and IP address manually.

2

Remove button

Allows one 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 compter 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.

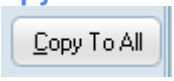
4

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 Acquistion Enable

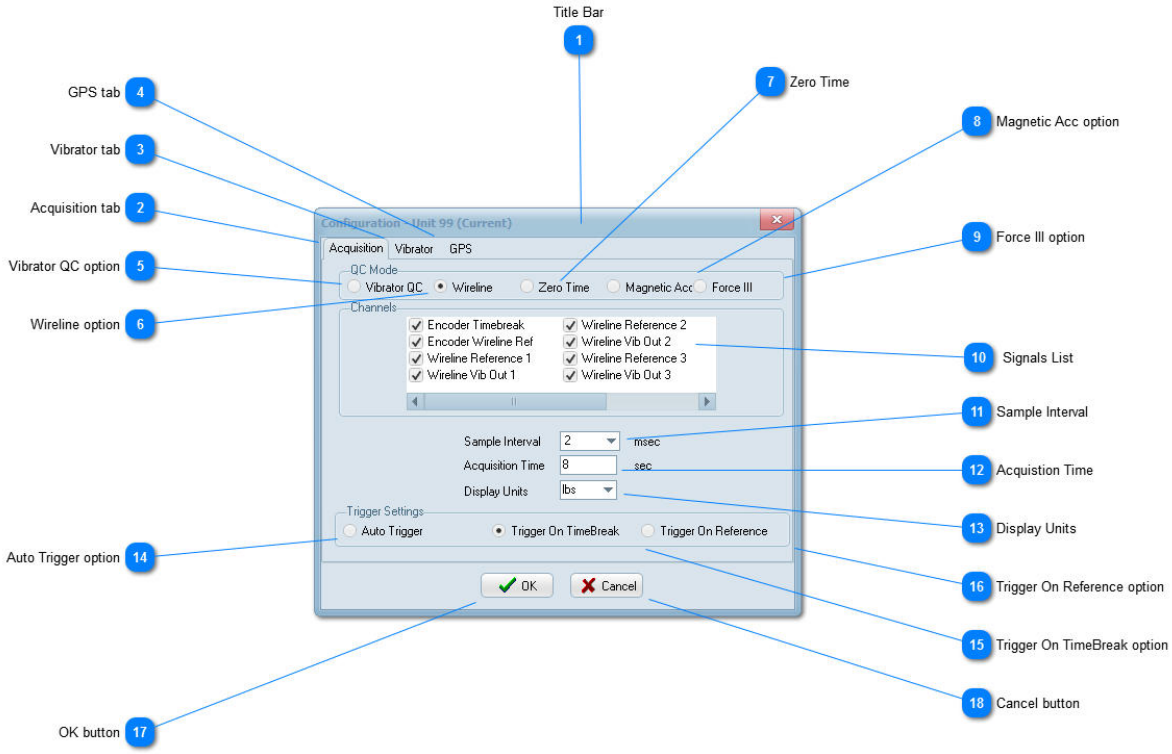
Signals from all units with this field checked will be acquired.

8

Unit Identification

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.

Configuration - Acquisition



Unit Configuration

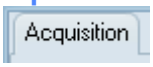
1

Title Bar

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

2

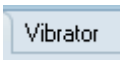
Acquisition tab



Opens the window for acquistion configuration setup, as displayed in this example.

3

Vibrator tab



Opens a window for setting vibrator weights, etc.

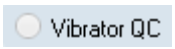
4

GPS tab

Opens a window for checking the current GPS position information.

5

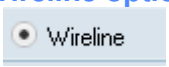
Vibrator QC option



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

6

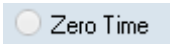
Wireline option



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

7

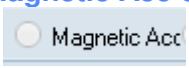
Zero Time



Select to conduct zero time tests.

8

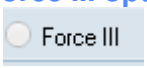
Magnetic Acc option



Select for connecting independent magnetic mount accelerometers to any of inputs 2 through 11.

9

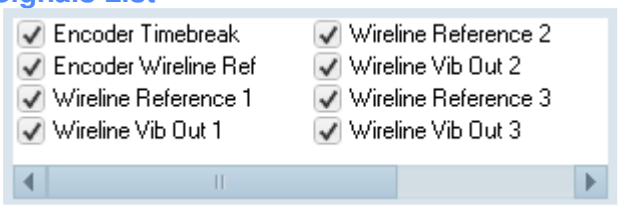
Force III option



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

10

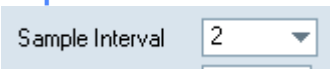
Signals List



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

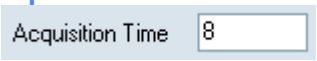
Sample Interval



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

12

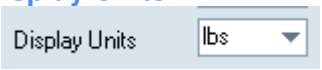
Acquistion Time



Allows selection of the length of acquisition time.

13

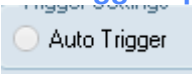
Display Units



Allows the graphs scaling to be displayed in different units.

14

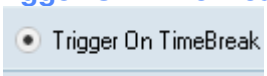
Auto Trigger option



Select for the unit to start acquisition as soon as the START button is pressed.

15

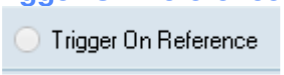
Trigger On TimeBreak option



Select for the unit to start acquisition when the Time Break input signal arrives.

16

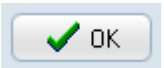
Trigger On Reference option



Select for the unit to start acquisition when the reference signal becomes active.

17

OK button



Applies the entries and exits the configuration function.

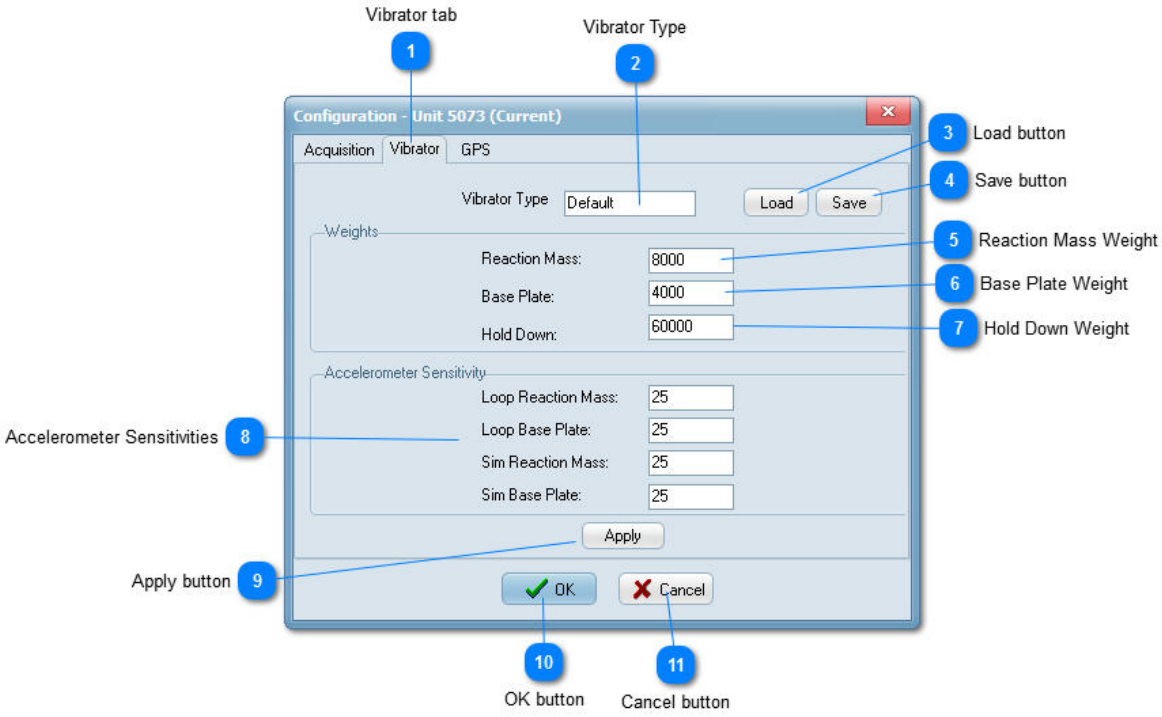
18

Cancel button

Exits the configuration function with out applying the entries.

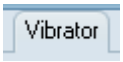
Configuration - Vibrator

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

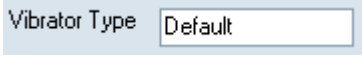
Vibrator tab



Select this tab to set vibrator parameters

2

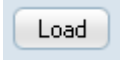
Vibrator Type



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

3

Load button



Loads vibrator parameters from a file.

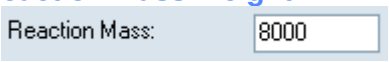
4

Save button

Saves vibrator parameters to a file.

5

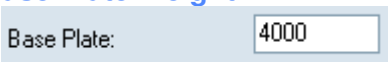
Reaction Mass Weight



Enter the reaction mass weight. Any units are acceptable as long as reaction mass, base plate, and hold down weights are all in the same weight system.

6

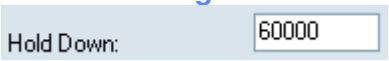
Base Plate Weight



Enter the base plate weight. Any units are acceptable as long as reaction mass, base plate, and hold down weights are all in the same weight system.

7

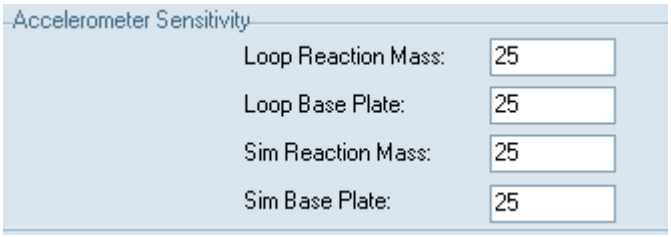
Hold Down Weight



Enter the hold down weight. Any units are acceptable as long as reaction mass, base plate, and hold down weights are all in the same weight system.

8

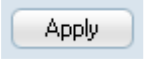
Accelerometer Sensitivities



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

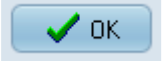
9

Apply button



10

OK button



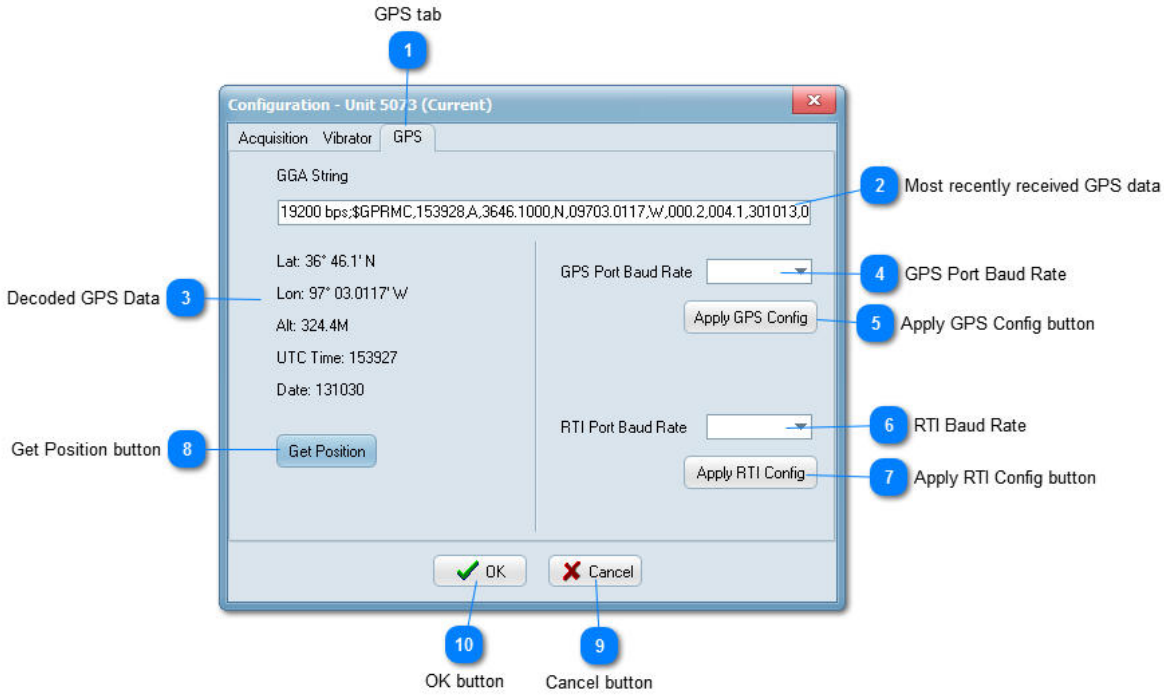
Applies any changes and exits the window.

11

Cancel button

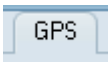
Exits the window without appliyng any changes that have been made.

Configuration - GPS



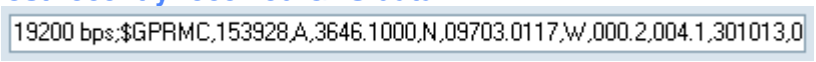
1

GPS tab



2

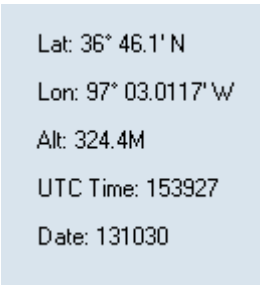
Most recently received GPS data



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.

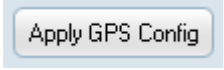
4

GPS Port Baud Rate

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

5

Apply GPS Config button



6

RTI Baud Rate

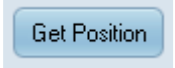
For settig the baud rate for sending data to the recording system.

7

Apply RTI Config button

8

Get Position button

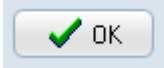


9

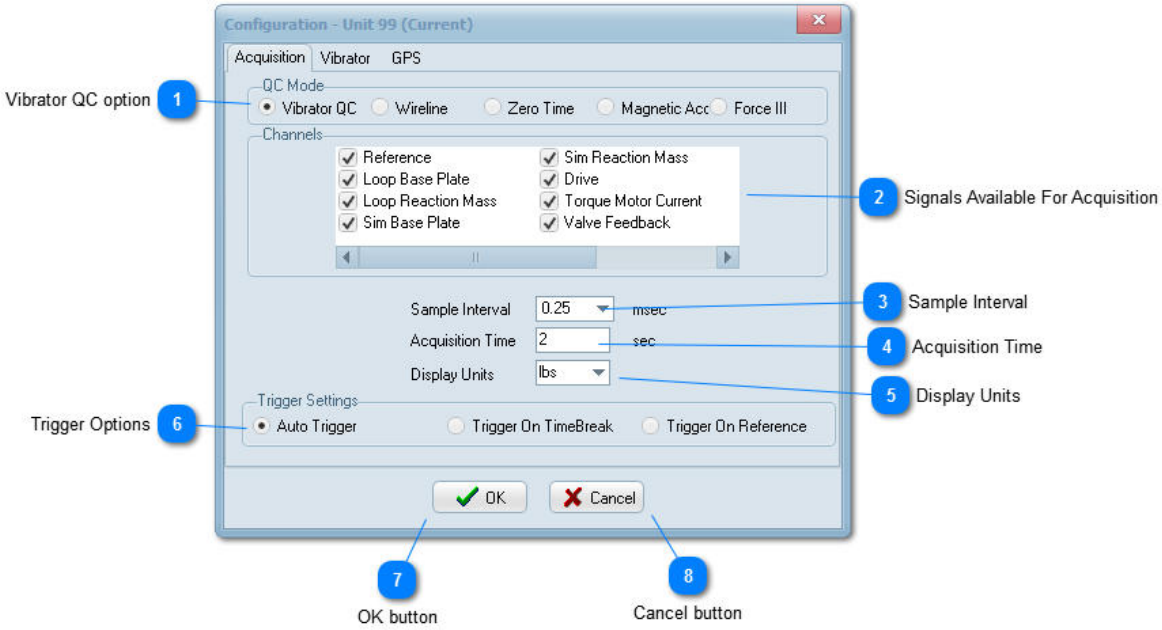
Cancel button

10

OK button



Vibrator QC Mode



1

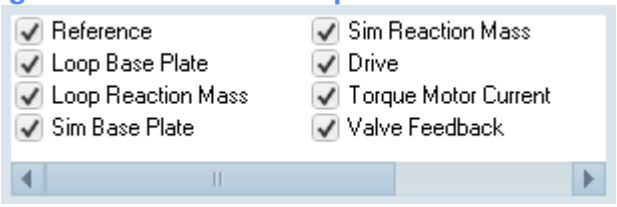
Vibrator QC option

Vibrator QC

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

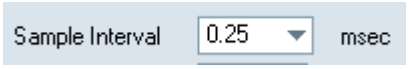
Signals Available For Acquisition



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

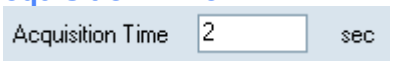
Sample Interval



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

4

Acquisition Time



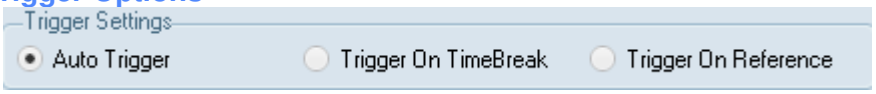
5

Display Units

Pounds, KG, or Newtons are the options.

6

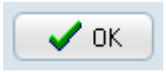
Trigger Options



Triggering on TimeBreak usually gives the best results.

7

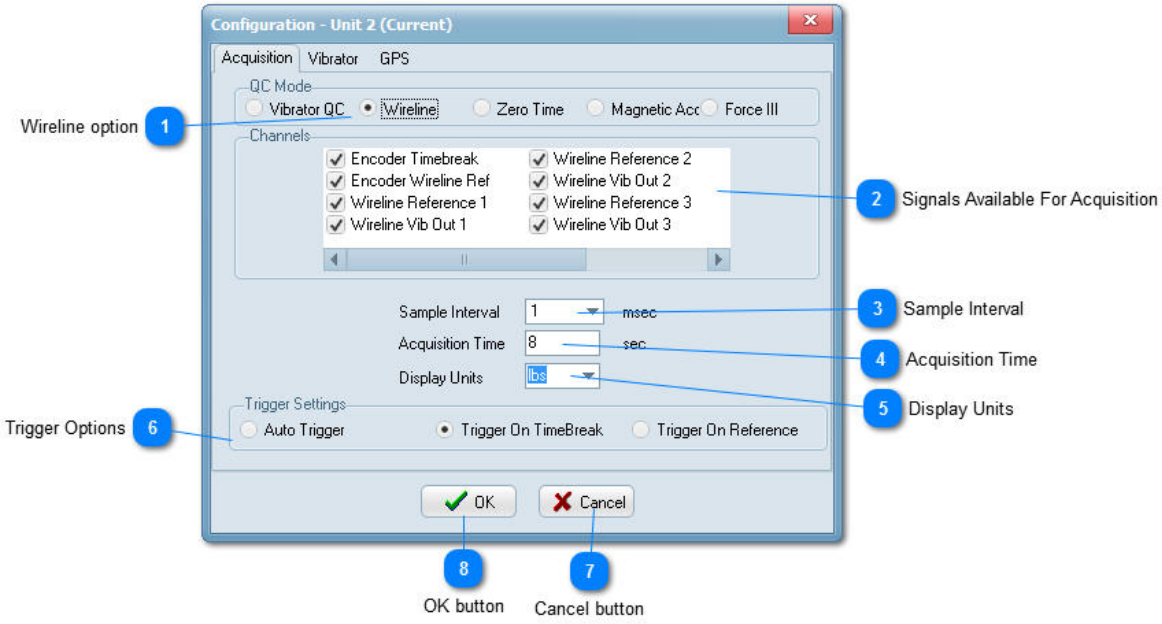
OK button



8

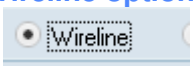
Cancel button

Wireline Mode



1

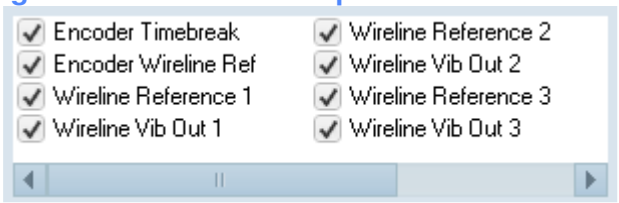
Wireline option



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.

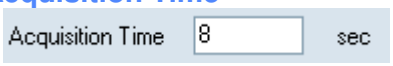
3

Sample Interval

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

4

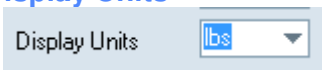
Acquisition Time



Set as desired.

5

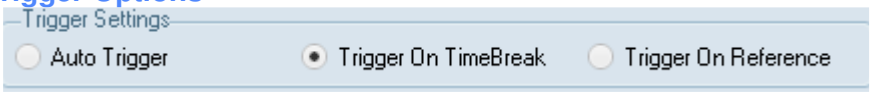
Display Units



Set as desired

6

Trigger Options



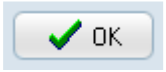
Set as desired. Trigger On TimeBreak recommended. Pre and post trigger are available in the Advanced mode.

7

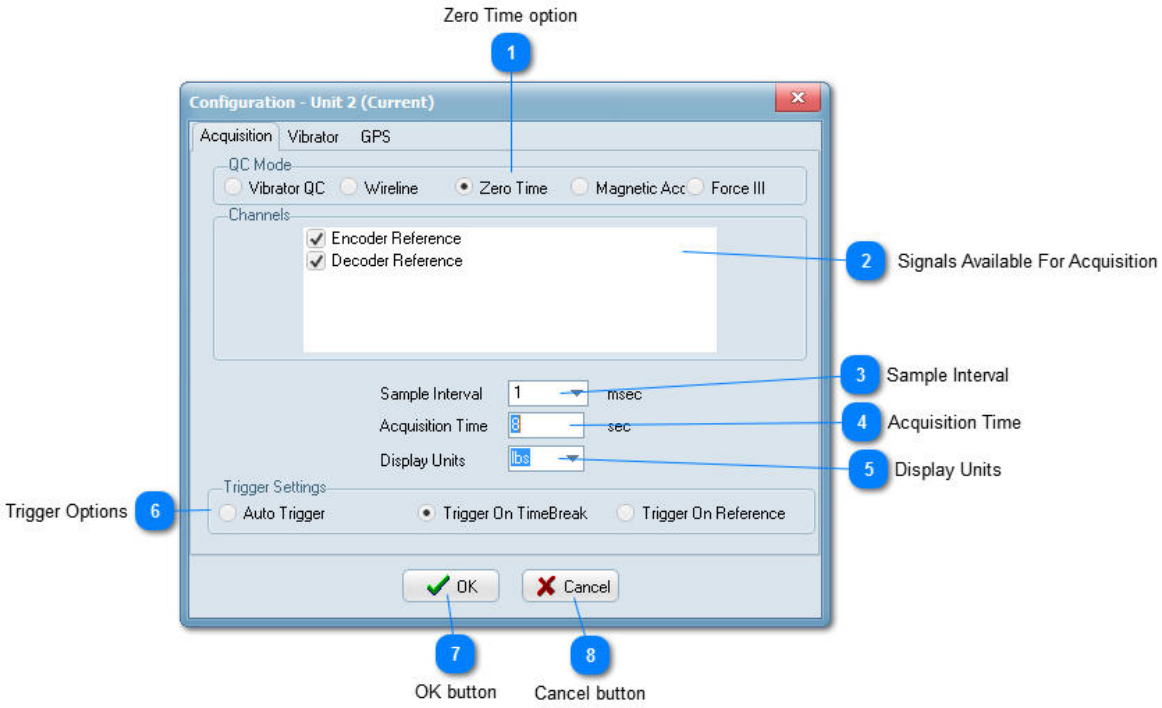
Cancel button

8

OK button

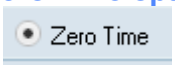


Zero Time Mode



1

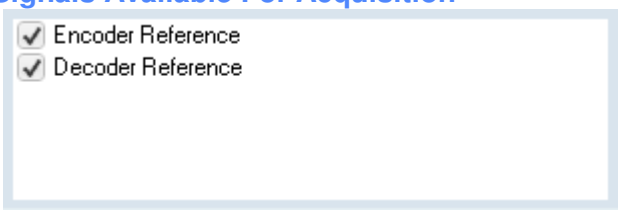
Zero Time option



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 2 msec recommended.

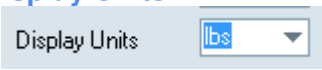
4

Acquisition Time

Set as desired. Sweep length is recommended

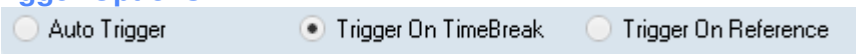
5

Display Units



6

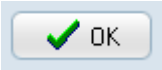
Trigger Options



Set as desired.

7

OK button

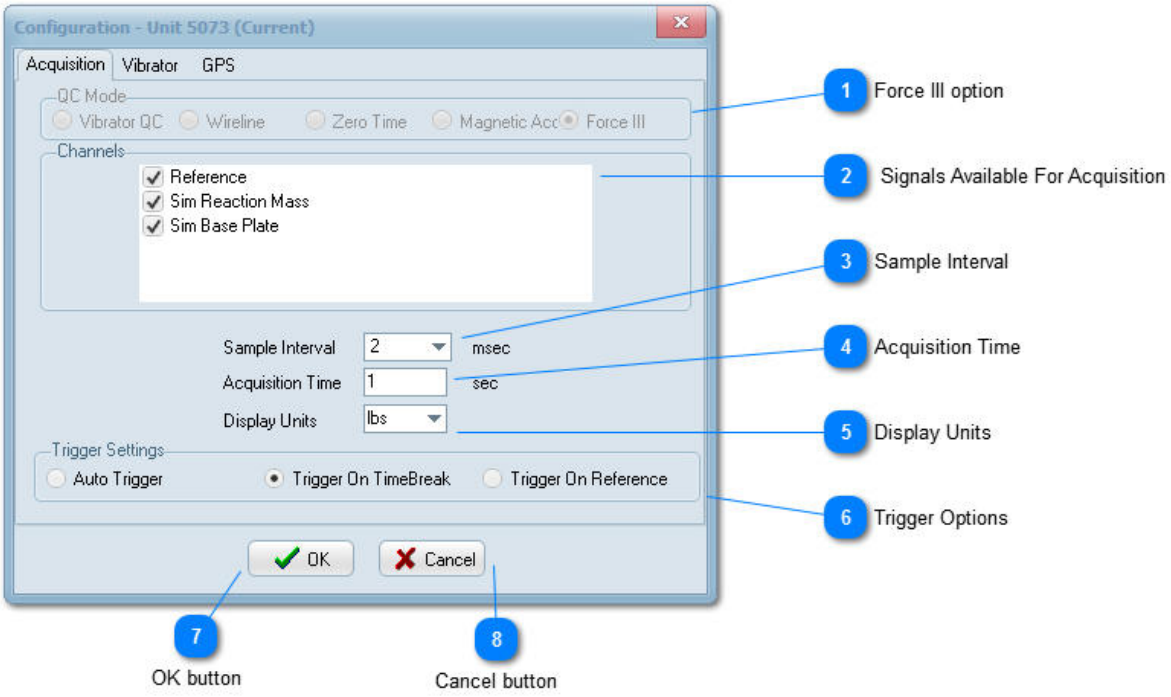


8

Cancel button

Force III Mode

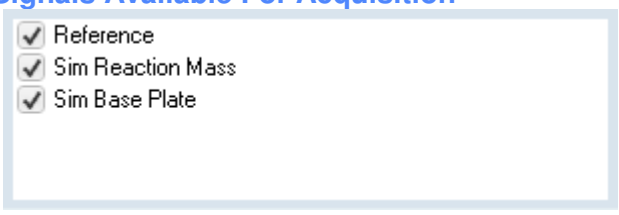
This is for situations where the Ethernet cable is connected to a Force III instead of a Bird Dog 3 unit.



1 Force III option

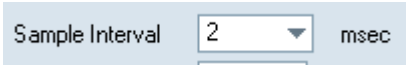
When connected to a Force III unit, this is QC mode will automatically be selected. No others will be available.

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.

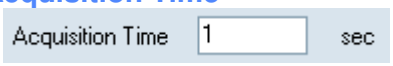
3 Sample Interval



Not used when connected to a Force III.

4

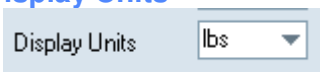
Acquisition Time



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.

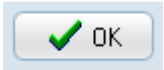
6

Trigger Options

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

7

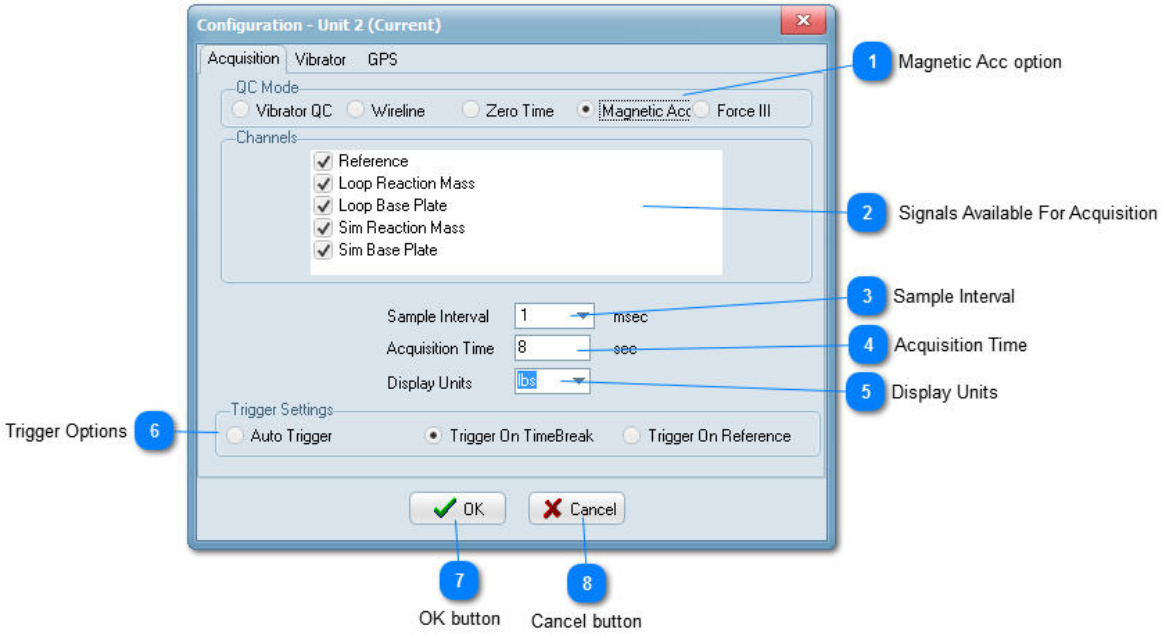
OK button



8

Cancel button

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.

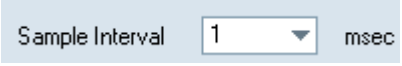
2

Signals Available For Acquisition

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

3

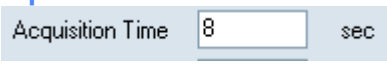
Sample Interval



Set as desired

4

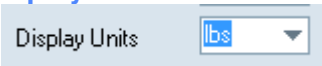
Acquisition Time



Set as desired

5

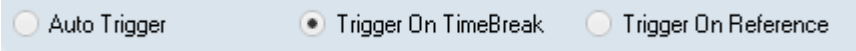
Display Units



Set as desired

6

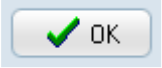
Trigger Options



Set as desired. Trigger On TimeBreak is recommended.

7

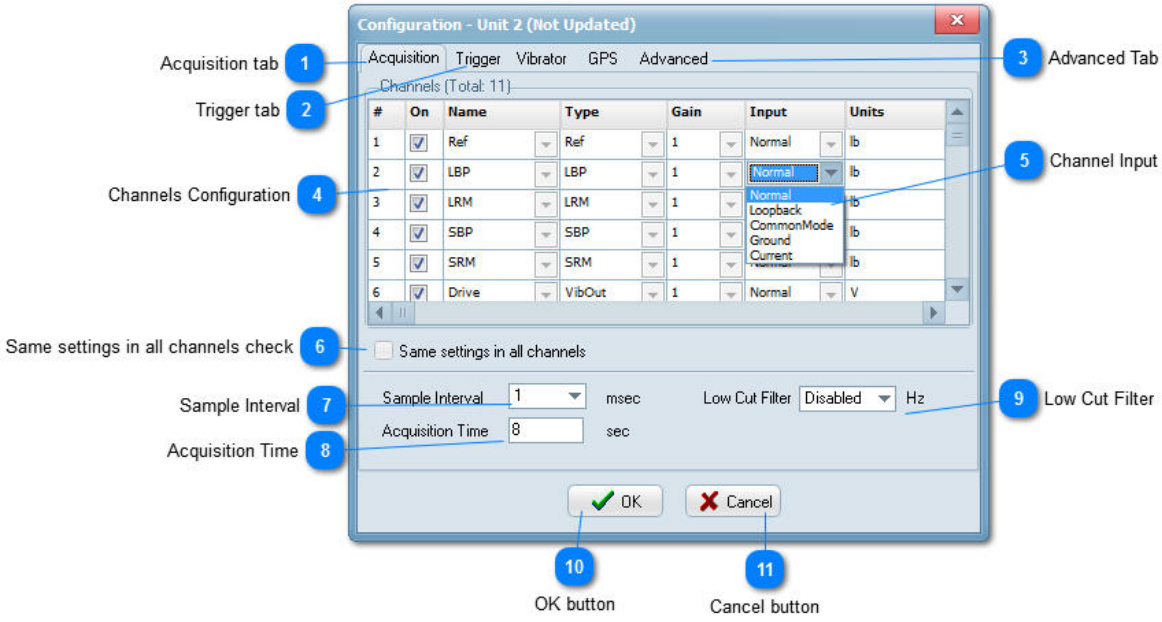
OK button



8

Cancel button

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

Acquisition

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

2

Trigger tab

Trigger

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

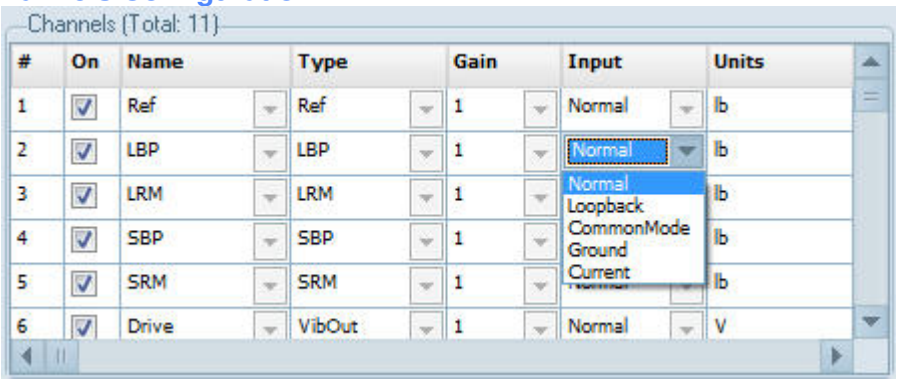
Advanced Tab

Advanced

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

4

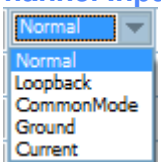
Channels Configuration



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

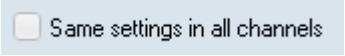
Channel Input



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

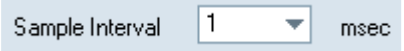
Same settings in all channels check



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.

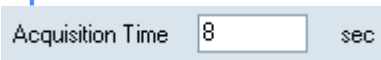
7

Sample Interval



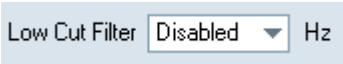
8

Acquisition Time



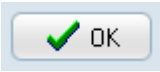
9

Low Cut Filter



10

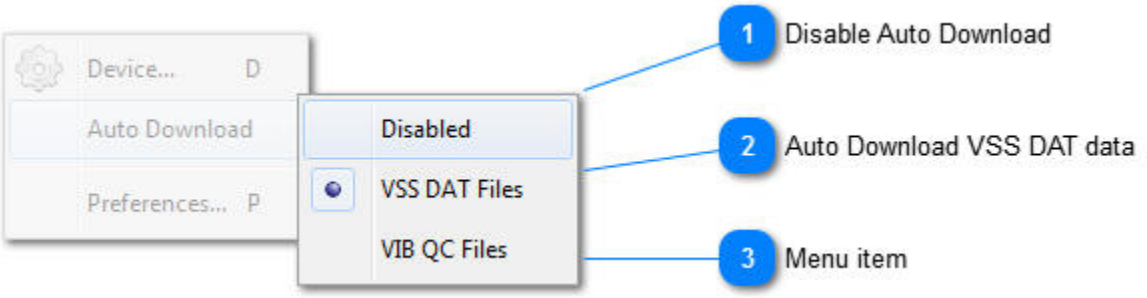
OK button



11

Cancel button

Auto Download Menu



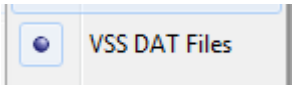
1

Disable Auto Download

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

2

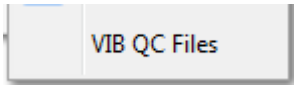
Auto Download VSS DAT data



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

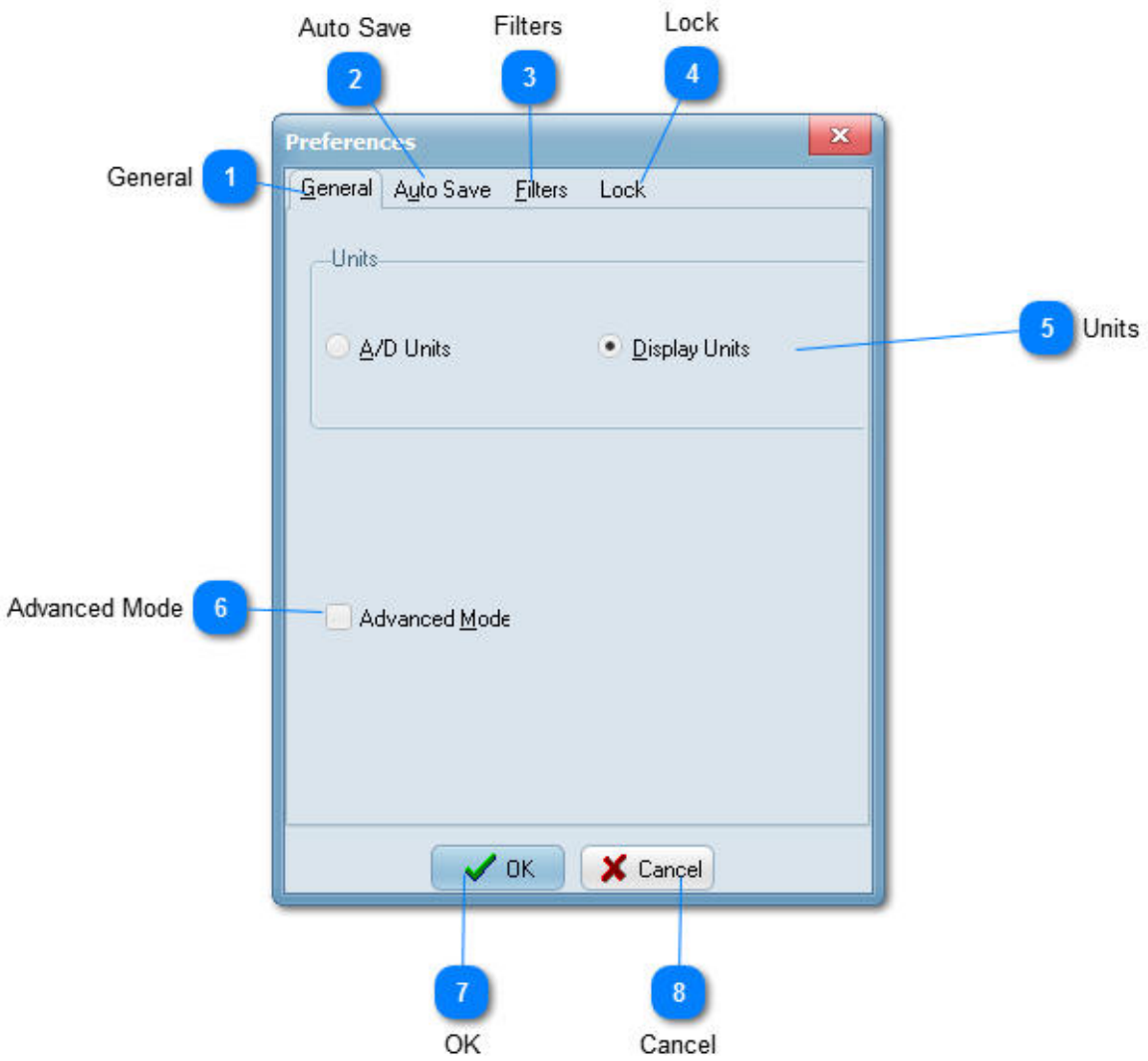
3

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 freature to work.

Preferences window



1

General

General

Opens the General window, which is displayed here.

2

Auto Save

Auto Save

Opens the Auto Save window.

3

Filters

Opens the Filters window.

4

Lock

Opens the window to allow locking selections.

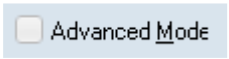
5

Units

Select as desired.

6

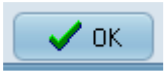
Advanced Mode



Should not be selected for most work.

7

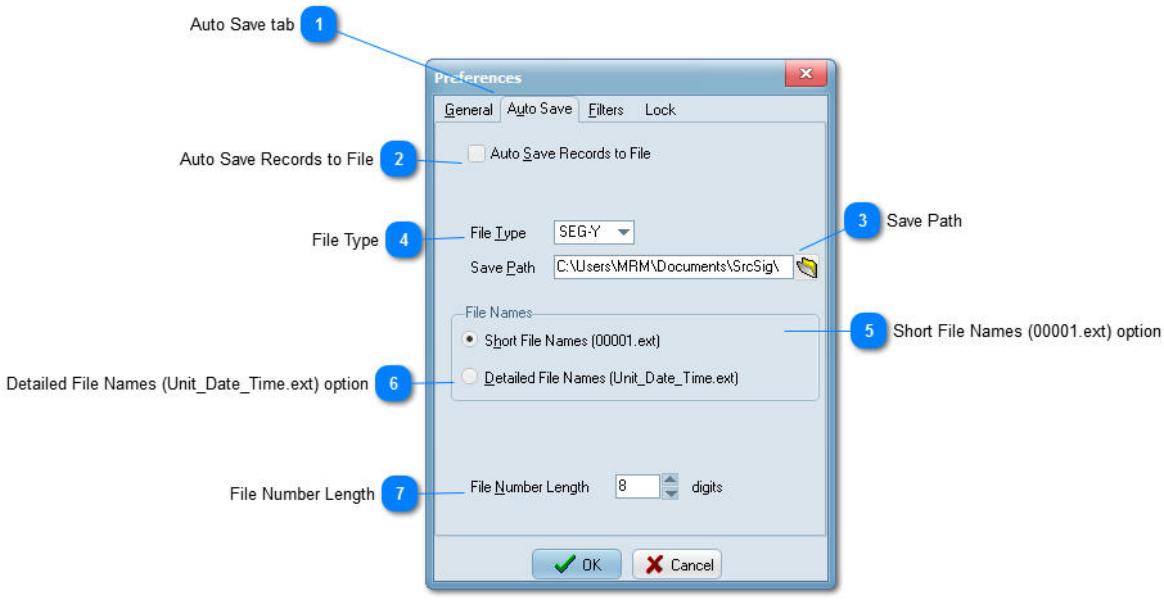
OK



8

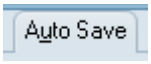
Cancel

Auto Save



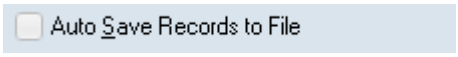
1

Auto Save tab



2

Auto Save Records to File



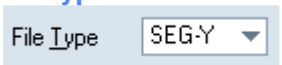
If enabled, another option will be available, Confirm Before Saving To File.

3

Save Path

4

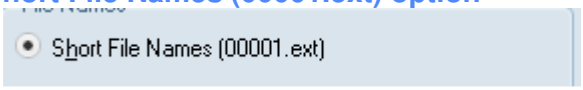
File Type



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

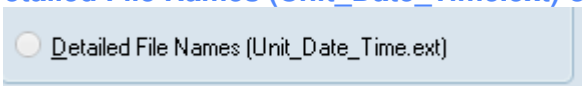
5

Short File Names (00001.ext) option



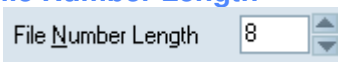
6

Detailed File Names (Unit_Date_Time.ext) option



7

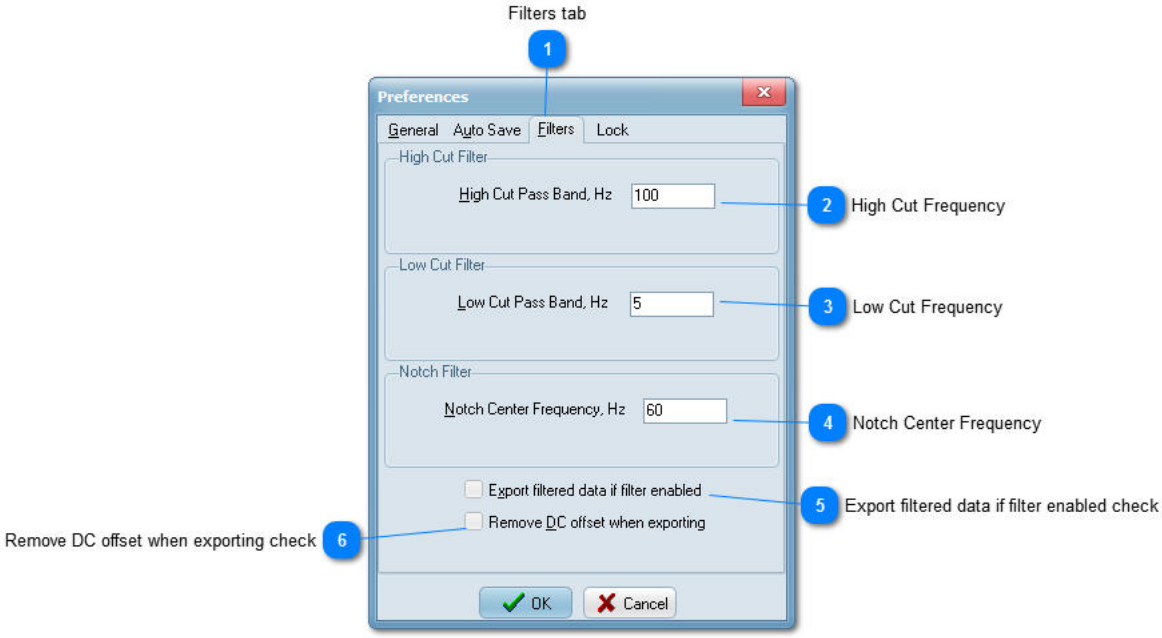
File Number Length



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

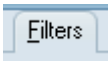
Filters

Enable Or Disable Filters With Buttons On The Tool Bar Or
In The View Pull-Down Menu.



1

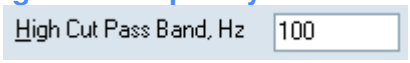
Filters tab



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

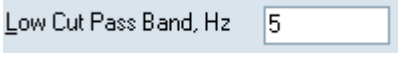
2

High Cut Frequency



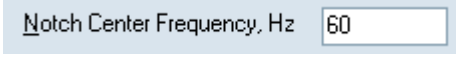
3

Low Cut Frequency



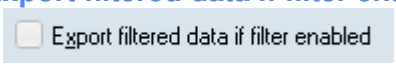
4

Notch Center Frequency



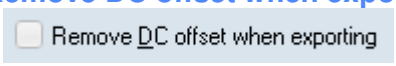
5

Export filtered data if filter enabled check

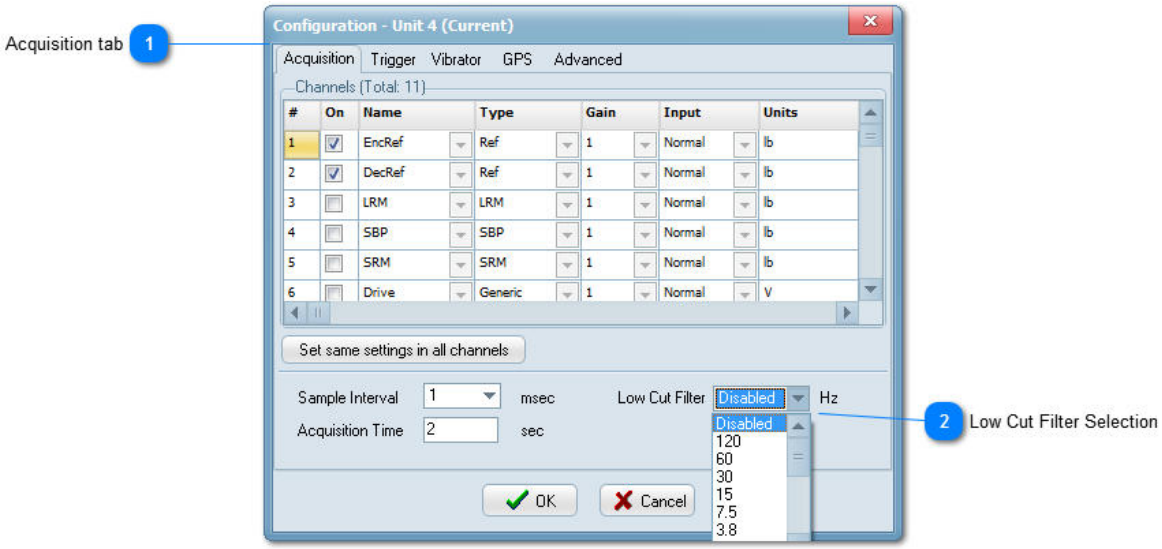


6

Remove DC offset when exporting check

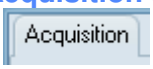


Disabling Low Cut Filters



1

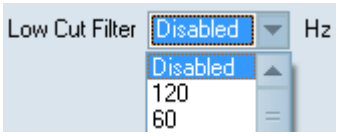
Acquisition tab



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

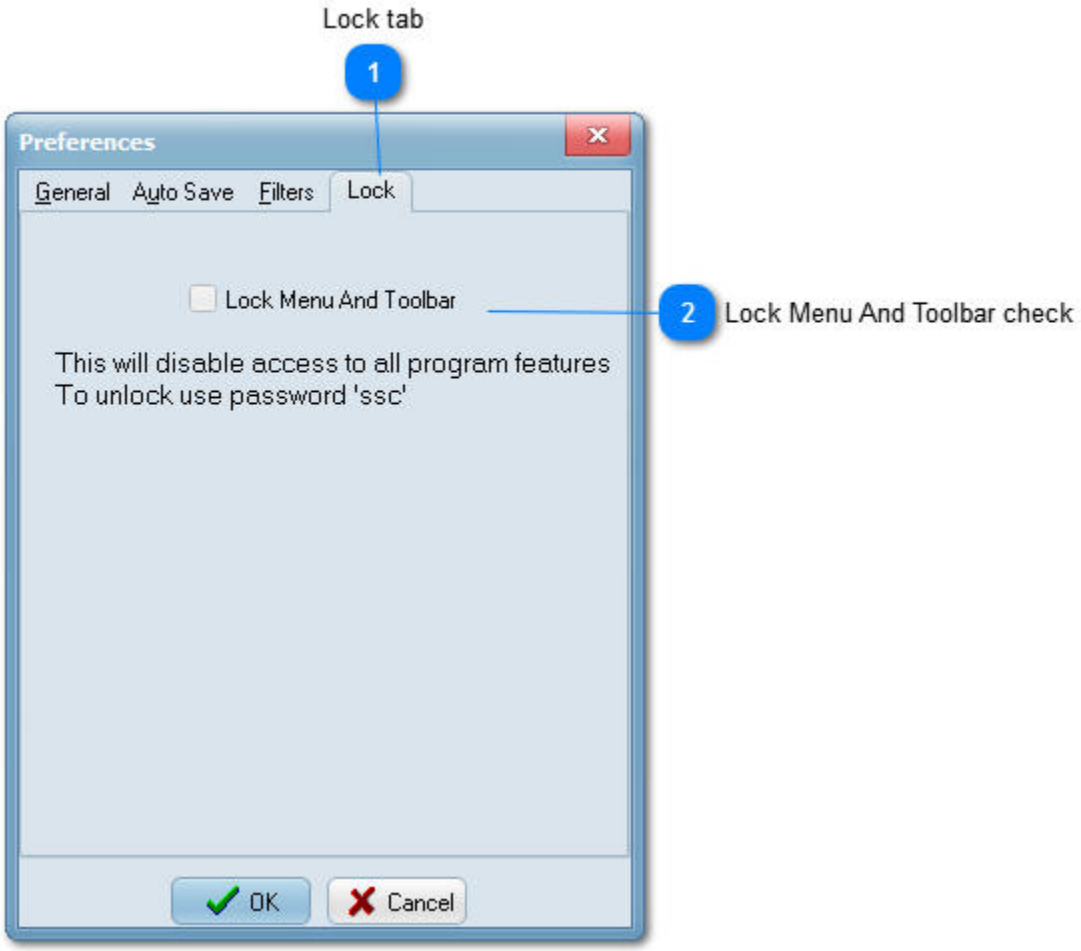
2

Low Cut Filter Selection



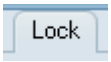
Some plots or test results may be bad if the low cut hardware filters are enabled. When using a Bird Dog 3-11 unit, the low cut hardware filters should be disabled. To do this, go to the Optoins/Preferences menu and select Advanced Mode then go to the Options/Device/DAQ Setup/Configuration window and 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 Optoins/Preferences menu and deselect the Advanced Mode.

Lock



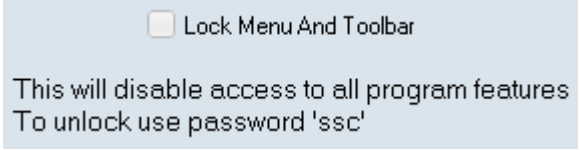
1

Lock tab

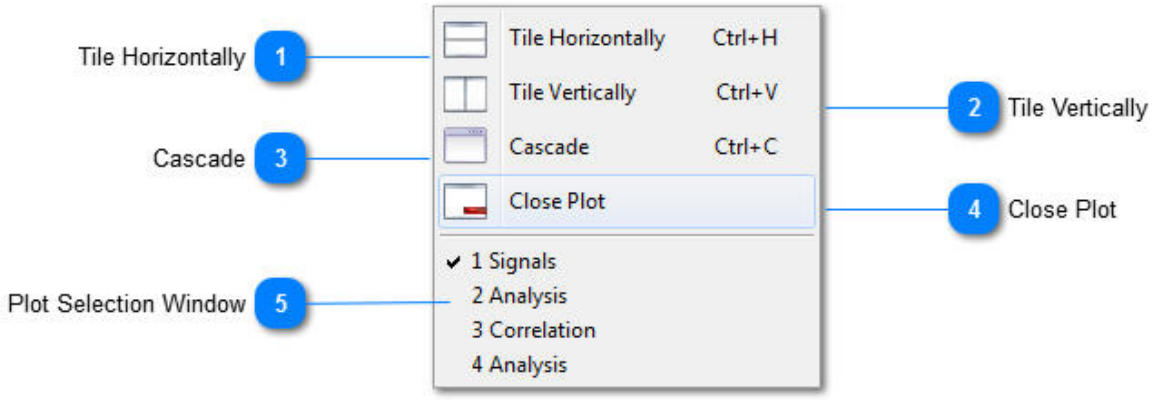


2

Lock Menu And Toolbar check



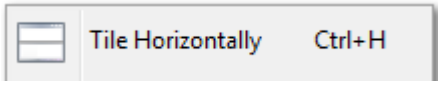
Window Menu



These are standard operating system windows control functions with the exception of Close Plot.

1

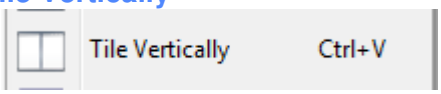
Tile Horizontally



A standard operating system function. 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



A standard operating system function. 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.

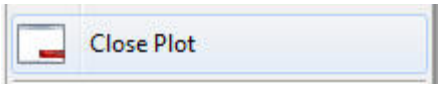
3

Cascade

A standard operating system function.

4

Close Plot



Closes the plot that is currently selected plot window

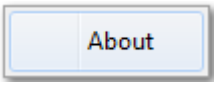
5

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. Clicking on a plot that is listed here that has been will cause that plot to be displayed.

Help Menu

1 **About**



A standard operating system function.

Tool Bar

Notes: Refer to the pull-down menu sections for more features and descriptions.

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 exept 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

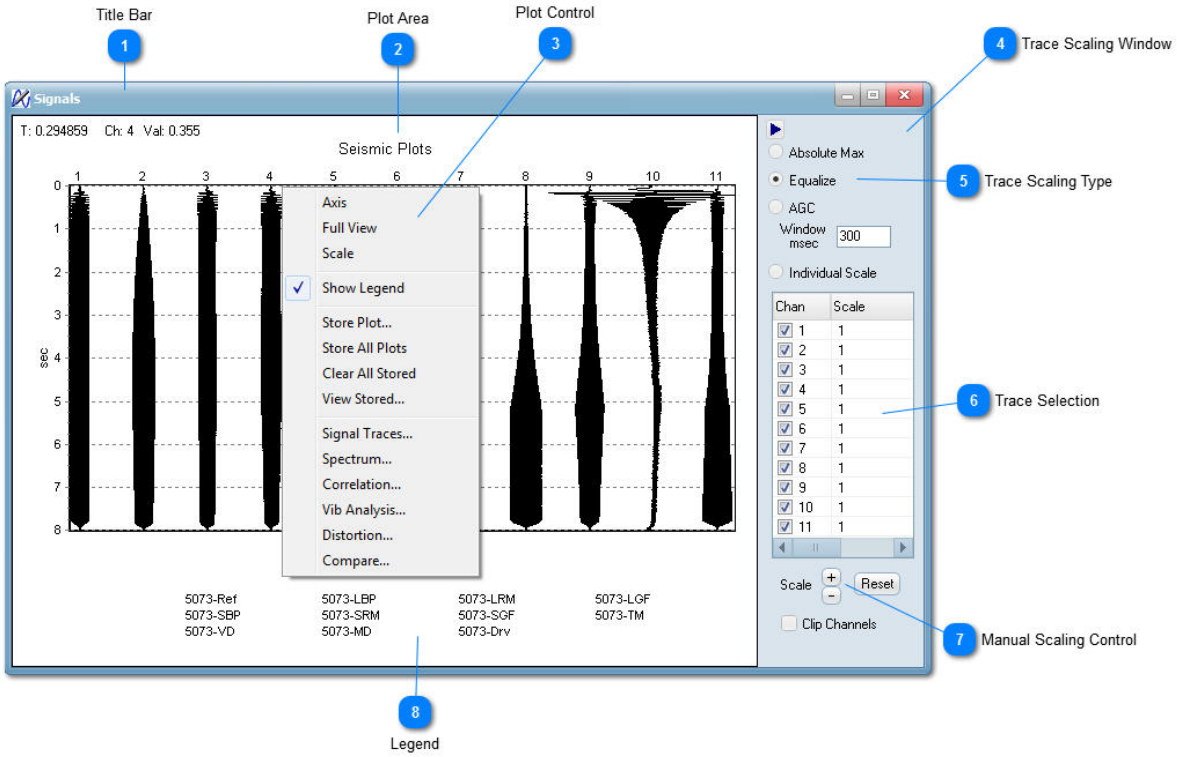
Automatic plot overlay of all plots or clearing overlays are available here.

6

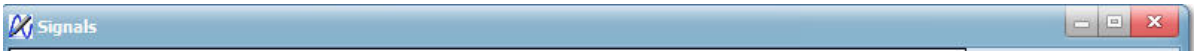
Acquisition Control

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.

Plot Functions

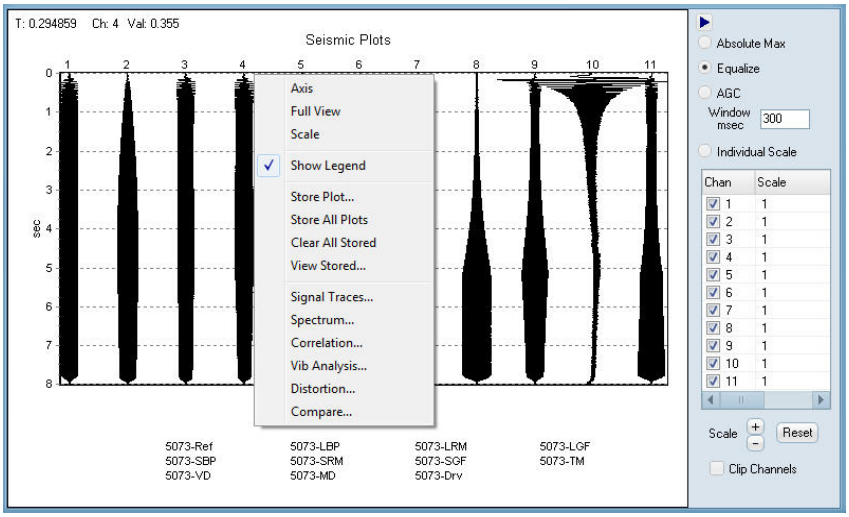


1 Title Bar



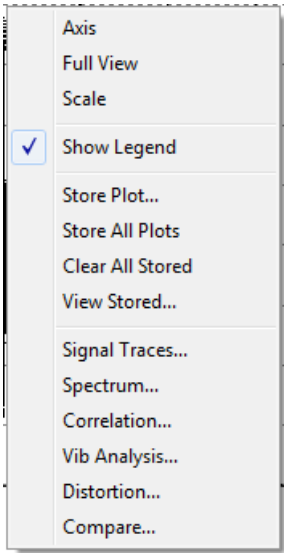
Shows plot type and operating system buttons to control the plot window.

2 Plot Area



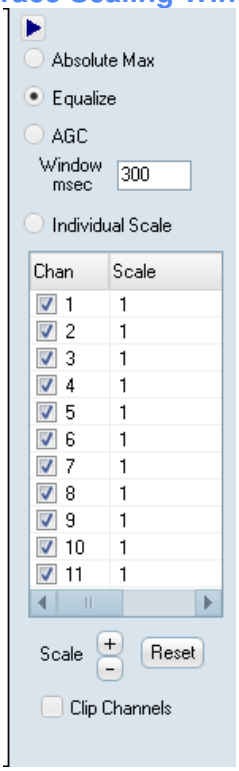
This is the area that may be occupied by the plot.

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

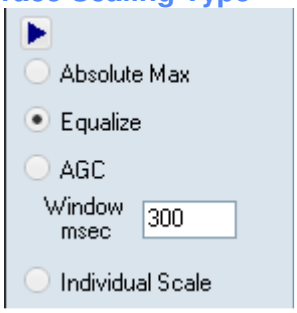


This windows is shown when Scale is selected in the Plot Control window. The

button in the top left corner closes this window. Examples of the effects of scaling functions follows this section.

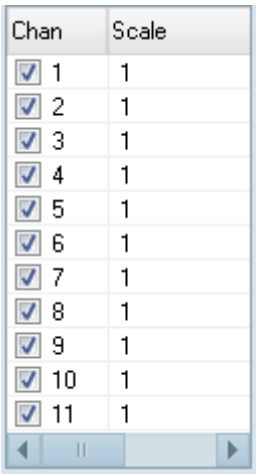
5

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

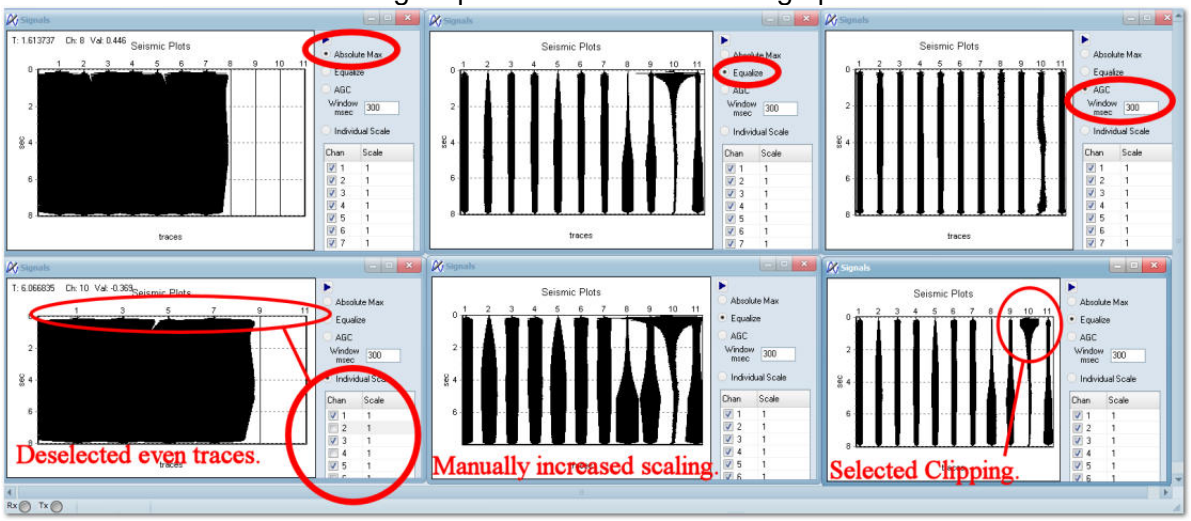
Legend

5073-Ref	5073-LBP	5073-LRM	5073-LGF
5073-SBP	5073-SRM	5073-SGF	5073-TM
5073-VD	5073-MD	5073-Drv	

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.



Accelerometer Test Option Procedure

Connect the accelerometer unit to be tested to the Bird Dog 3-11 unit.

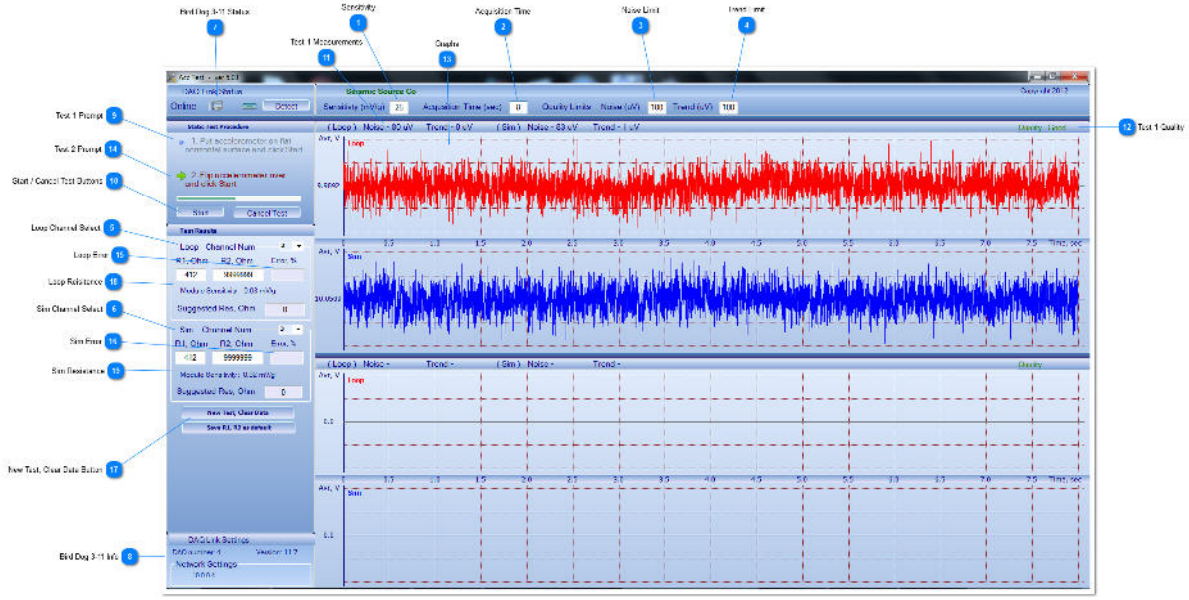
Connect the Bird Dog unit to D.C. power.

Connect the Bird Dog unit to the computer.

Start the AccTest application.

Follow the instructions in the Acc Test section of this manual.

Acc Test



1

Sensitivity

Sensitivty (mV/g) 25

This setting should not normally need to be changed. It sould be set to 25 for M5 or M6 accelerometers.

2

Acquisition Time

Acqusition Time (sec) 8

Set the acquisition time to desired acquistion length. Two seconds is typically sufficient.

3

Noise Limit

Quality Limits Noise (uV) 100

Set the desired noise level limit. It is important that the surface the accelerometer is resting on is vibrating as little as possible. 100 uV is the recommended setting.

4

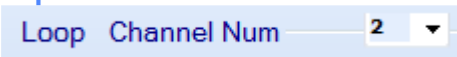
Trend Limit

Trend (uV) 100

Set the desired trend limit. If accelerometers are put in place and not moved for about 10 seconds before starting a test, the trend will usually be well below 100 uV.

5

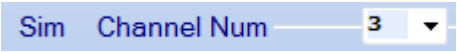
Loop Channel Select



The Loop Channel will not normally need to be set. When using the cable provided by Seismic Source Co., the Loop Channel Number will be 2.

6

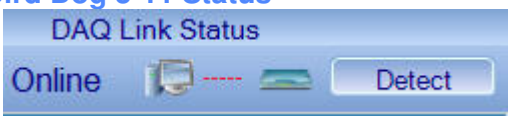
Sim Channel Select



The Sim Channel will not normally need to be set. When using the cable provided by Seismic Source Co., the Sim Channel Number will be 3.

7

Bird Dog 3-11 Status



The status of the Bird Dog unit (DAQ Link) will be shown here. The status will be Offline until the program detects the unit. Left click on the Detect button after the unit is connected to the computer and powered up. The status will change to Online when the program establishes communication with the unit.

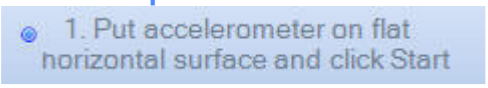
8

Bird Dog 3-11 Info

The information fields of this window will be populated after the program establishes communications with the unit. The DAQ number field shows the serial number of the unit. The Version field shows the firmware version programmed into the unit. The Network Settings field shows the IP address of the unit.

9

Test 1 Prompt



After the program detects the unit, this prompt will become active. The presence of a green arrow pointing toward the prompt indicates this. Connect the cable to the accelerometer to be tested and set the accelerometer on a surface that is as level and quiet (non-vibrating) as possible for the test. Wait about 10 seconds with the accelerometer sitting still before starting this test by left clicking on the Start button. The power supply for the accelerometer may not be turned on until

this test is started the first time after the program identifies the unit. See the Accelerometer Powering-Up section for a plot showing this.

10

Start / Cancel Test Buttons

Left click on the Start button to start the active test. A test in progress may be canceled by left clicking on the Cancel Test button.

11

Test 1 Measurements

After Test 1 is finished the data in the measurements fields should be populated.

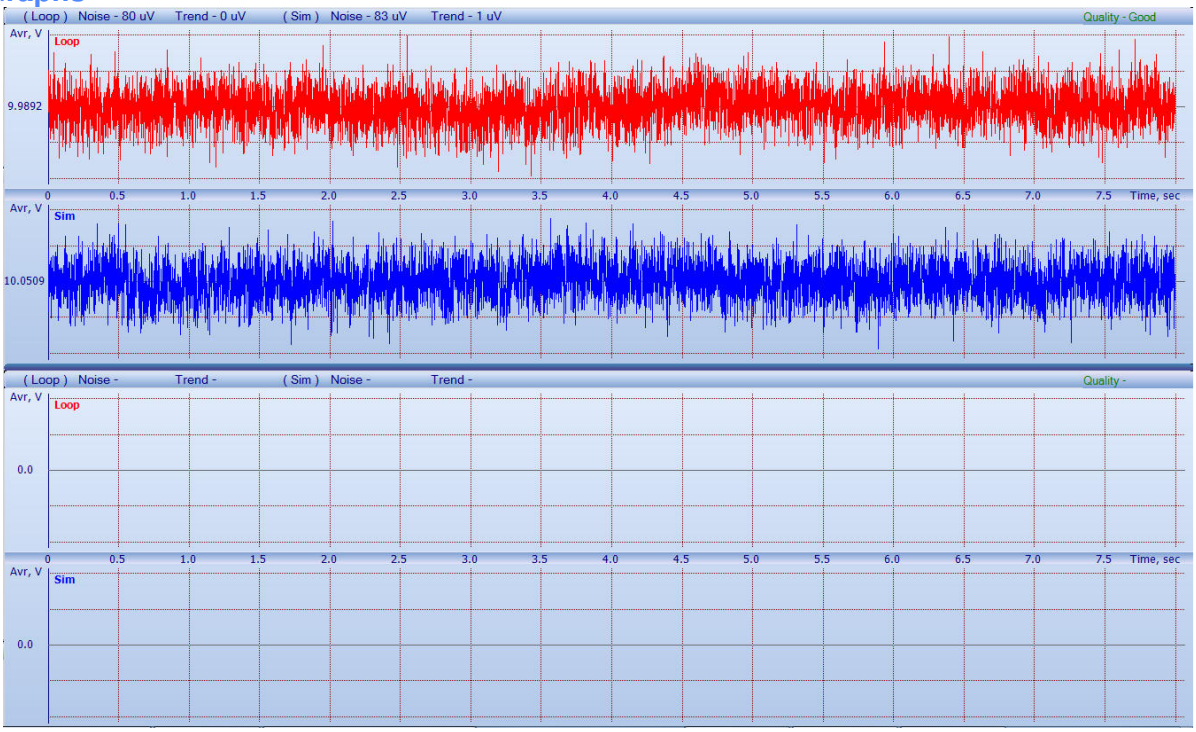
12

Test 1 Quality

After Test 1 is finished, if the measurements are within the selected limits, the Quality should indicate Good. If any measurement is not with the limits, the Quality should indiciate Bad

13

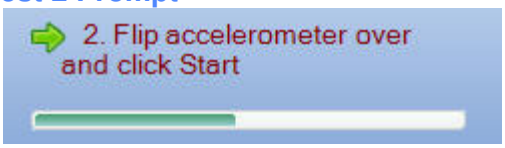
Graphs



Oscillographs of the acquired data will be shown in the Graphs windows. This example shows data has been acquired for Test 1 but has not been acquired for Test 2.

14

Test 2 Prompt



This shows Test 2 is the active test and the progress bar shows data is being acquired. A similar progress bar will indicate data acquisition when Test 1 is being run. For Test 2, use some sort of spacer(s) to make sure the accelerometer is upside down and supported on a surface that as level and quiet as possible. Let the accelerometer sit still on the support(s) about 10 seconds before starting this test. After this test is finished, the lower graph area will be completed. Measurements and Quality fields for Test 2 will be populated.

15

Loop Error

After Test 1 and Test 2 are completed the sensitivity error of the loop accelerometer in the accelerometer unit being tested will be shown here.

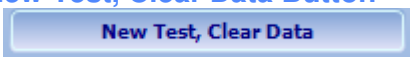
16

Sim Error

After Test 1 and Test 2 are completed the sensitivity error of the sim accelerometer in the accelerometer unit being tested will be shown here.

17

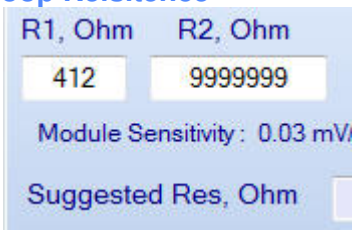
New Test, Clear Data Button



This button will not initialize the program for starting a new test sequence. Data for Test 1 must be acquired before running Test 2. If a test sequence should be started over, complete any testing until the Test 1 Prompt is active, then start a test sequence.

18

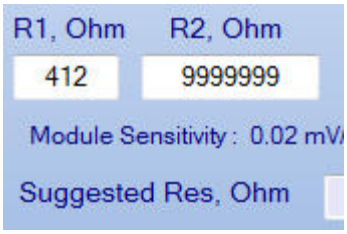
Loop Reisitence



These values are only used when a new accelerometer is being built They have no practical use other than in the production laboratory.

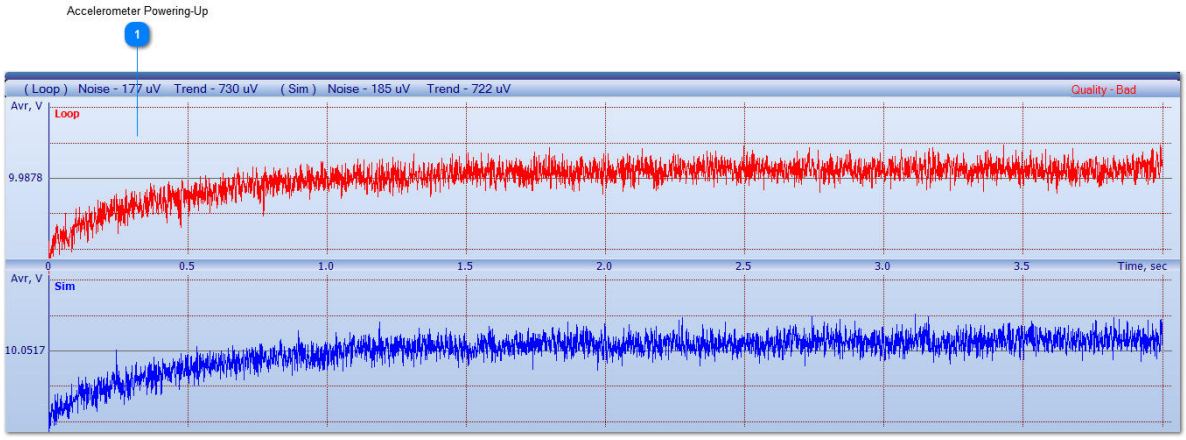
19

Sim Resistance



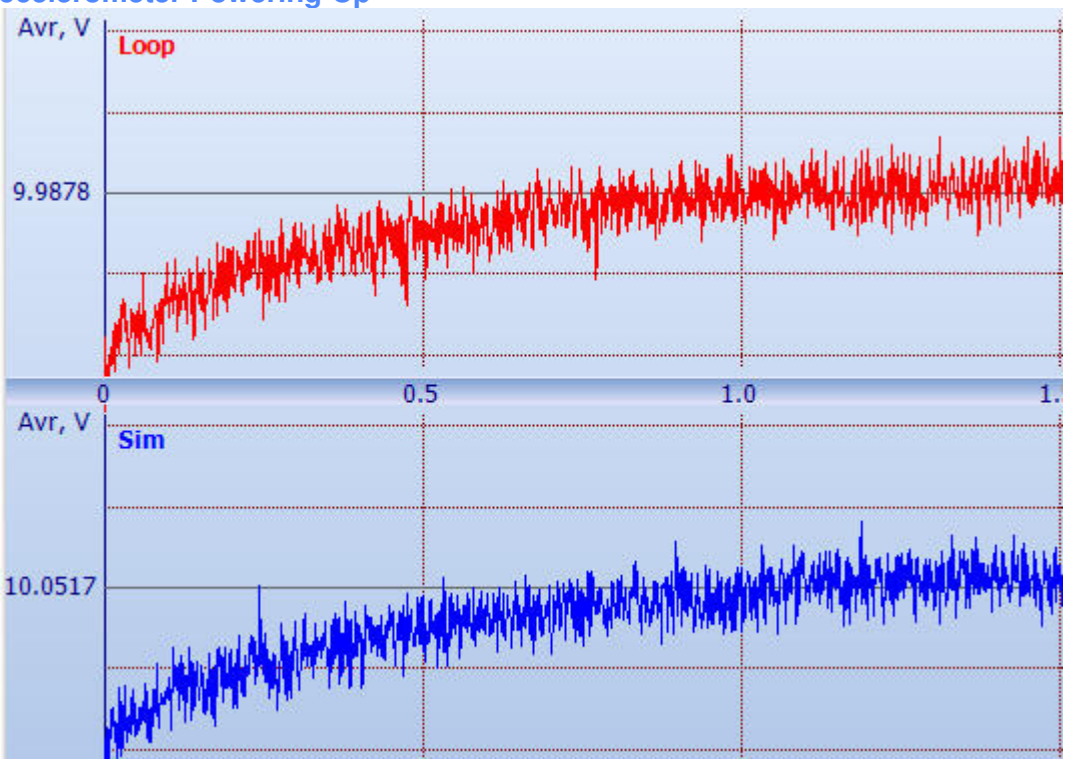
These values are only used when a new accelerometer is being built They have no practical use other than in the production laboratory.

Accelerometer Powering-Up



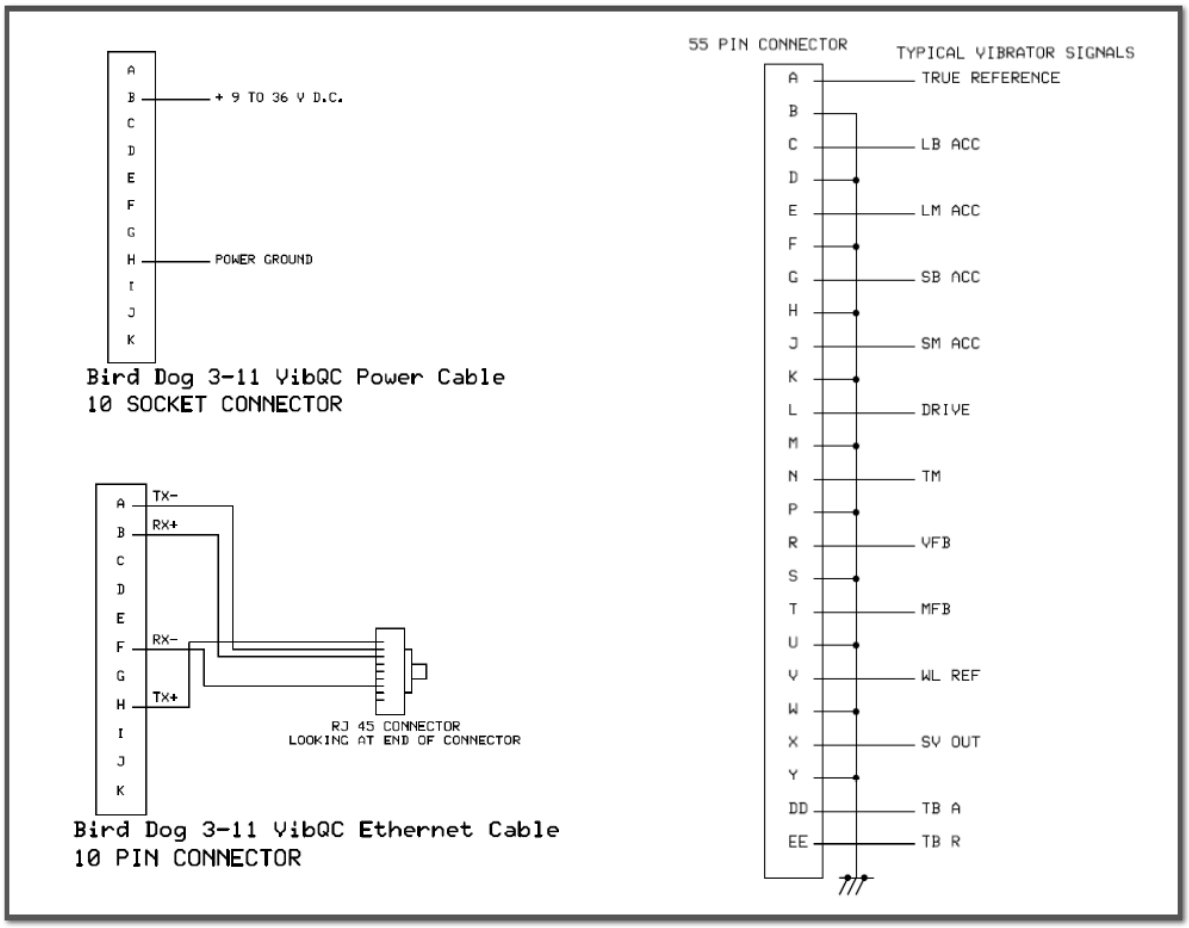
1

Accelerometer Powering-Up



The graphs will indicate the voltage rising after starting the test for the first time. This will normally only happen if the power supply for the accelerometer is off, indicated by the CURR REG LED being off, before the test is started. This plot indicates an unusable data acquisition. The power supply will be normally stay on after the test is run one time. Repeating the tests so that the CURR REG light is on before Test 1 is started will normally avoid this situation.

External Cables



Bird Dog 3-11 Vibrator QC
55 Pin to Force III Cable

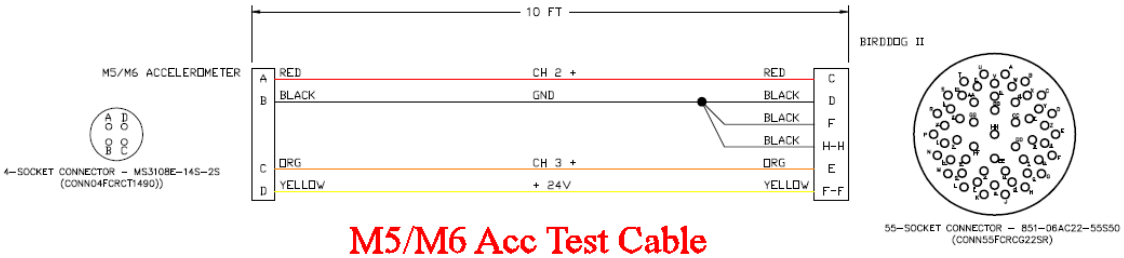
Force III 25 Pin	Bird Dog 3-11 55 Socket	Signa Name
1		
2	R	VFB
3	A	TREF
4	C	LBACC A
5	V	WL REF
6		
7	L	DRIVE
8		
9		
10		
11	G	SBACC A
12		
13		
14	N	TMR
15	T	MFB
16	E	LMACC A
17	X	SV OUT
18		
19		
20	DD	TB A
21		
22		
23	J	SMACC A
24		
25		

Note: Pins B, D, F, K, M, P, S, U, W, Y, and EE are all connected together in this cable.

Bird Dog 3-11 Vibrator QC
55 Pin to Force II Cable

Force II 15 Pin or 26 Socket	Bird Dog 3-11 55 Socket	Signal Name
1	EE	TB R
2		
5		
15	R	VFB
10	A	TREF
11	C	LBACC A
6	V	WL REF
14	L	DRIVE
12	G	SBACC A
7	N	TMR
8	T	MFB
3	E	LMACC A
13	X	SV OUT
9	DD	TB A
4	J	SMACC A

Note: Pins B, D, F, H, K, M, P, S, U, W, and Y are all connected to together in this cable.



M5/M6 Acc Test Cable

Additional Ethernet Setup Information

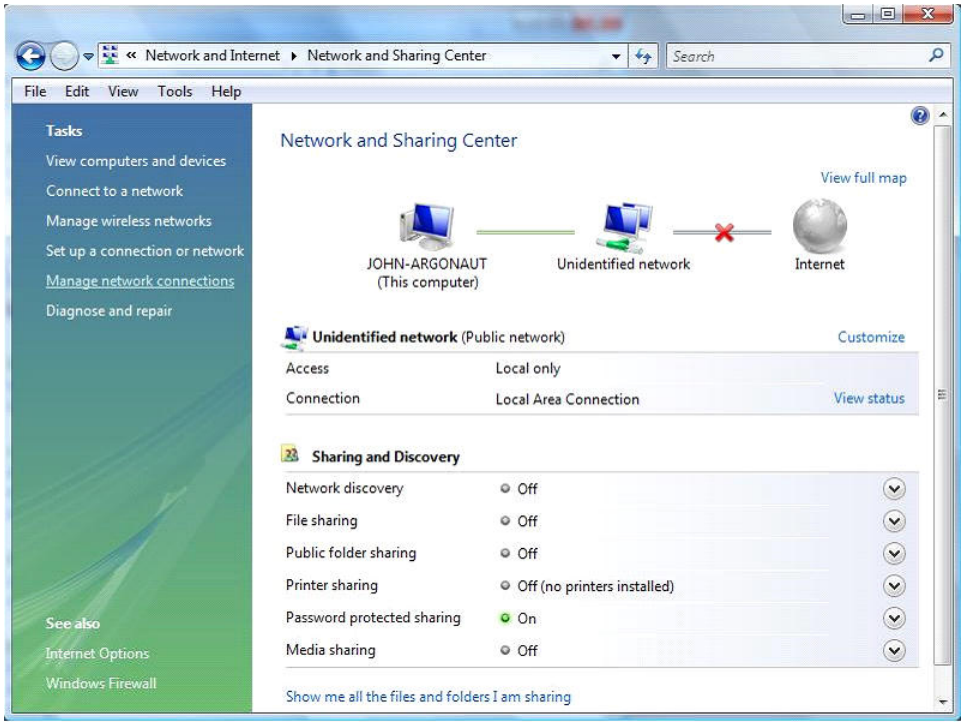
Windows VISTA Operation

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.

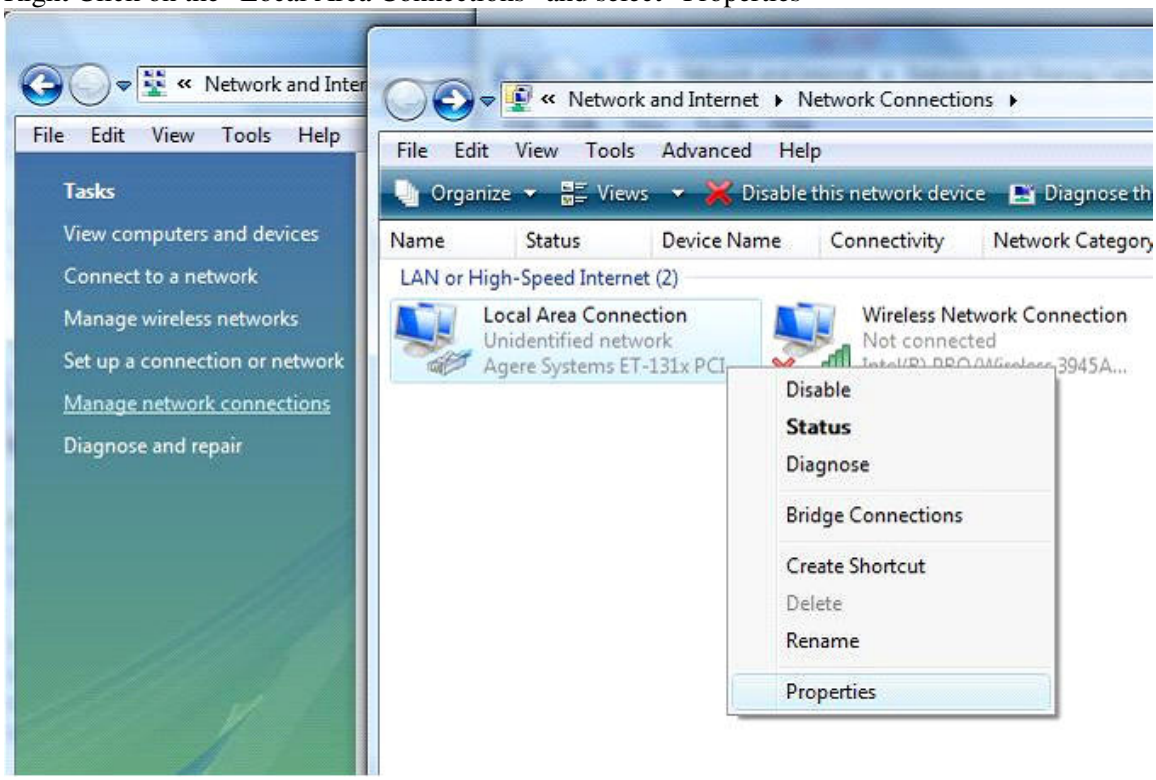
Disable the Windows Firewall by selecting the Firewall selection in the "Network and Internet" selection in the Control Panel

With Windows Vista computer, the Ethernet setup is done by the following procedure:
Go to the Control Panel and select "View network status and tasks".

Select "Manage network connections"

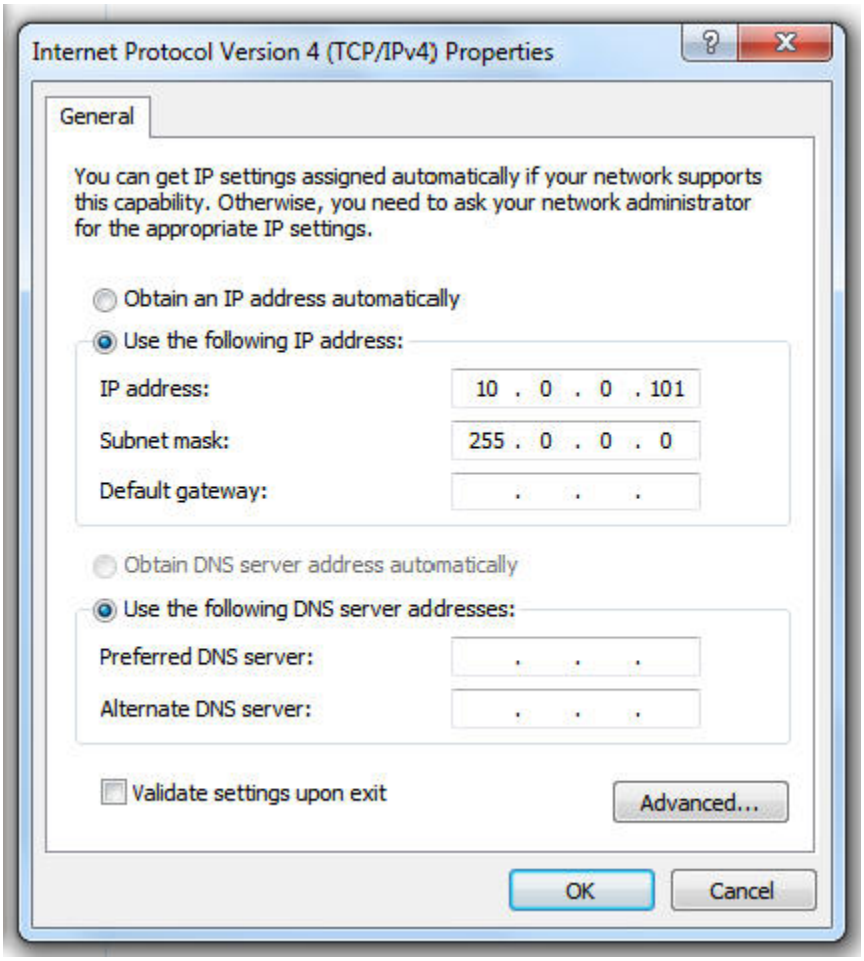


Right Click on the "Local Area Connections" and select "Properties"



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

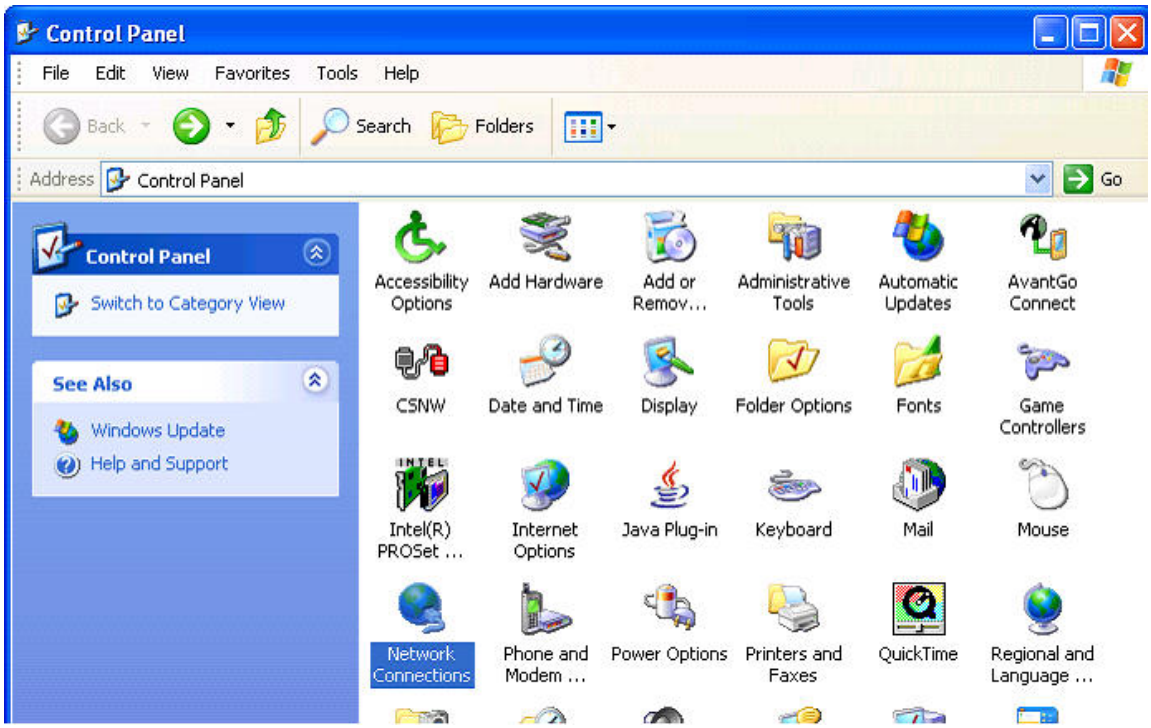
Use following IP address:
IP address10.0.0.101
Subnet Mask255.0.0.0
Press OK to accept entries.



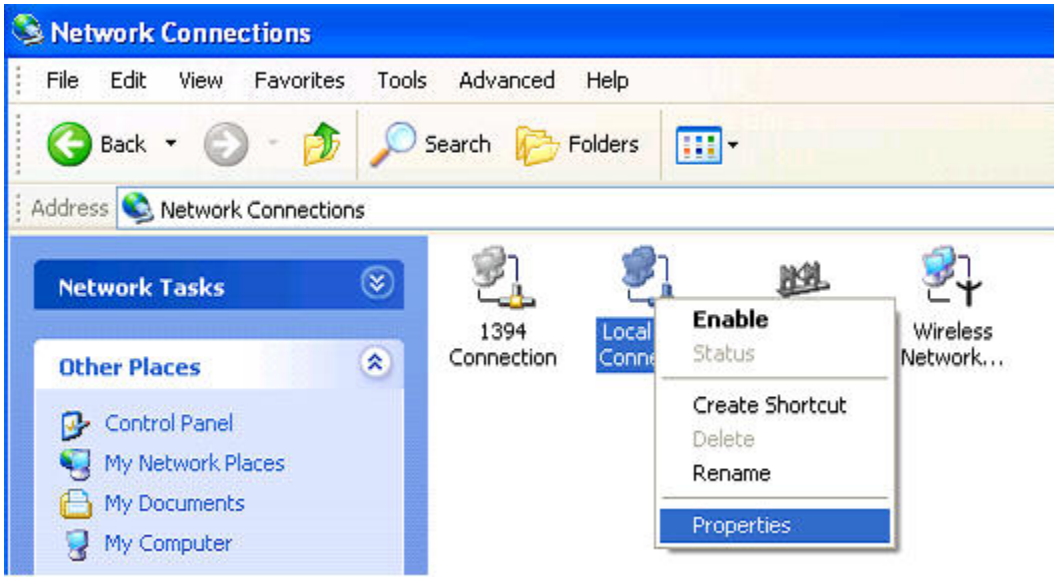
Windows XP Ethernet setup

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.



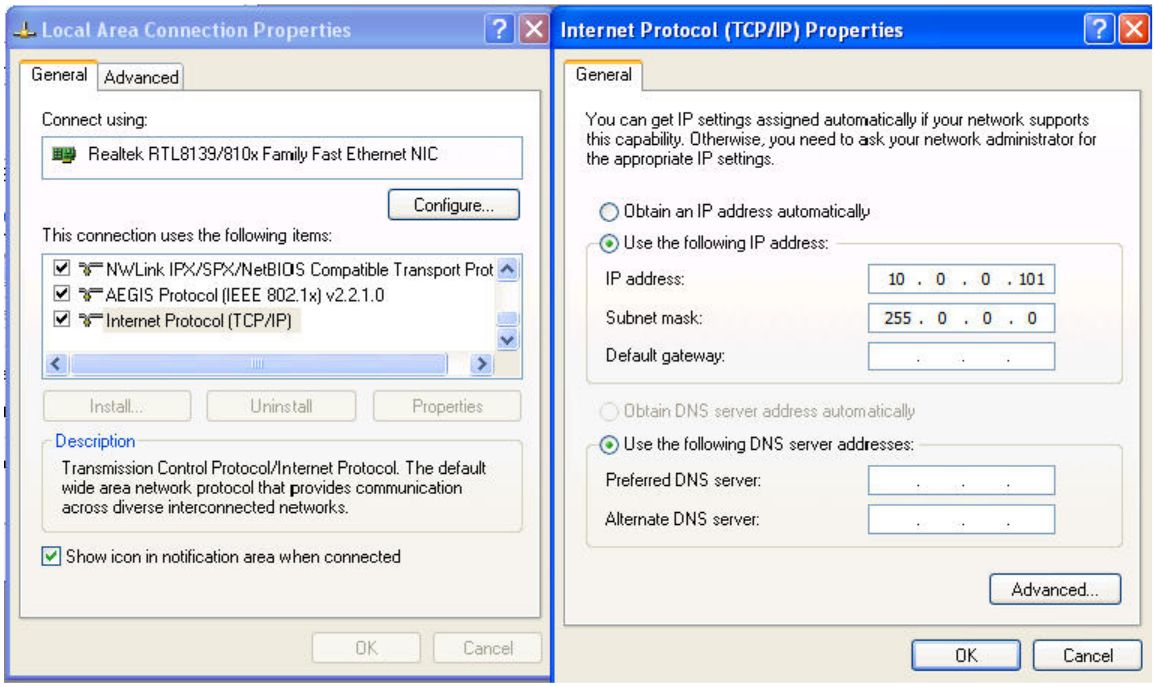
Right Click on the Local Area Connection Icon and select properties.



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 affect.

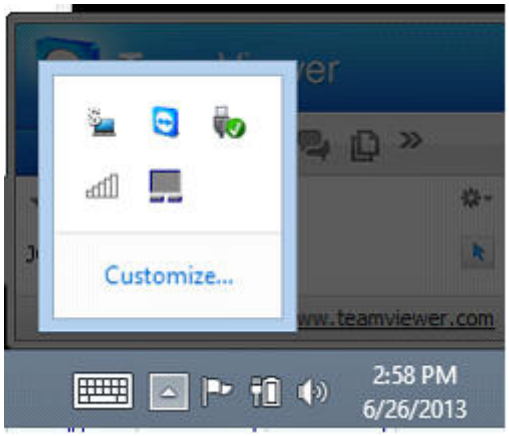
If the Bird Dog 3-3I unit was previously communicating with a computer with a different address, then the Bird Dog 3-3I unit must be reset (power off then on) for the unit to communicate to the new address.

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

Windows 7 and Windows 8

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

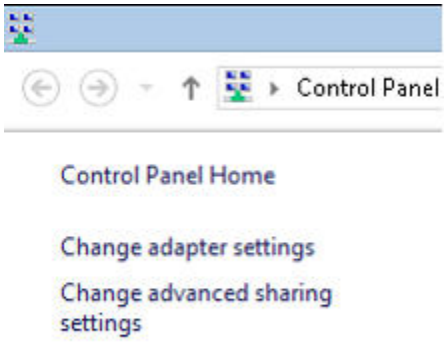
In the lower left hand corner, there are multiple icons.



Right Click on the WiFi Icon

Then Select “Open Network and Sharing Center”

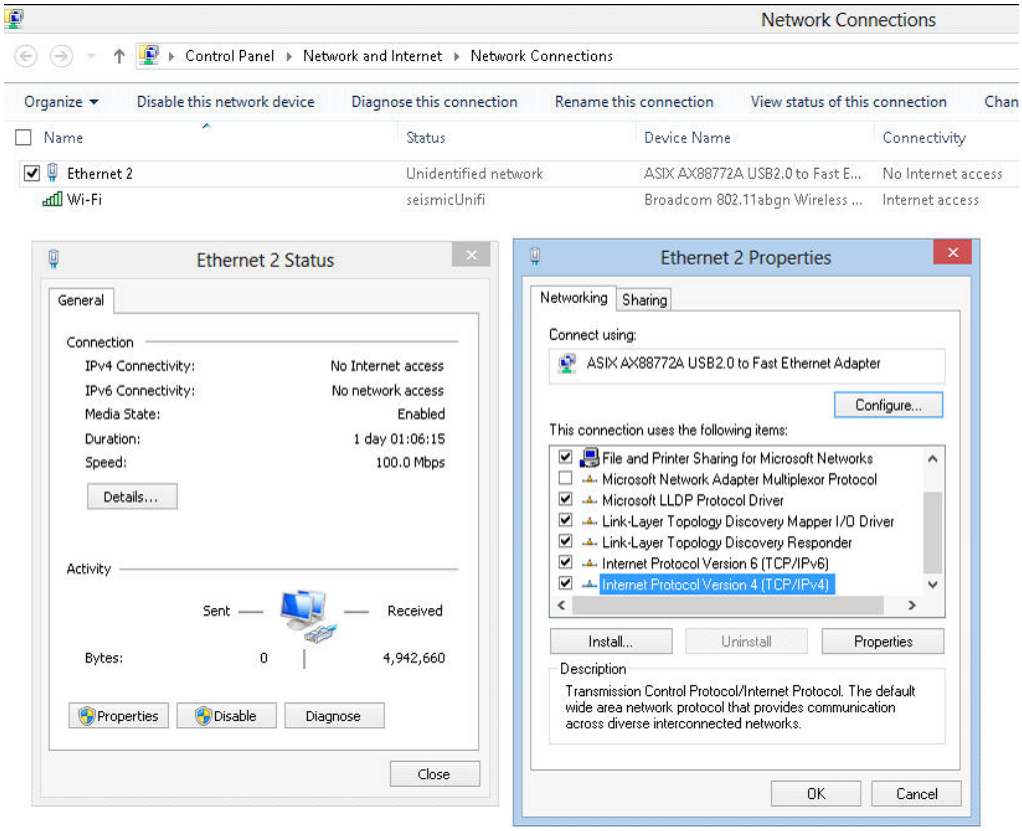
Then select “Change adapter Settings”



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

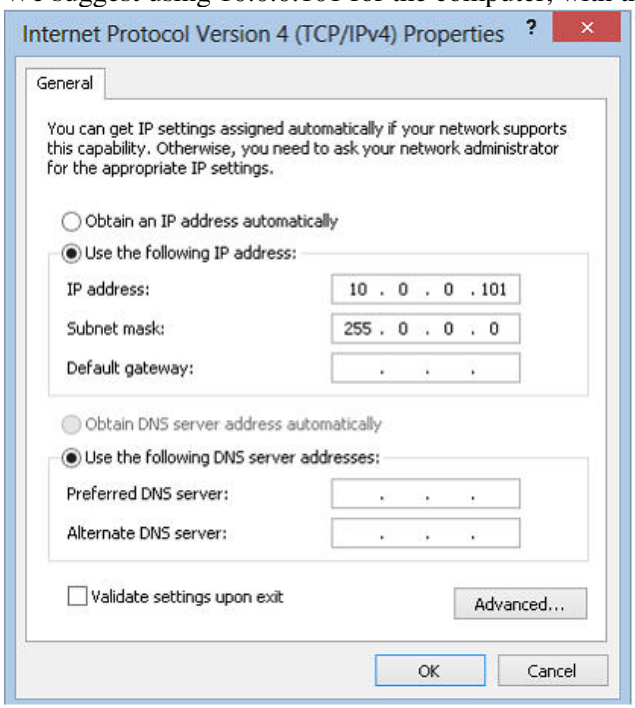
On the Ethernet status screen – click the “Properties” button at the bottom.

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



Then set the IP address to a fixed IP

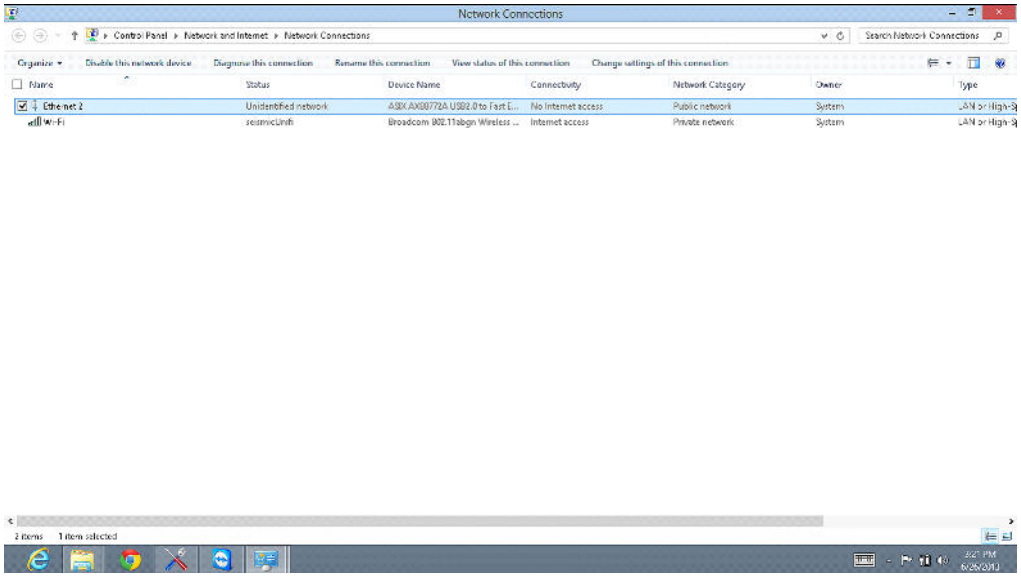
We suggest using 10.0.0.101 for the computer, with the 255.0.0.0 Subnet mask



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

Search for the “network” software

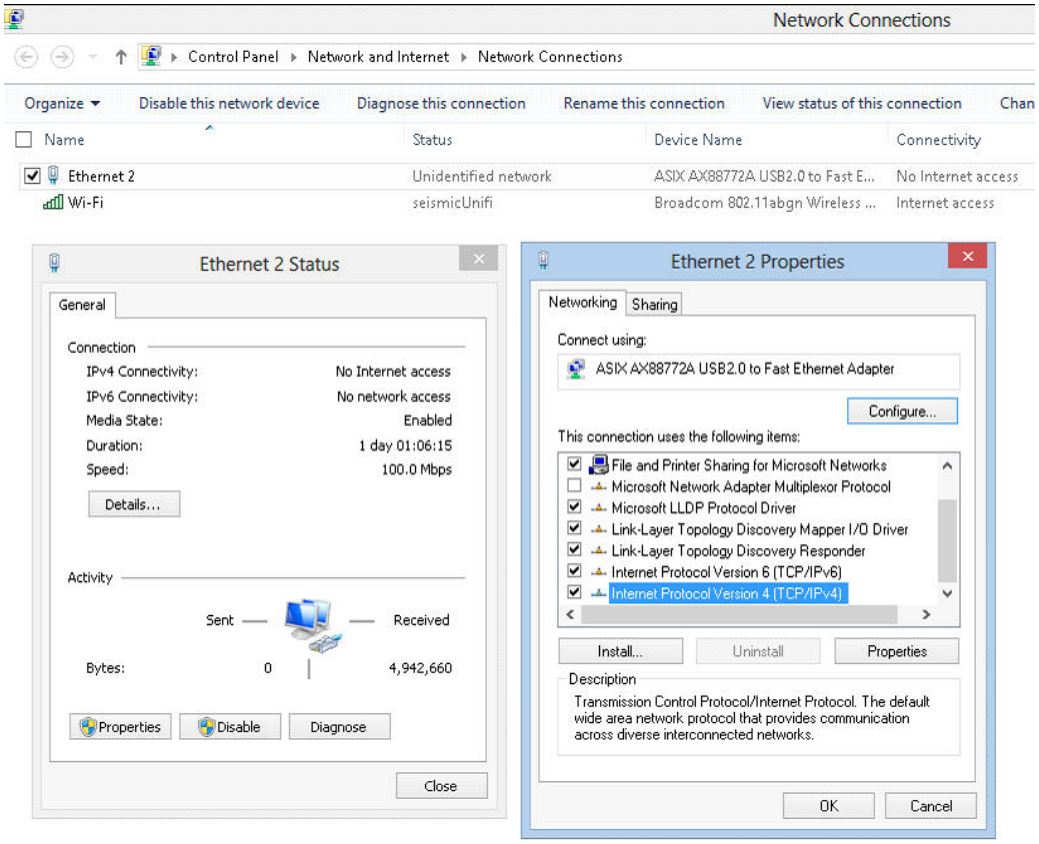
Click on the Network application



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

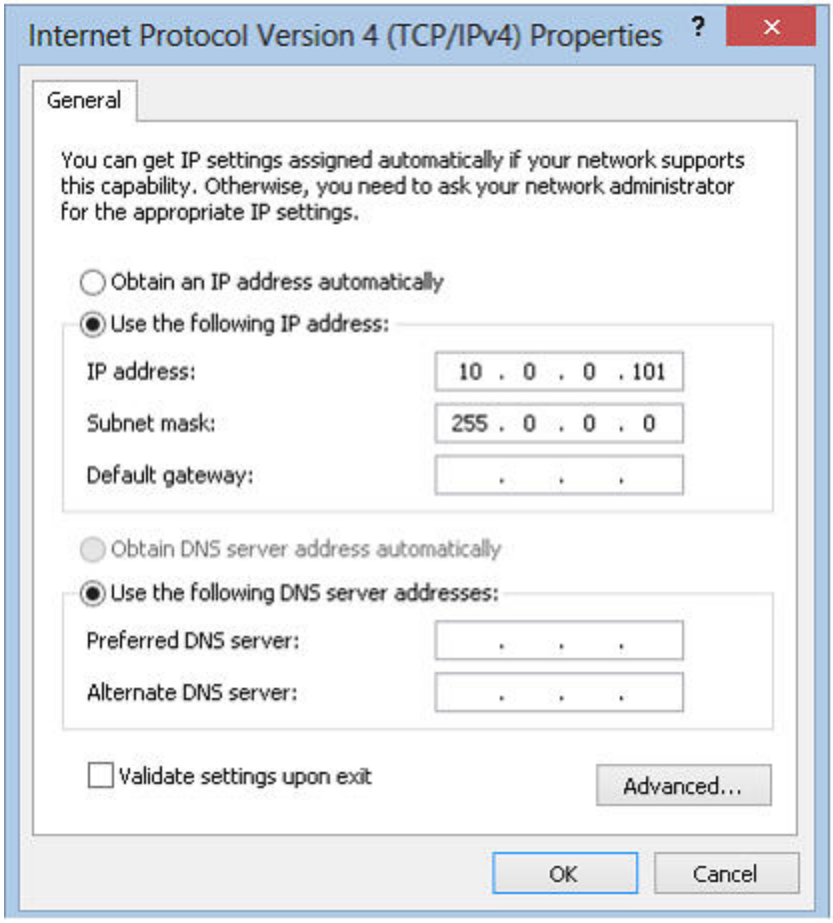
On the Ethernet status screen – click the “Properties” button at the bottom.

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



Then set the IP address to a fixed IP

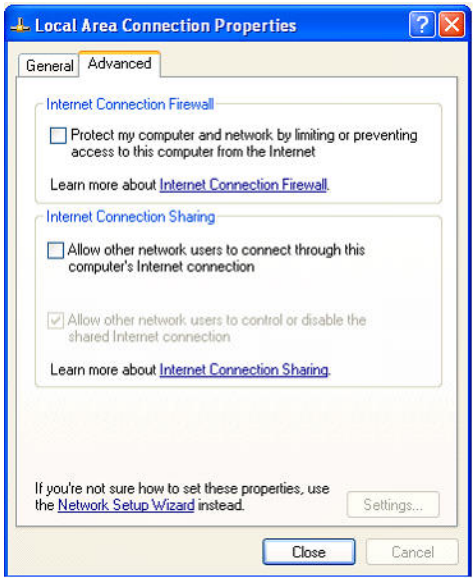
We suggest using 10.0.0.101 for the computer, with the 255.0.0.0 Subnet mask



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.

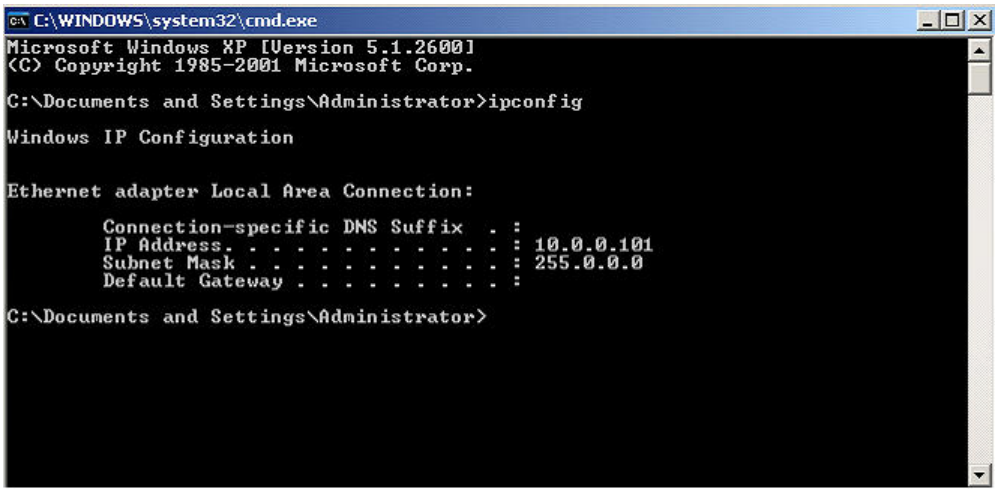
There is a built in Firewall with Windows XP. This should be disabled. Go to the Advanced Menu of the Local Area Properties and disable the Firewall.



Typical Firewalls will ask if the program should be "blocked", always select "Unblock this program" if asked.

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 similar to 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.