

# DSALINK3

Version 3.03

## INSTALLATION and OPERATION

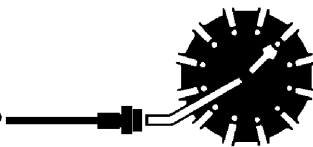
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## INTRODUCTION

The purpose of the DSALink3 Software is to provide a means of communication between DSA Modules and a PC. It is designed to give a user the tools necessary to be able to interface to a DSA Module. It is not intended to be a data acquisition software. It is optimized for best operation in Microsoft Windows 2000 or Windows XP. It provides the following:

1. Easy setup of DSA Modules.  
DSALink3 is menu driven. That is, it permits a user to simply select the function(s) to be modified from a pull down menu. Setup of a DSA Module usually requires only a few mouse clicks.
2. Command and configuration information may be sent to DSA Modules from a disk file.  
This permits a very fast setup of a DSA Module. This is especially helpful when a module setup is to be modified during a test.
3. Display pressure and temperature values as numbers and in bar graph format.  
This permits easy setup of a module or group of modules. All data are displayed.
4. Display "scrolled" data from DSA Modules.  
When this window is opened, all communications from the DSA Modules are displayed.
5. Write data from DSA Modules to a disk file.  
Permits storage of data in a format specified during setup. In this function, the maximum recommended data acquisition rate is 25 Hz. Rates faster than this may result in data gaps.
6. Replace individual sensors.  
Install coefficients for one sensor. Also, move sensors from one module to another.

The DSALink3 software is designed to be connected to, and communicate with, one module. If it is necessary to connect to more than one module at a time, then multiple copies of the program can be opened. The number of modules that can be supported at one time is dependant upon the Host PC. A fast processor with a large amount of RAM may support 20 DSA modules or more. A slow processor with minimum RAM may only be able to support 2 or 3 modules.

## DSALink3 SOFTWARE

The DSALink3 Software is written in Visual Basic 6.0. It is a 32 bit application. It will function properly in Windows 2000 or Windows XP. It has not been tested in any other version of Windows.

## INSTALLATION

### Equipment required:

DSALink3 Software  
DSA Series 3000 or Series 3200 Module  
28 Vdc Power Supply  
Cat 5 Ethernet Cross Cable for 10Base-T connection from Host to DSA Module  
Cat 5 Ethernet Straight Cable for 10Base-T connection from Hub to DSA Module

It is recommended that a user read and fully understand this procedure before attempting to install the DSALink3 software.

### DSALink3 Software Installation

1. Install the DSALink3 software.  
Start Windows  
**NOTE:** Use the Add/Remove Programs feature in Windows to remove any old DSALink program and program group icons before proceeding. The DSALink3 installation program will create new icons.  
Insert The DSALink3 CD into a CD Drive.  
The installation program should autorun, if it does not:  
Select: Start  
Select: Run  
Enter: x:\setup.exe Where x is the designator of the CD-ROM Drive.
2. If the installation is successful, a new program group and icon named DSALink3 will be installed in the Start Up Folder.
3. This completes the installation. Exit windows, reboot your computer and restart windows before attempting to operate the DSALink3 program.

## **DSALink3 Operation - Getting Started**

### **Windows 2000 and Windows XP Setup on a dedicated network**

Select: Start  
Select: Control Panel  
Select: Network Connections  
Select: LAN - Local Area Connection  
    The Local Area Status Window will open  
Click on Properties  
    The Local Area Network Connection Status Window will open  
Select the General Tab  
    If Internet Protocol (TCP/IP) is not installed, Click Install to add this  
Highlight Internet Protocol (TCP/IP) and Click on Properties  
    The Internet Protocol Properties Window will open  
Select the General Tab  
Click on : Specify an IP Address  
    Set the IP Address to 191.30.5.5  
    Set the Subnet Mask to 255.255.0.0  
Click OK to close the session and accept the changes

### **Windows 2000 and Windows XP Setup on a non-dedicated network**

Select: Start  
Select: Control Panel  
Select: Network Connections  
Select: LAN - Local Area Connection  
    The Local Area Status Window will open  
Click on Properties  
    The Local Area Network Connection Status Window will open  
Select the General Tab  
    If Internet Protocol (TCP/IP) is not installed, Click Install to add this  
Highlight Internet Protocol (TCP/IP) and Click on Properties  
    The Internet Protocol Properties Window will open  
Select the General Tab  
Click on : Obtain an IP Address Automatically  
Click OK to close the session and accept the changes

## DSALink3 Operation - Connection Test

1. Connect the DSA module to the Ethernet port.
2. Connect the 28 Vdc to the DSA Module. **DO NOT** connect or disconnect power with the power supply energized.
3. Test the host.
  - Click: Start
  - Click: Programs
  - Click: MS DOS Prompt      A DOS window will open
  - Type: ping 191.30.5.5      This is the IP address of the host.

This utility will test the socket. If the socket is functioning correctly, the program will display the turn around time. If not, an error will be indicated. The error could indicate that there is a problem with the Ethernet card, or the setup.

To exit, Type exit<enter> at the prompt.

4. Test the module connection
  - Click: Start
  - Click: Programs
  - Click: MS DOS Prompt      A DOS window will open
  - Type: ping 191.30.yy.xxx      This is the IP Address of the module. Substitute the numbers entered on the module address label for yy and xxx.

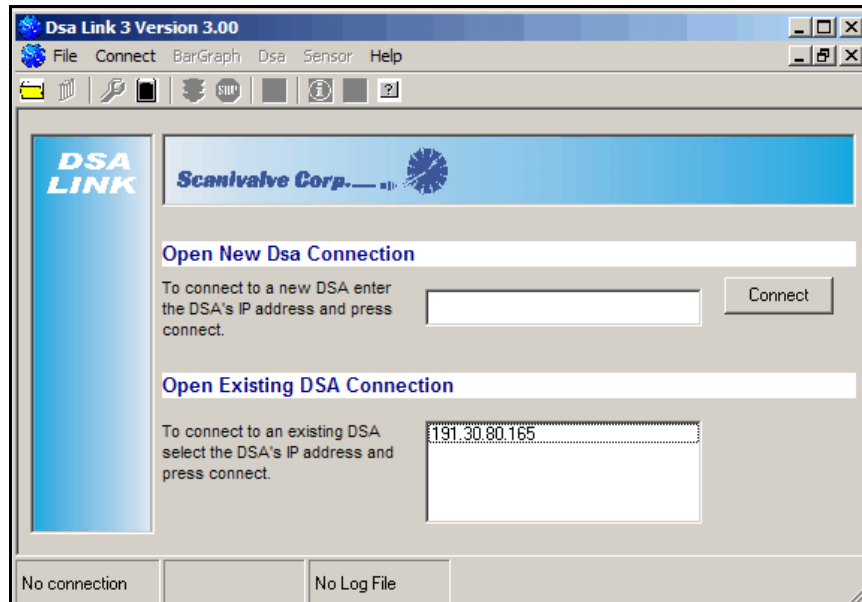
This utility will test the network. If the network is functioning correctly, the program will display the turn around time. If not, an error will be indicated. The error could indicate that there is a problem with the Network connection, the Ethernet card, or the setup.

To exit the Ping utility,  
Type exit<enter>      at the prompt.

## DSALink3 - Program Operation

Select: Start  
Select: Programs  
Select: DSALink3

The main window will open.



This window contains connection information. Most of the menu options and buttons will be greyed out until a connection is made.

There is three windows at the bottom of the main window that show the status of the connection and the module. The leftmost window will show the status of the connection. The center window shows the status of the DSA module after the connection is made. The window on the right displays the status of the Log to file feature.

### Opening a New Connection

Enter the IP address of the DSA module in the window under the Open New DSA Connection heading. Click on Connect to make the connection

### Opening an Existing Connection

When a connection is made to a DSA module, the IP address is saved in the window under the Open Existing DSA Connection heading. To re-open one of these connections, click on the IP address. It will be transferred to the connect window. Click on Connect to make the connection.



If the connection is successful,

The Connect button will change to Disconnect

The Menu headings will be activated.

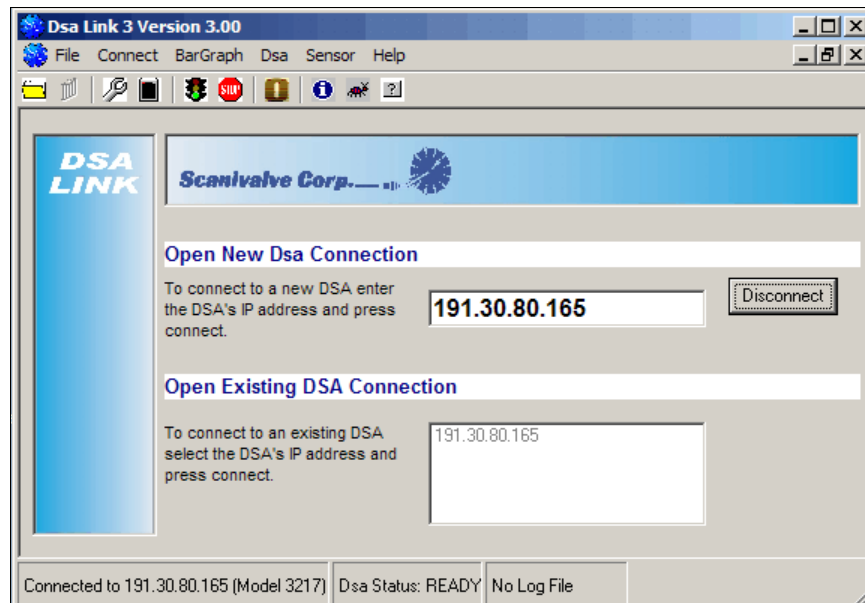
The task buttons will be activated

The connection status window will display:

Connected to <IP Address (Model #)>

The module status window will display

DSA Status READY

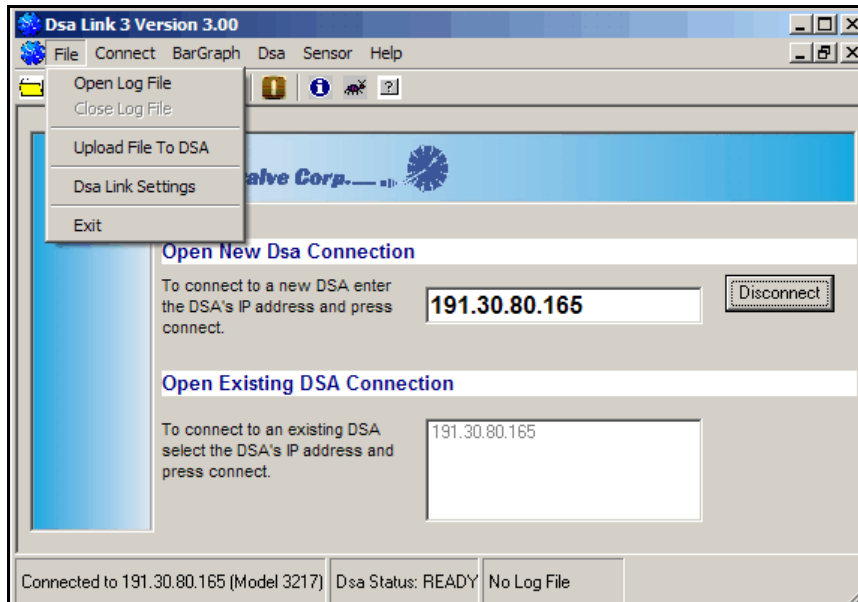


## DSALink3 - Menu Bar

The DSALink3 Window has six menu options: File, Connect, Bargraph, DSA, Network, and Help.

### File

This contains file activity options for a DSA Module.



#### Open Log File...

This option will open a window which will prompt the user to name a destination file for DSA data. When a file is named, the file will be displayed. Data will be logged to the file named when this option is selected.

#### Close DSA Log File

This option will close the data log file named in the option above.

#### Upload File to DSA...

This option will allow a user to name a data file that will be uploaded into the DSA module. This could be setup commands, a module calibration file, or individual sensor calibration data.

#### Data Link Settings

This function contains three sub functions

##### Status Poll Control

Turns Status Poll On or Off.

##### Data Logging Control

Determines what will be logged when a Log File is enabled.

##### Upload Control

Sets the Upload Dwell Time in milliseconds

#### Exit

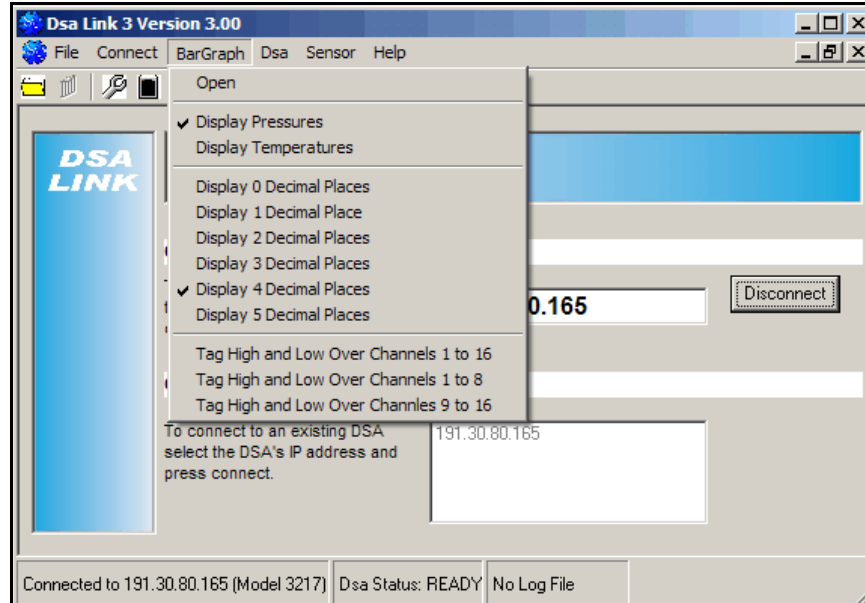
Close all program activities and return to the desktop.

## Connect

This menu option will close the BarGraph screen and return to the opening screen.

## BarGraph

This option permits the user to select or modify the BarGraph Display



### Open

Opens the BarGraph Screen

### Display Pressures

Displays the module pressures on the BarGraph.

### Display Temperatures

Displays the module sensor temperatures on the BarGraph..

### Display x Decimal Places

Select 0 to 5 decimal places for display.

### Tag High and Low Over Channels 1 to 16

Show the high and low channels for a single range module

### Tag High and Low Over Channels 1 to 8

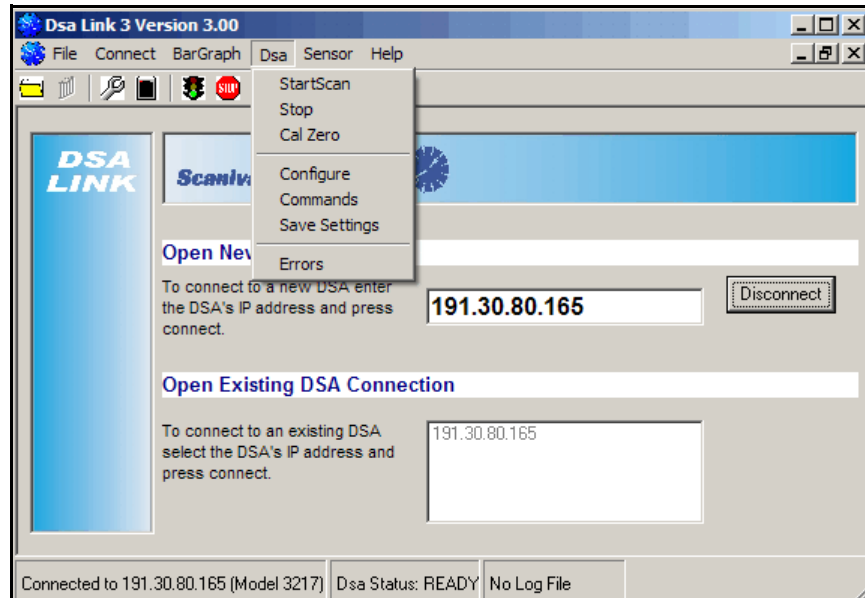
Show the high and low channels for channels 1 to 8 in as dual range module.

### Tag High and Low Over Channels 9 to 16

Show the high and low channels for channels 9 to 16 in a dual range module

## DSA

This option permits the user to create a sensor profile file so a sensor may be moved from one



### Start Scan

Initiates the Scan function

### Stop

Stops the Scan function

### Cal Zero

Initiates the CALZ function

### Configure

Opens a configuration screen to permit quick configuration of Period, Scan Rate, Average, Engineering Units, Data output format, Data Trigger and Calibration settings.

### Commands

Opens a window to permit manual entry of commands to the DSA module.

### Save Settings

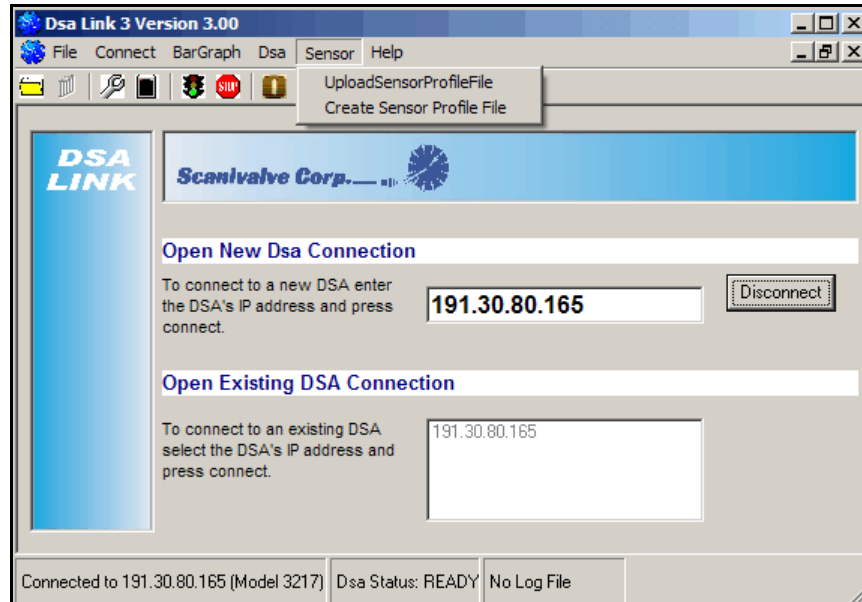
Saves the Configuration settings

### Errors

Opens the Error log file.

## Sensor

This option permits the user to create a sensor profile file so a sensor may be moved from one



UploadSensorProfileFile

Uploads coefficients for a replacement sensor to the module.

CreateSensorProfileFile

Creates a sensor profile file so a sensor may be moved to another module.

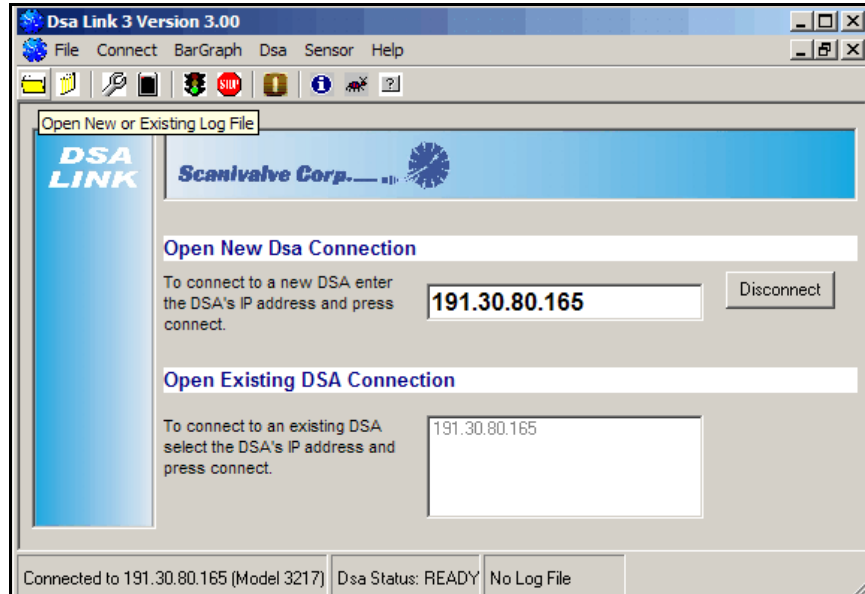
## Help

This option has not been implemented

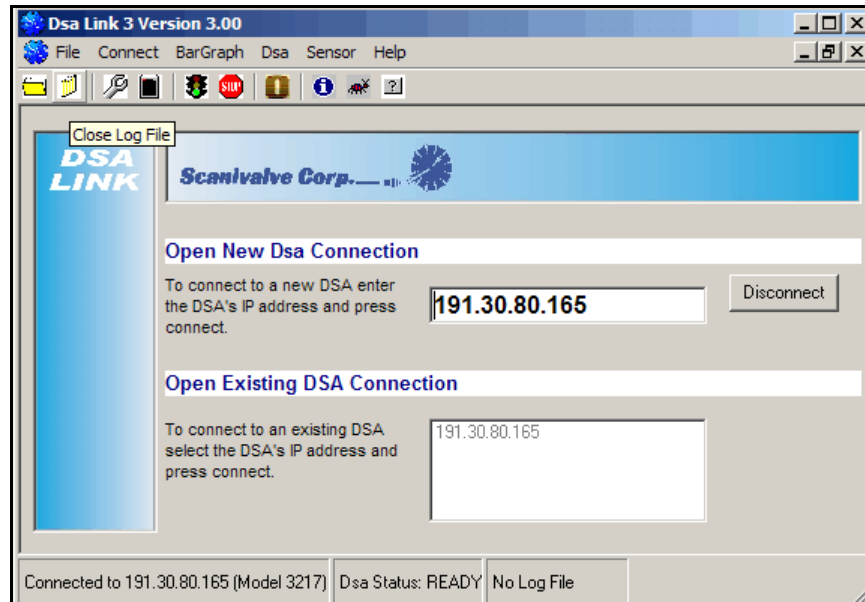
## DSALink3 - Task Buttons

DSALink3 has a Task Button Bar that can be used to quickly select the ten (10) most commonly used functions.

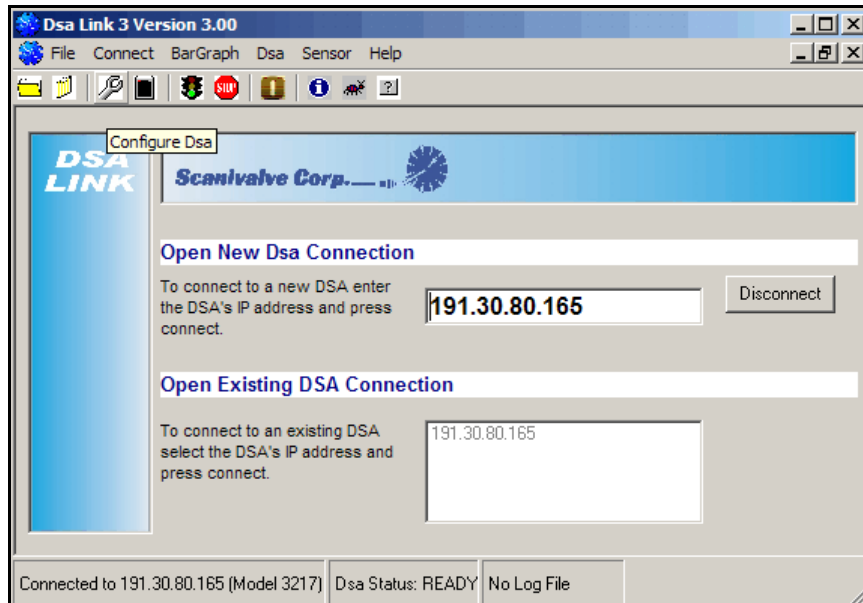
Open New or Existing Log File



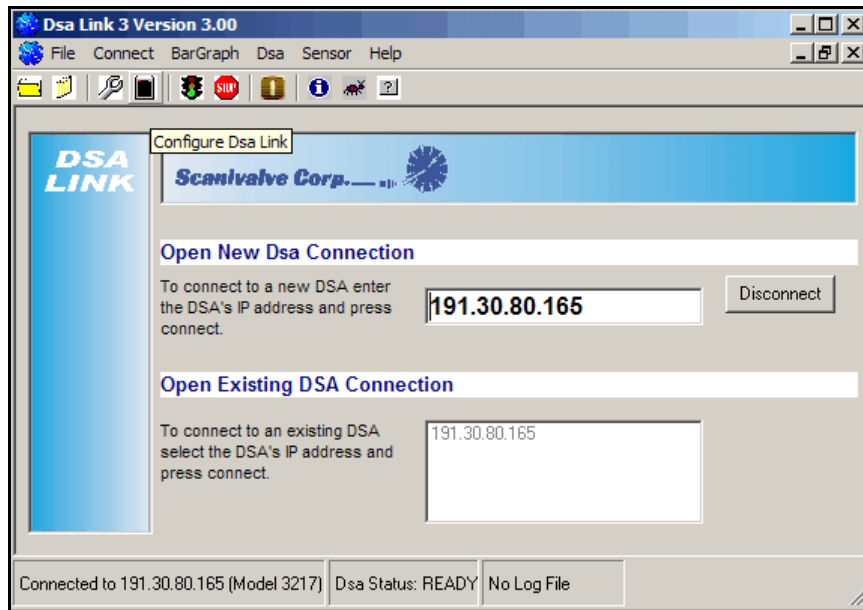
Close Log File



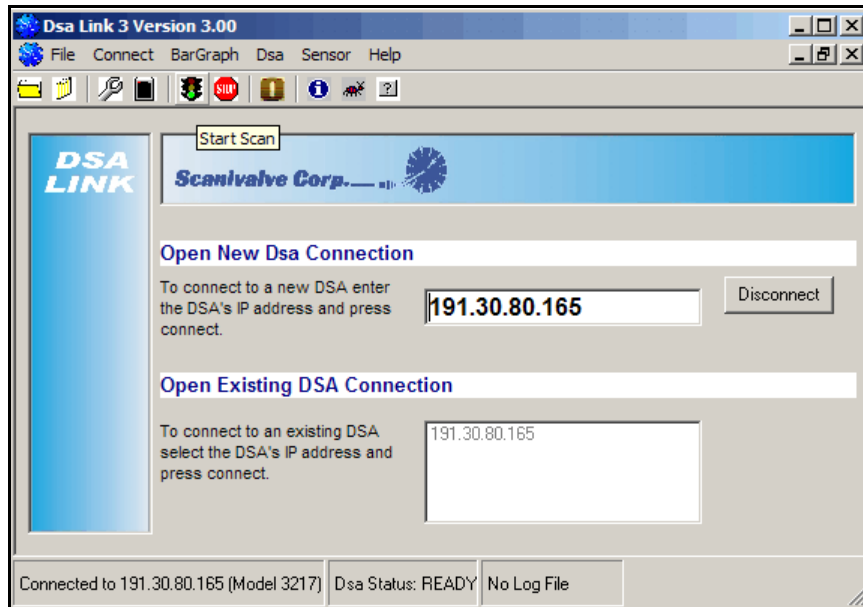
## Configure DSA



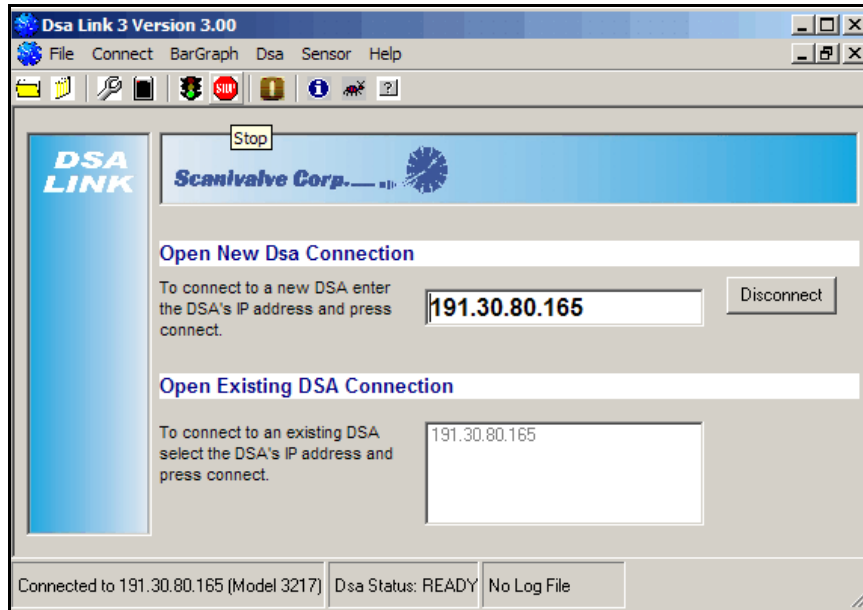
## Configure DSALink



## Start Scan

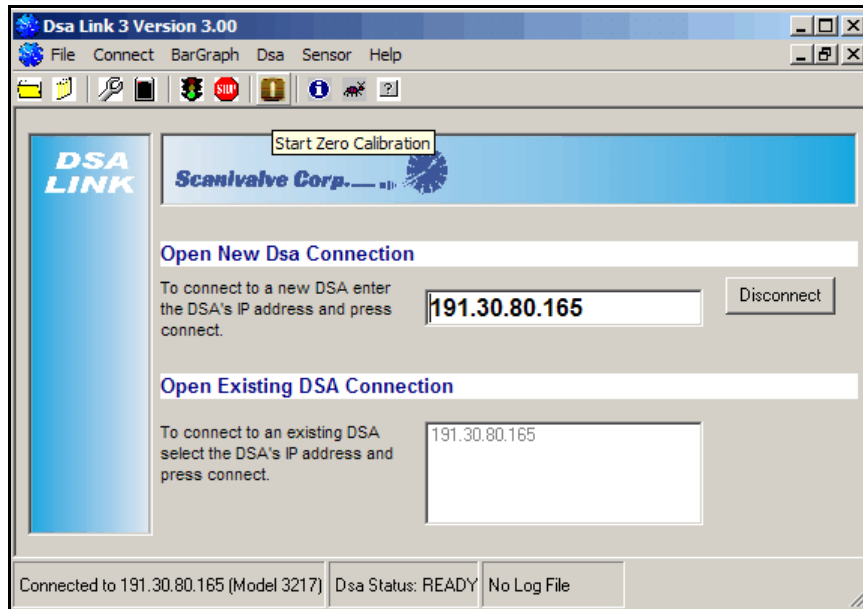


## Stop Scan

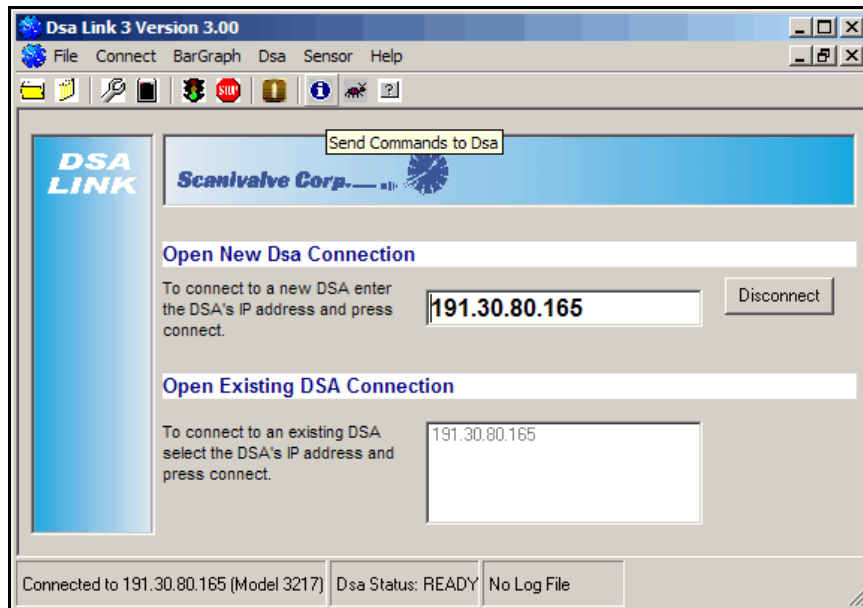




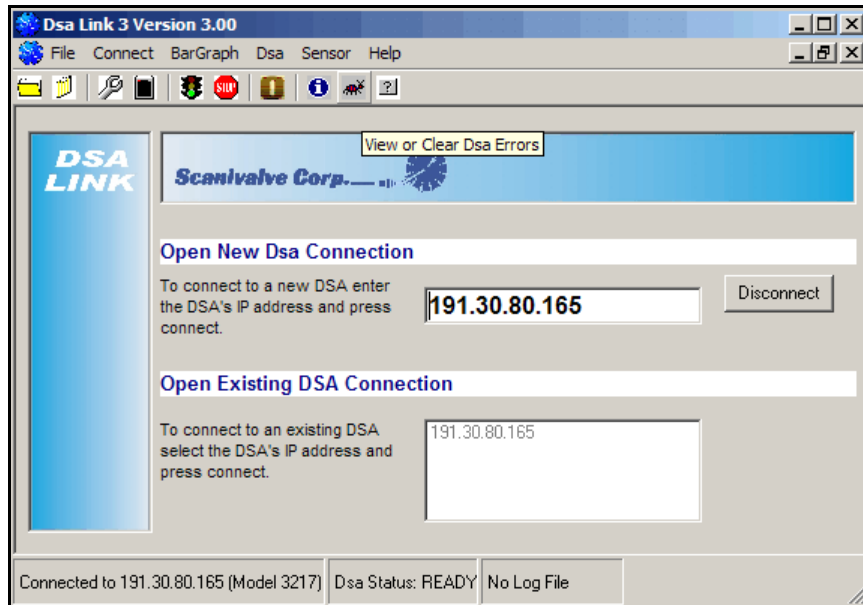
## Start Zero Calibration



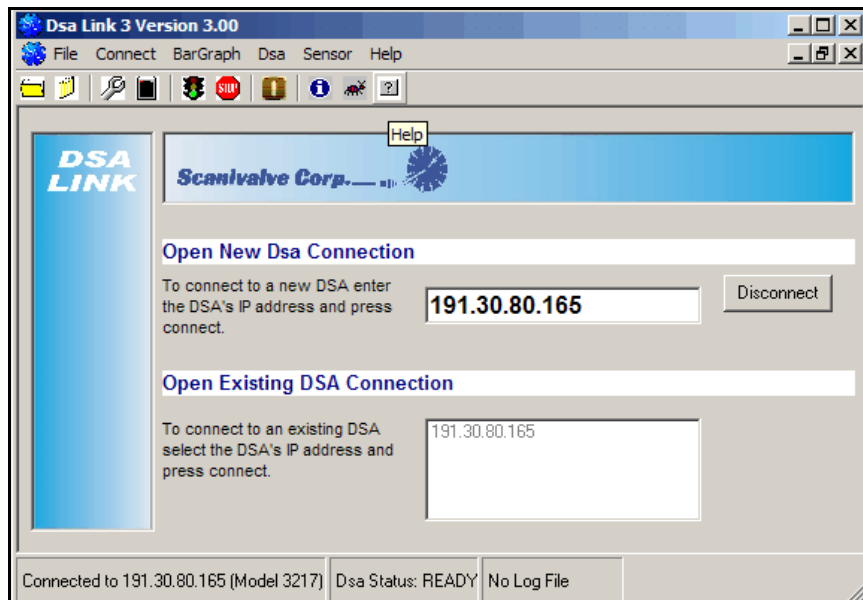
## Send Commands to DSA



## View or Clear DSA Errors

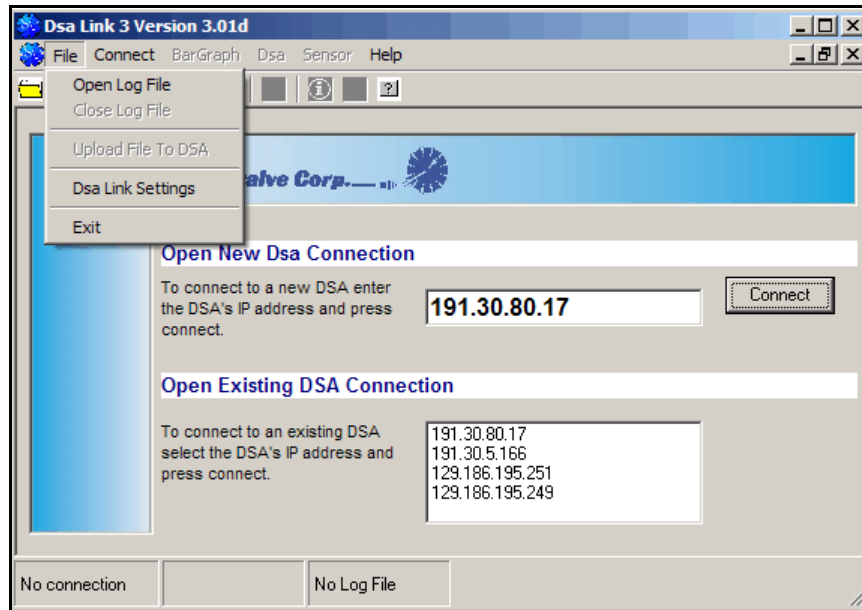


## Open the Help File

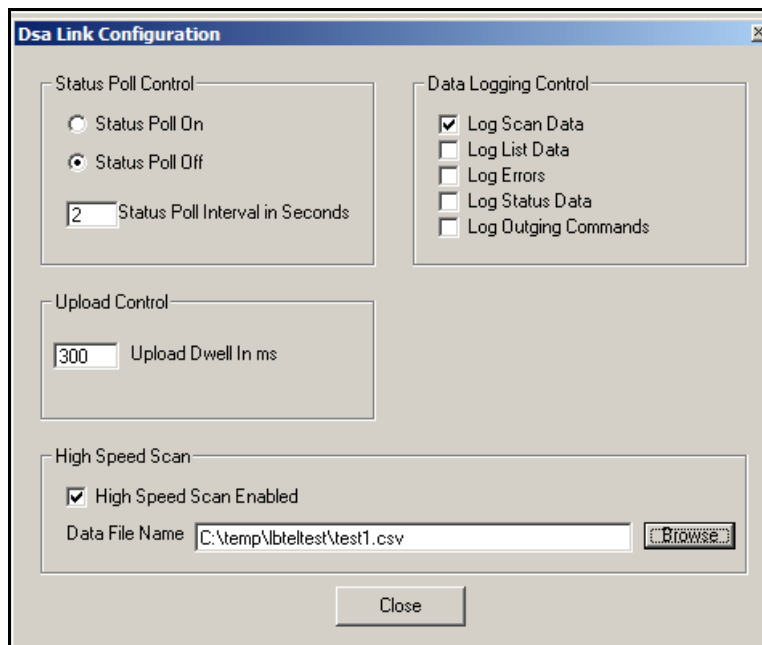


## DSALink3 Operation - DSALink Settings

DSALink3 must be configured before connecting to a module.



Open the DSALink Settings Screen by selecting File and DSA Link Settings.



#### Status Poll Control

Turn the Status Poll On or Off by clicking the appropriate radio button. The update interval may be set from 1 to 9 seconds.

**Note:** The Status Poll will not update when DSALink3 is set to the High Speed Data Mode.

#### Data Logging Control

Determines what will be logged when a Log File is enabled.

Select the items to be logged by clicking the check box by the item.

It is recommended that Scan Data only be logged if the data are to be input to a spreadsheet. The other items listed under this heading are most beneficial for system troubleshooting or set up documentation.

#### Upload Control

Sets the Upload Dwell Time in milliseconds.

This may have to be adjusted for a very fast or very slow Host computer processor. It may be set from 1 to 999 milliseconds.

#### High Speed Scan

Sets the method for data collection and transfer.

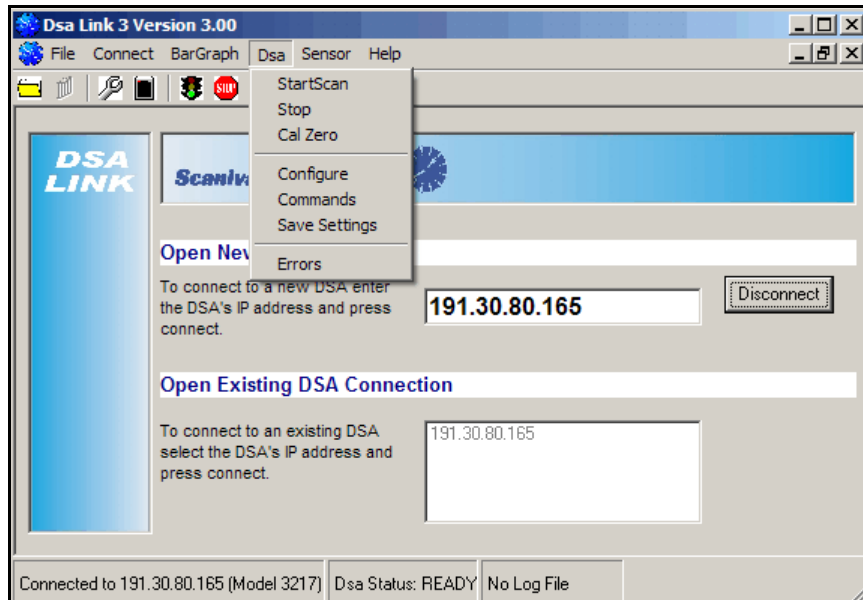
When this box is unchecked, data transfers are ASCII, TCP/IP. Data transfer speed in this mode will be limited by the host computer configuration. Typically, a user could expect maximum transfer rates of 20 to 100 samples per channel per second in this mode.

When the box is checked, data transfers are Binary, UDP. Data transfers in this mode can be 500 samples per channel per second or higher. There are some limitations on the maximum number of Averaged Data Frames that can be transmitted in this mode. Data are stored to a file specified in the Data File Name Window. The data are converted from Binary format to ASCII. The file format is a .csv format compatible with most spreadsheets. The High Speed scan function is explained in more detail in the DSALink Operation - High Speed Data Acquisition section of this manual.

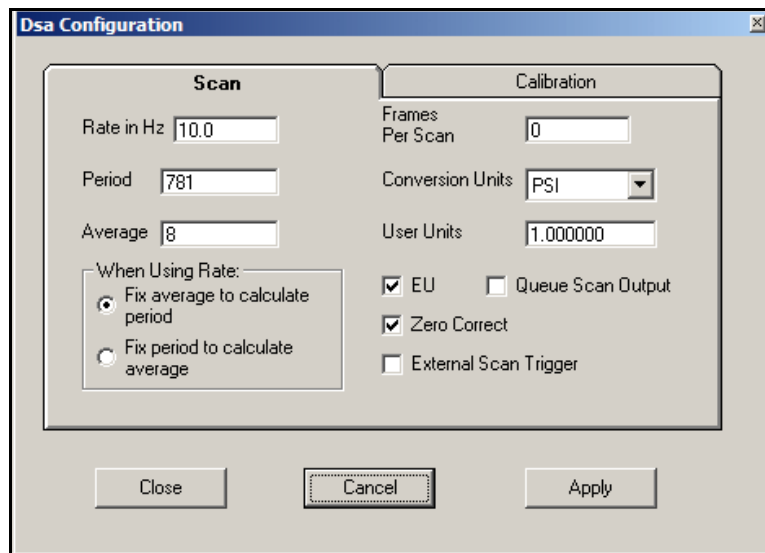
## DSALink3 Operation - Module Configuration

The module configuration should always be verified before operation. For more information on the configuration variables, please refer to the DSA Software Requirements Specification.

Open the Configuration Screen by clicking on DSA and then Configure.



The Configure window will be displayed. Two tabs are available : **Scan** and **Calibration**. The Scan window will be the first window displayed.



## Scan Settings

The variables shown in this window are the variables that will affect the operation of DSALink 3. There are other variables in the Scan group which can be displayed and/or modified using Commands function. The Scan page has one variable, **Rate**, that is not part of the Scan Group.

Refer to the DSA Software Requirements Specification for more information on each scan variable.

### Zero Correct

When this box is checked, the data will be corrected by the zero offset data from a CALZ. This box should always be checked unless the system is being tested or for troubleshooting purposes

### External Scan Trigger

When this box is checked, a Scan command will set the DSA module in the scan mode. No data will be output until a hardware or software trigger is received. The external trigger is defined in the hardware manual. One trigger will output one averaged frame of data.

### Frames per Scan

This variable may be set to any number from 0 to 214000000. A Scan command will result in the output of the number of frames set in this variable. When set to zero, the module will output averaged frames of data indefinitely, or until a Stop command is received.

### Queue Scan Output

This box sets the variable QPKTS. This determines what will occur when the DSA output data buffer is full. When checked, no data will be lost. The DSA module will stop scanning and log an error. When unchecked, the oldest frames in the output data will be discarded and the DSA module will continue to scan.

### EU

Checking this box will set the data output in the engineering units specified in Conversion Units. If the box is not checked, the data output will be in A/D counts.

### Conversion Units

The Engineering Unit output. This is the term UNITSCAN in the configuration variables. To change to another pre-programmed Conversion Unit, click on the down arrow and highlight the new Conversion Unit to be used.

### User Units

The conversion factor to convert PSI to the Conversion Units selected. This value will be automatically updated when the Conversion Unit is modified. All DSA module are calibrated in PSI. Conversion to other units is made when the data are output. The User units conversion factors have been obtained from NIST (National Institute of Standards and Technology). If a user must use an Engineering Unit Conversion that is not pre-programmed, the value of User Units may be modified by entering the conversion factor into this window.

### Period

This is the time interval, in microseconds, that the software will dwell on each channel.

### Average

This is the number of samples to be collected before the data are averaged and output in an averaged Frame

Rate in Hz

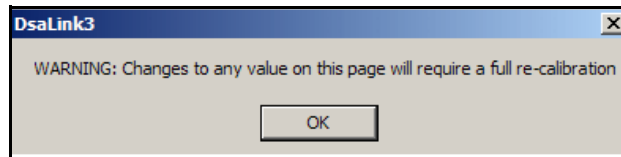
Rate is calculated by the DSA firmware whenever Average or Period is modified. Rate can be set, but Average or Period must be fixed for this calculation. If a value for Rate is entered, the Average or Period will be modified to satisfy the calculation. Rate is calculated by the inverse of the quantity (16 X Period X Average).

When the settings are correct, Click Apply.  
Click Close to close the window.

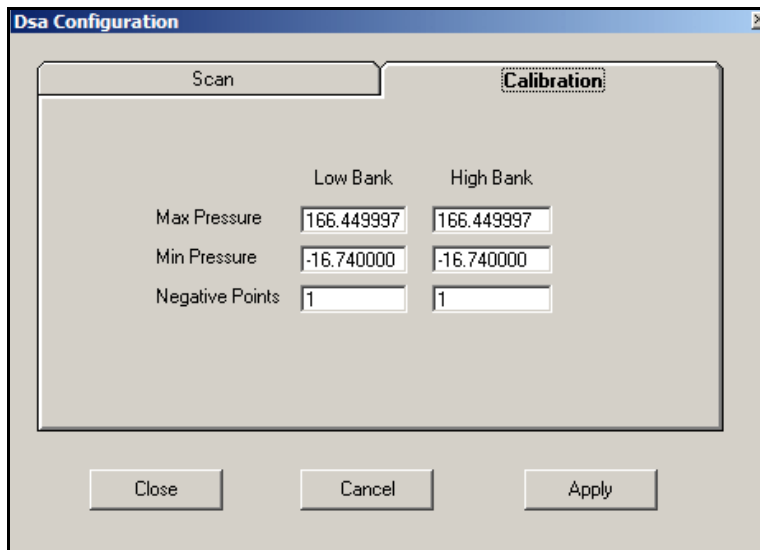
**NOTE:** Any changes to the Scan settings will be stored in RAM and used by the DSA firmware for data collection and conversion. To make the changes permanent, a SAVE command must be issued

## Calibration Settings

Click on the Calibration Tab to view the Calibration Settings. When the Calibration Tab is clicked, a warning window will pop up.



**Warning:** The Calibration settings window is for information only. Calibration settings should not be modified unless the module is to be completely re-calibrated. If these settings are modified, the calibration coefficients will be corrupted. All data obtained after these settings are modified would be invalid.

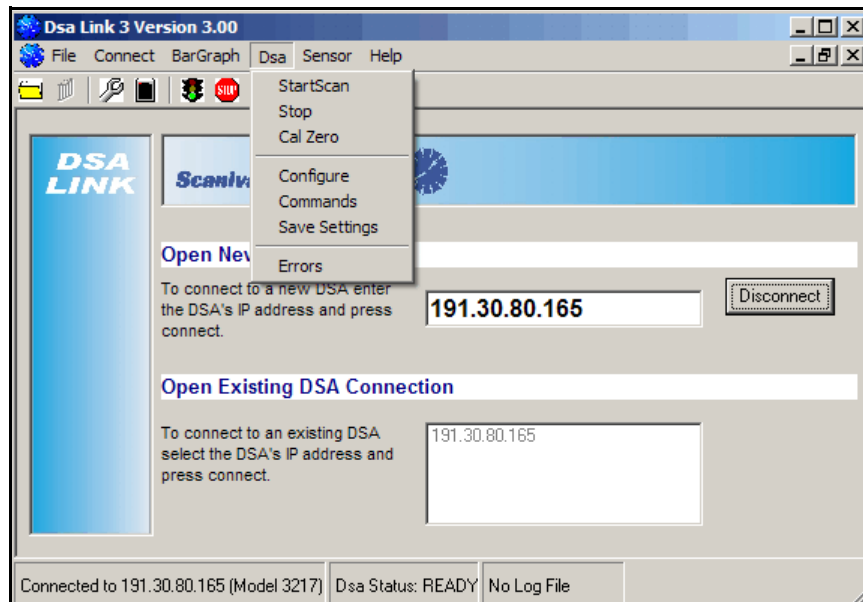


Click Close to close this window

## DSALink3 Operation - Commands

The DSALink3 software allows commands to be executed from the menu. This section explains how to execute these commands with the DSALink3 software. For more information on the software commands, please refer to the DSA Software Requirements Specification.

The software commands will always start from the main window shown below.



### Start Scan

Select: **DSA**  
Select: **Start Scan**

This will initiate the SCAN function. If the module is set up for an internal trigger, the module will begin to return data almost immediately. If the module is set up for an external trigger, the unit will enter the SCAN mode and wait for a trigger. The Status window will indicate SCAN when the module is in the SCAN mode

### Stop

Select: **DSA**  
Select: **Stop**

This will terminate any DSA function in progress. The Status window will indicate Ready.

### Cal Zero

Select: **DSA**  
Select: **Cal Zero**

This command will initiate a CALIBRATE ZERO (CALZ) command. The Quick Zero solenoid will be actuated. If the proper control pressure is supplied, the control valves will switch to the CAL mode, the processor will read the zero offset of each channel. The new offset data will be stored in the Zero Offset file, and new DELTA values will be calculated. The Status window will indicate CALZ while the module is in the CALZ mode. When the command is complete, the Status window will indicate READY.



## Configure

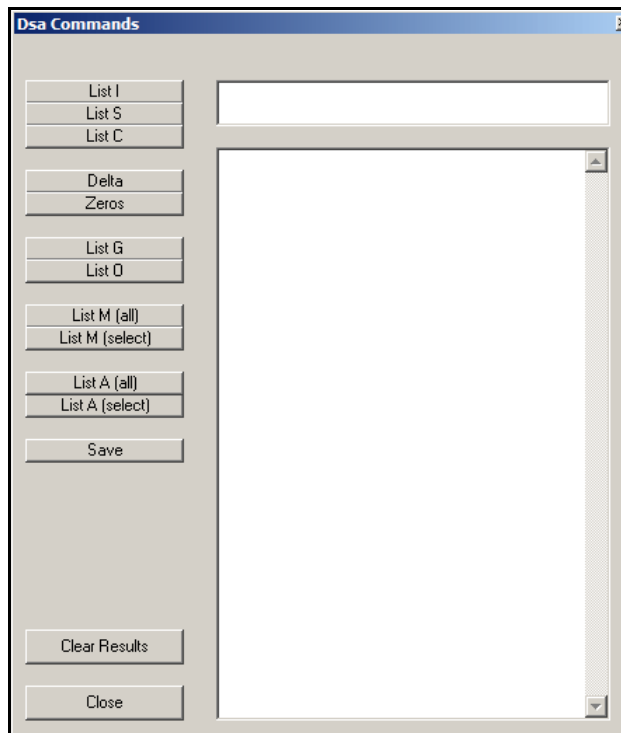
Select: **DSA**  
Select: **Configure**

This command opens a window that permits a user to configure the most commonly modified configuration variables. It can also be used to verify the module calibration settings. The Configure function is explained in the Module Set Up section of this manual

## Command

Select: **DSA**  
Select: **Command**

This command opens a window that permits a user to enter any valid command to the DSA module. It is especially useful when verifying the calibration coefficients. Or when changing a configuration variable that is not listed on the Configure page.



A Window will open which will permit the user to enter a command. Any valid command may be issued using this window. To issue a command, Enter the command in the upper window, the response from the DSA module will be displayed in the lower window.

Several buttons with the most commonly used commands are available on the left side of this window. Clicking on these buttons will have the same effect as typing the command.

- List I
  - Lists the configuration variables in the Identification Group
- List S
  - Lists the configuration variables in the Identification Group
- List C
  - Lists the configuration variables in the Identification Group
- Delta
  - Lists the Delta values calculated from the most recent CALZ
- Zeros
  - Lists the Zero Offset values measured in the most recent CALZ
- List G
  - Lists the Gain coefficients for the sensor temperature conversions
- List O
  - Lists the Offset coefficients for the sensor temperature conversions
- List M(All)
  - Lists the all of the Master Plane Coefficients for all of the sensors.
- List M(Select)
  - Lists the Master Plane coefficients for a specific sensor or temperature range.
- List A(All)
  - Lists the all of the Coefficients, Master, Calculated, or Invalid, for all of the sensors.
- List A(Select)
  - Lists the all coefficients, master Calculated, or Invalid, for a specific sensor or temperature range.
- Save
  - Saves the current module configuration to EEPROM.
- Clear Results
  - Clears the response window
- Close
  - Closes the DSA Command Window

## **Save Settings**

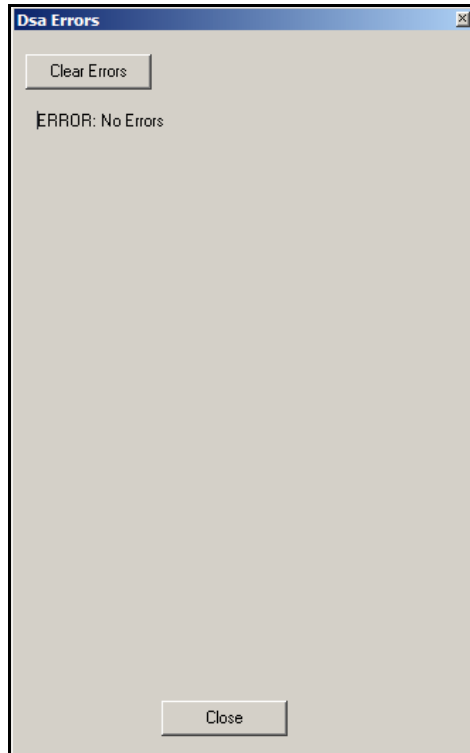
- Select: **DSA**
- Select: **Save Settings**

This command will change any saved settings.

## Errors

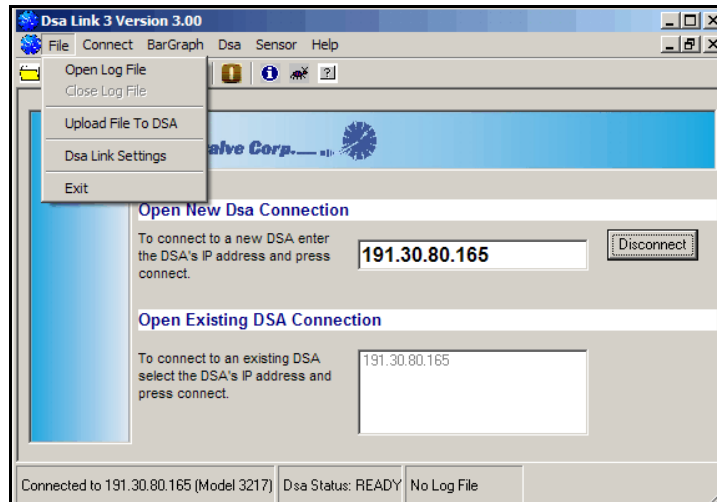
Select: **DSA**  
Select: **Errors**

This command will open an Error Log window. The last 30 errors that may have occurred will be displayed. The Error log may be cleared by clicking on the Clear Errors button. Close the window by clicking the Close button.



## DSALink3 Operation - File Handling

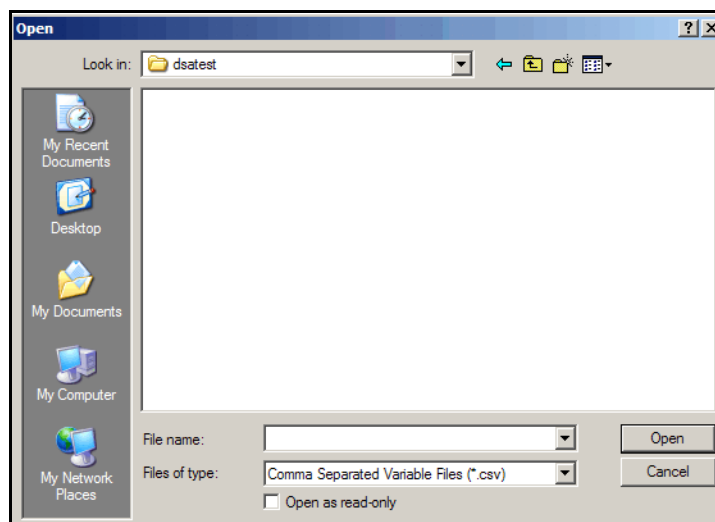
The DSALink3 software has some limited control of files. They may be used to save data or upload new coefficients. For more information on file handling, please refer to the DSA Software Requirements Specification.



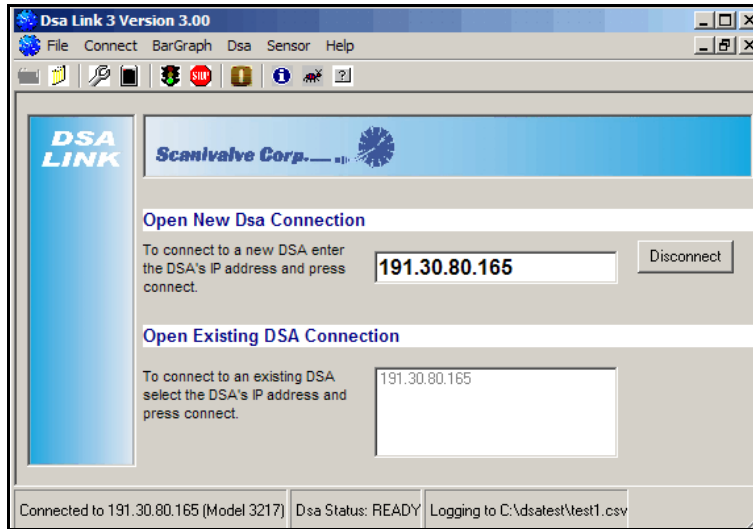
### Open Log File

Select: **File**  
Select: **Open Log File**

A window similar to the one below will open. The destination and name of the program may be specified. But, the extension must be **.csv**. The file will be written in a comma separated variable format which can be easily imported into a spreadsheet program such as Microsoft Excel. The default destination will be the DSALink3 folder in the Program Files folder. Click **Open** to complete the step.



The log file name and destination will be displayed in the Logging To window in the main display window.



## Close DSA Log File

Select: **File**  
Select: **Close DSA Log File**

This will close the open DSA Log File. The log file cannot be viewed or opened until it has been closed by the DSALink software. This menu option will be greyed out until a log file is opened. At that time it will be activated.

## Viewing a DSA Log File

To view a DSA log file,

1. minimize the DSALink3 window.
2. Open a spreadsheet program such as Microsoft Excel.
3. Select: File  
Select: Open  
Select the folder where the log file is stored and open the log file.
4. Microsoft Excel will open this file.

An example data log file is shown on the next page.

Microsoft Excel - test1.csv

File Edit View Insert Format Tools Data Window Help

Type a question for help

A1 0

1	0	0	0.69821	0.673875	0.696909	0.695111	0.669995	0.697524	0.678672	0.669582	0.683728	0.710974	0.674117	0.69434	0.691898	0.678232	0.659826	0.688243
2	0.099968	1	0.69821	0.697942	0.684682	0.682238	0.69627	0.697524	0.665365	0.694381	0.683728	0.6742	0.700553	0.69434	0.679759	0.678232	0.671823	0.663663
3	0.199936	2	0.69821	0.673875	0.684682	0.695111	0.669995	0.67017	0.665365	0.681982	0.670827	0.686458	0.687335	0.69434	0.691898	0.691274	0.659826	0.675953
4	0.299904	3	0.685037	0.685909	0.684682	0.695111	0.69627	0.697524	0.652058	0.681982	0.696628	0.6742	0.687335	0.707441	0.704036	0.665189	0.671823	0.675953
5	0.399872	4	0.711384	0.685909	0.672456	0.695111	0.683133	0.67017	0.665365	0.681982	0.670827	0.686458	0.687335	0.69434	0.679759	0.691274	0.659826	0.675953
6	0.49984	5	0.685037	0.673875	0.684682	0.682238	0.683133	0.683847	0.665365	0.681982	0.696628	0.686458	0.687335	0.69434	0.704036	0.665189	0.659826	0.688243
7	0.599808	6	0.69821	0.697942	0.684682	0.695111	0.69627	0.683847	0.665365	0.694381	0.670827	0.686458	0.700553	0.69434	0.679759	0.691274	0.659826	0.663663
8	0.699776	7	0.69821	0.673875	0.672456	0.695111	0.683133	0.67017	0.678672	0.681982	0.683728	0.686458	0.687335	0.681239	0.704036	0.678232	0.659826	0.688243
9	0.799744	8	0.685037	0.685909	0.684682	0.669366	0.683133	0.683847	0.665365	0.694381	0.683728	0.6742	0.700553	0.69434	0.691898	0.678232	0.671823	0.675953
10	0.899712	9	0.711384	0.661842	0.672456	0.707983	0.683133	0.67017	0.678672	0.681982	0.670827	0.698716	0.687335	0.681239	0.704036	0.678232	0.647829	0.675953
11	0.99968	10	0.685037	0.673875	0.684682	0.682238	0.69627	0.67017	0.665365	0.694381	0.683728	0.6742	0.687335	0.707441	0.679759	0.665189	0.671823	0.675953
12	1.099648	11	0.69821	0.685909	0.684682	0.682238	0.683133	0.67017	0.678672	0.694381	0.670827	0.686458	0.687335	0.681239	0.691898	0.678232	0.659826	0.675953
13	1.199616	12	0.685037	0.685909	0.684682	0.682238	0.69627	0.683847	0.652058	0.681982	0.683728	0.686458	0.687335	0.69434	0.691898	0.678232	0.671823	0.675953
14	1.299584	13	0.711384	0.673875	0.684682	0.695111	0.683133	0.67017	0.678672	0.694381	0.683728	0.6742	0.700553	0.681239	0.704036	0.678232	0.647829	0.675953
15	1.399552	14	0.671863	0.673875	0.684682	0.682238	0.683133	0.683847	0.652058	0.681982	0.683728	0.6742	0.700553	0.69434	0.691898	0.665189	0.68382	0.675953
16	1.49952	15	0.711384	0.685909	0.672456	0.695111	0.683133	0.67017	0.665365	0.694381	0.670827	0.686458	0.700553	0.69434	0.691898	0.691274	0.671823	0.675953
17	1.599488	16	0.685037	0.673875	0.696909	0.682238	0.683133	0.697524	0.665365	0.681982	0.683728	0.698716	0.687335	0.69434	0.704036	0.665189	0.671823	0.688243
18	1.699456	17	0.69821	0.685909	0.660229	0.682238	0.69627	0.67017	0.665365	0.694381	0.670827	0.686458	0.713771	0.69434	0.691898	0.678232	0.671823	0.663663
19	1.799424	18	0.69821	0.673875	0.684682	0.695111	0.669995	0.67017	0.678672	0.681982	0.683728	0.686458	0.687335	0.681239	0.704036	0.678232	0.659826	0.675953
20	1.899392	19	0.69821	0.685909	0.684682	0.682238	0.69627	0.683847	0.652058	0.681982	0.683728	0.686458	0.700553	0.69434	0.679759	0.691274	0.671823	0.663663
21	1.99936	20	0.711384	0.673875	0.672456	0.695111	0.683133	0.67017	0.678672	0.681982	0.670827	0.698716	0.687335	0.681239	0.679759	0.678232	0.659826	0.675953
22	2.099328	21	0.685037	0.697942	0.684682	0.669366	0.683133	0.683847	0.665365	0.681982	0.683728	0.6742	0.674117	0.69434	0.691898	0.678232	0.671823	0.675953
23	2.199296	22	0.711384	0.685909	0.672456	0.682238	0.683133	0.67017	0.665365	0.694381	0.670827	0.698716	0.700553	0.69434	0.691898	0.691274	0.659826	0.675953
24	2.299264	23	0.671863	0.673875	0.696909	0.682238	0.683133	0.697524	0.652058	0.681982	0.683728	0.6742	0.674117	0.69434	0.691898	0.665189	0.671823	0.688243
25	2.399232	24	0.69821	0.673875	0.672456	0.707983	0.69627	0.67017	0.665365	0.694381	0.670827	0.686458	0.713771	0.69434	0.691898	0.678232	0.659826	0.663663
26	2.4992	25	0.685037	0.661842	0.696909	0.682238	0.683133	0.683847	0.652058	0.681982	0.696628	0.686458	0.674117	0.69434	0.691898	0.678232	0.671823	0.688243
27	2.599168	26	0.69821	0.685909	0.660229	0.695111	0.69627	0.67017	0.678672	0.694381	0.670827	0.6742	0.700553	0.69434	0.691898	0.678232	0.659826	0.663663
28	2.699136	27	0.685037	0.673875	0.684682	0.682238	0.669995	0.683847	0.678672	0.681982	0.683728	0.6742	0.687335	0.69434	0.704036	0.665189	0.671823	0.688243
29	2.799104	28	0.69821	0.673875	0.672456	0.695111	0.683133	0.67017	0.665365	0.694381	0.670827	0.686458	0.700553	0.69434	0.691898	0.678232	0.659826	0.663663
30	2.899072	29	0.685037	0.673875	0.696909	0.695111	0.669995	0.683847	0.652058	0.681982	0.683728	0.686458	0.687335	0.69434	0.691898	0.665189	0.671823	0.688243
31	2.99904	30	0.711384	0.685909	0.660229	0.682238	0.69627	0.67017	0.665365	0.694381	0.683728	0.686458	0.700553	0.69434	0.679759	0.678232	0.671823	0.675953
32	3.099008	31	0.69821	0.661842	0.684682	0.695111	0.669995	0.683847	0.678672	0.669582	0.683728	0.686458	0.687335	0.681239	0.704036	0.665189	0.659826	0.675953
33	3.198976	32	0.685037	0.685909	0.660229	0.695111	0.683133	0.683847	0.652058	0.706781	0.683728	0.686458	0.700553	0.707441	0.679759	0.665189	0.671823	0.663663

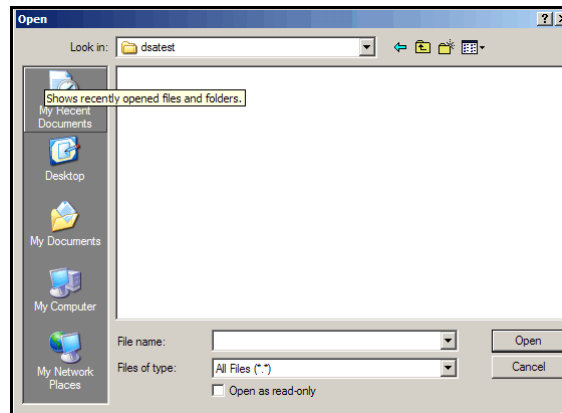
Ready

## Upload File to DSA

Select: **File**

Select: **Open File to DSA**

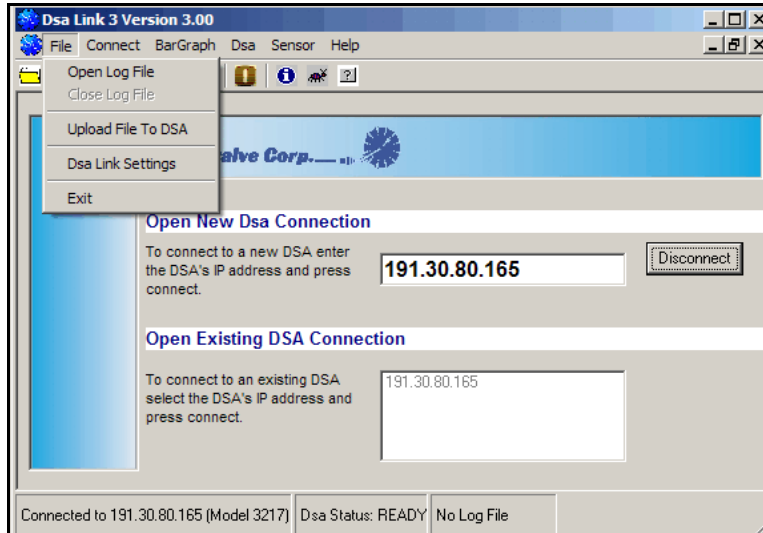
This command will permit the upload of a text or command file to the DSA module. When the command is clicked, a window will open requesting that the user enter the name of the file to be uploaded. Enter the file name in the File Name window and Click **Open**. The file transfer will begin immediately



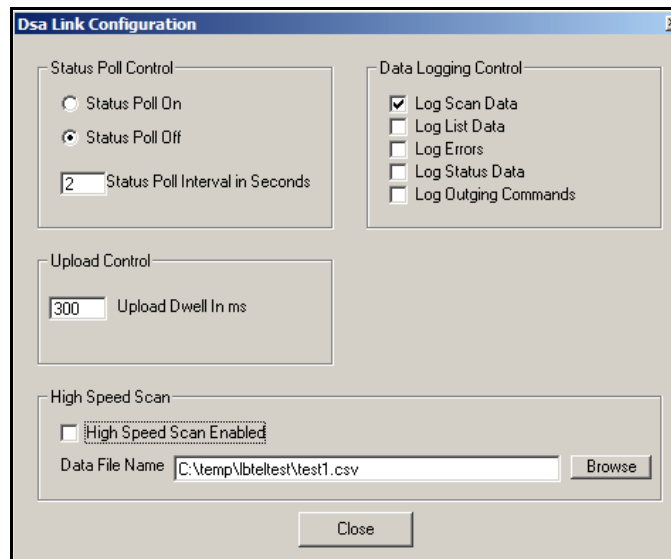
## DSALink3 Operation - Low Speed Data Acquisition and Display

DSALink3 can acquire and display data from a DSA module in Raw A/D counts, or Engineering Units in a TCP/IP format. Data acquisition speed in this mode of operation will be limited to approximately 80 samples per channel per second. The actual maximum speed will be limited by the host computer configuration.

DSALink3 must be configured for Low Speed Data Acquisition before connecting to a module.

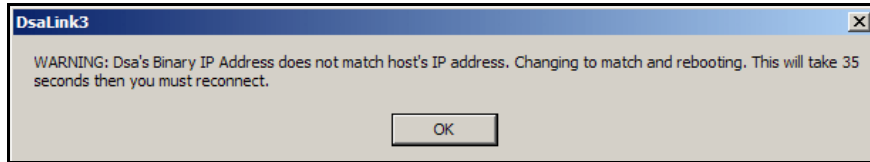


Open the DSALink Settings Screen by selecting File and DSA Link Settings.



The High Speed Enabled Box must be unchecked to acquire data at low speeds, or in TCP/IP format

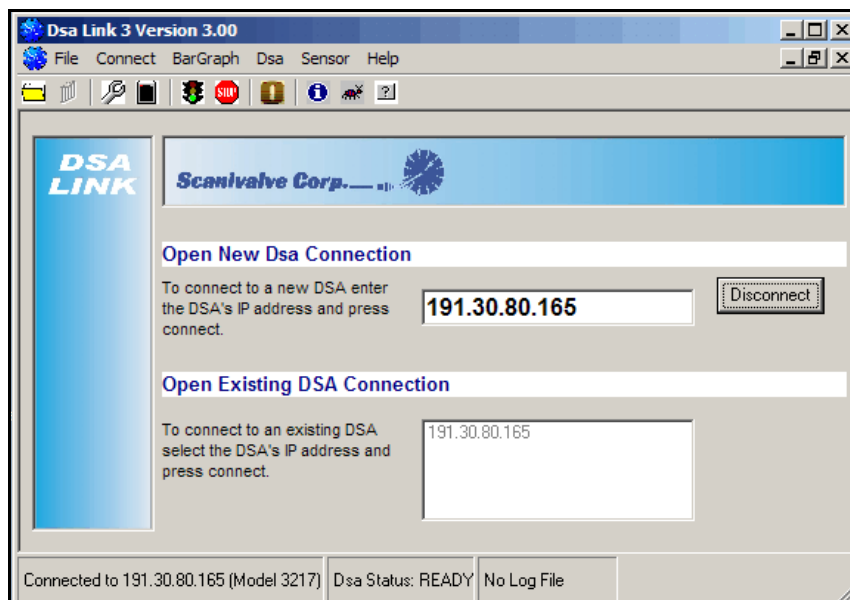
Re-connect to the module. The DSALink3 software will set HOST and BIN for TCP/IP and ASCII data output. If these variables had previously been set for High Speed Data Acquisition, a warning window will be displayed.



Click OK to start the modification, a reboot progress window will open.

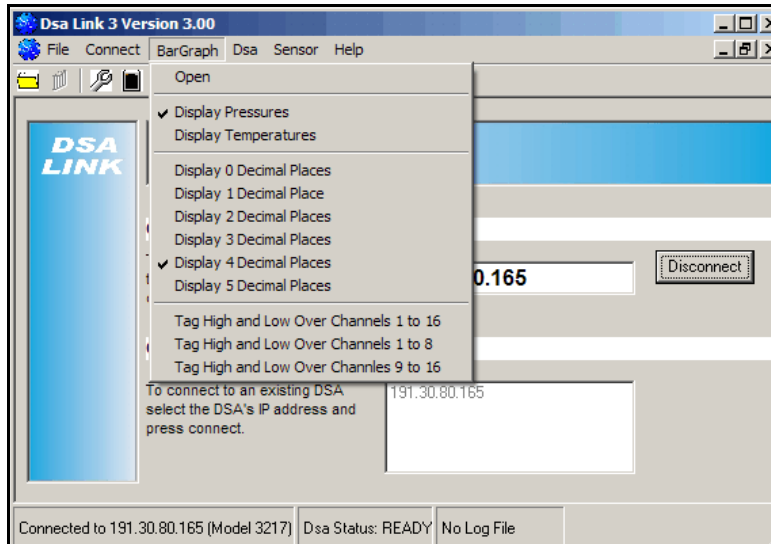


When the reboot process is complete, connect to the module





Click on the BarGraph menu option to display the BarGraph options.



#### Open

Opens the BarGraph Window

#### Display Pressures

When checked, the bargraph will display the sensor pressures in A/D counts or Engineering Units specified in UNITSCAN. The setting of the variable EU will determine what is displayed

#### Display Temperatures

When checked, the bargraph will display the sensor temperatures in A/D counts or Engineering Units depending on the setting of the variable EU.

#### Display 0 Decimal Places

#### Display 1 Decimal Places

#### Display 2 Decimal Places

#### Display 3 Decimal Places

#### Display 4 Decimal Places

#### Display 5 Decimal Places

These options set the number of decimal places to be displayed when scanning in Engineering Units.

#### Tag High and Low Over Channels 1 to 16

This selection will highlight the highest and lowest values for all sixteen channels.

#### Tag High and Low Over Channels 1 to 8.

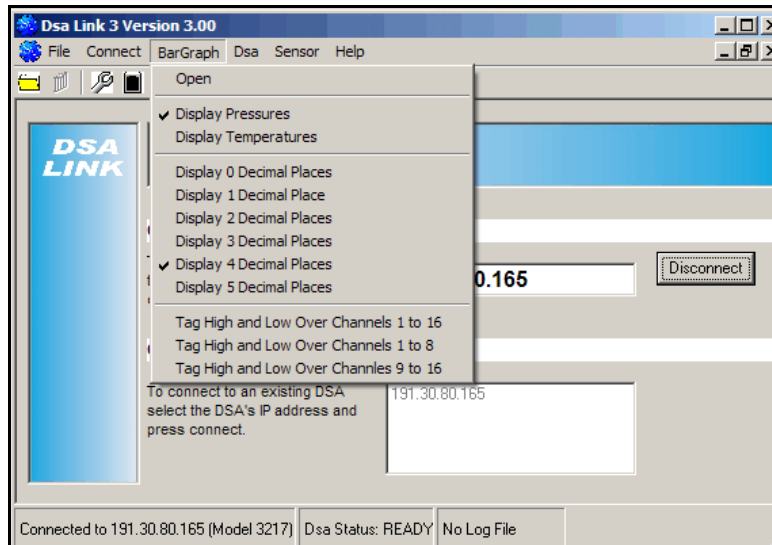
This selection will highlight the highest and lowest values for channels 1 to 8.

#### Tag High and Low Over Channels 9 to 16

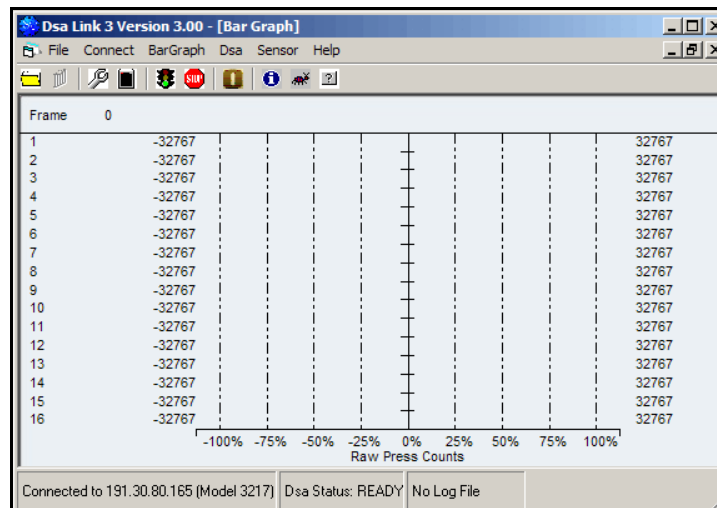
This selection will highlight the highest and lowest values for channels 9 to 16.

## DSALink3 Operation - BarGraph Display

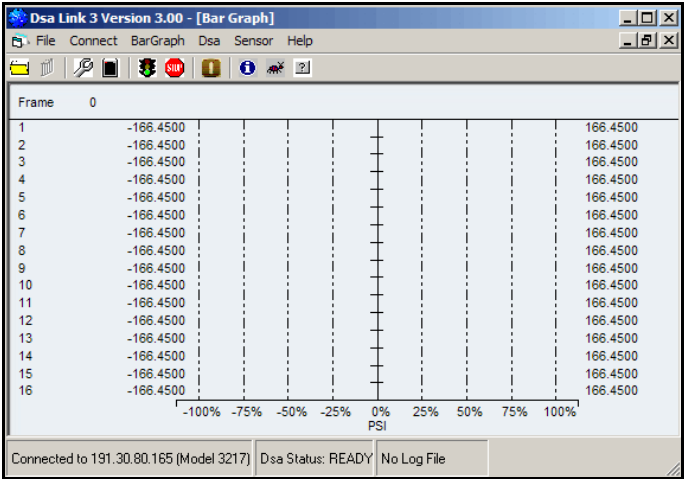
To open the BarGraph, Click on Open on the Bargraph menu



The figure below contains an example of the BarGraph display set to show the sensor outputs in Raw A/D counts. To start a scan, click on the Green Traffic Light. To stop a Scan, click on the Stop sign.



The figure below contains an example of the BarGraph display set to show the sensor outputs in Engineering Units. To start a scan, click on the Green Traffic Light. To stop a Scan, click on the Stop sign.

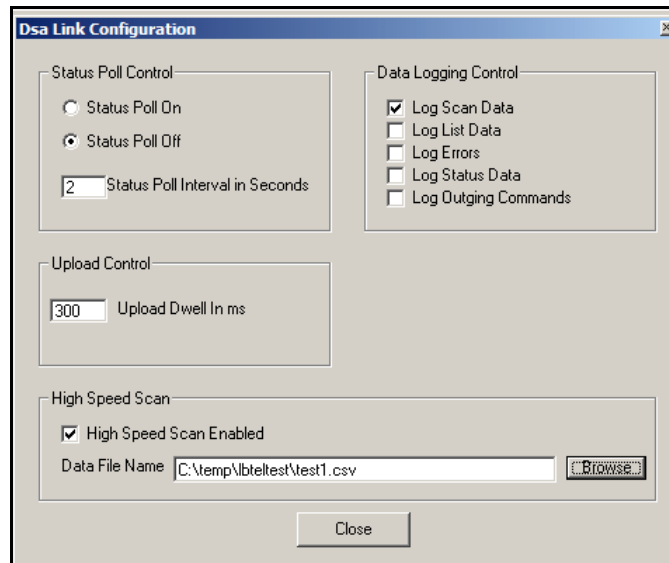


## DSALink3 Operation - High Speed Data Acquisition

DSALink3 is capable of very high speed data acquisition. Typical rates may equal or exceed 500 samples per channel per second. Data are acquired in a UDP and Binary format. DSALink3 must be configured for High Speed Data Acquisition before connecting to a module.

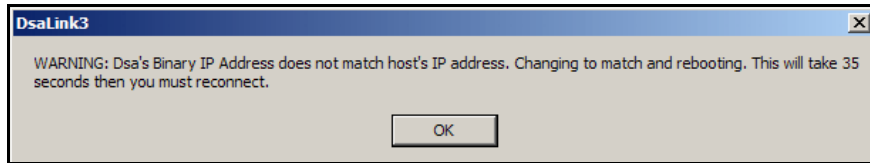


Open the DSALink Settings Screen by selecting File and DSA Link Settings.

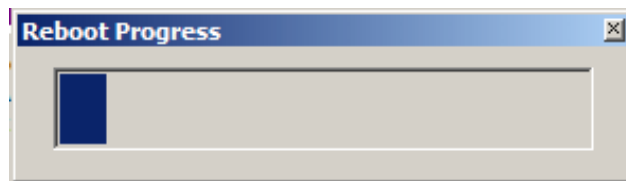


Click on the check box to enable the High Speed Data Acquisition. Enter the path and file name where the data are to be stored.

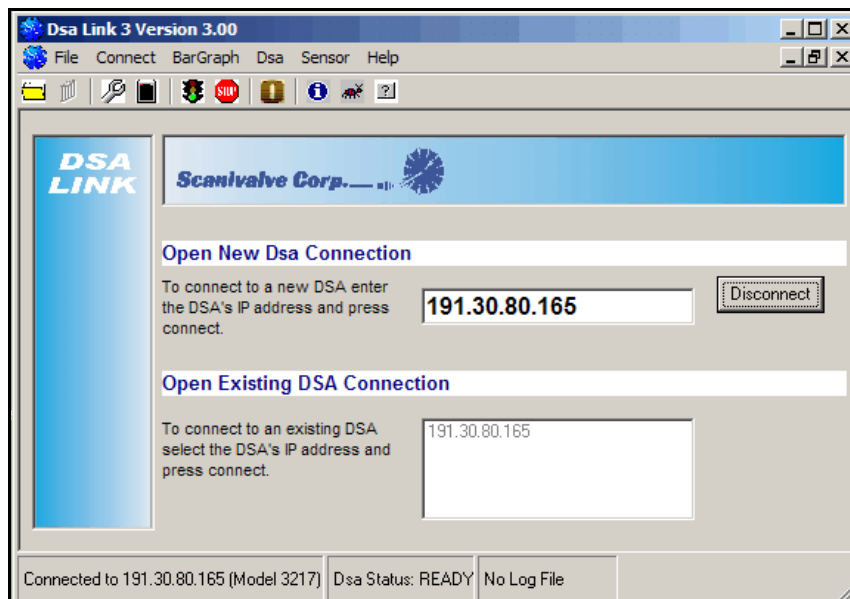
Re-connect to the module. The DSALink3 software will set HOST and BIN for UDP and Binary data output. The HOST variable will be set to the IP address of the current Host computer. If these variables had previously been set for Low Speed Data Acquisition, or if the current Host address is different from the address saved in the HOST variable, a warning window will be displayed.



Click OK to start the modification, a reboot progress window will open.

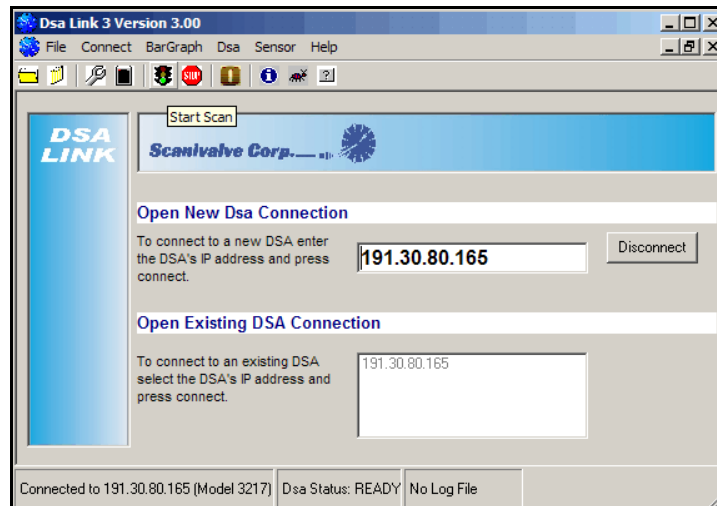


When the reboot process is complete, connect to the module

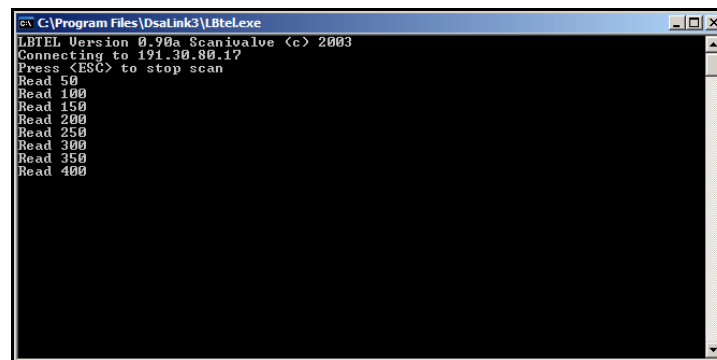


When the DSA module is set for High Speed Data Acquisition, FPS must be set to a number other than zero. The maximum number depends on the available RAM in the Host computer. When the Scan function is started, a program named LBTEL is opened. Data are acquired and stored in a file. When the data collection is complete, the data in the file are converted to ASCII and stored in a comma separated file (.csv) compatible with most spreadsheet programs.

To start the High Speed Data Acquisition, click on the Start Scan Button.



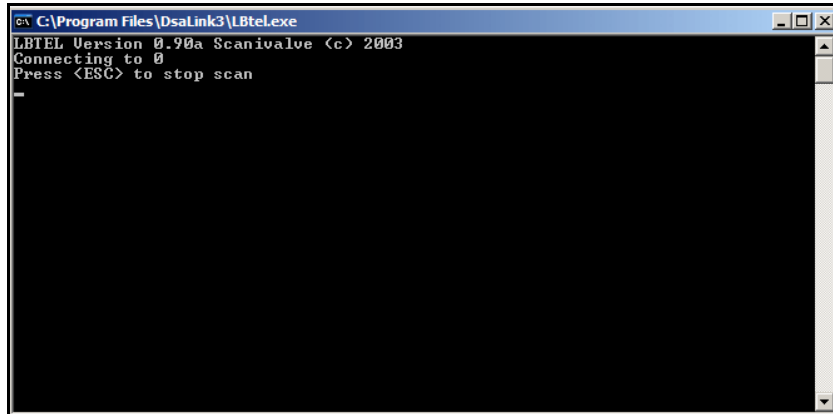
The LBTEL window will open.



The address of the Host computer will be displayed, as well as an indication of the data acquisition progress. The program will display the number of frames read in increments equal to 10% of the setting of FPS. For example, if FPS is set to 500, the program will display the progress in 50 frame increments.

## High Speed Acquisition Errors

If the Host variable has been saved with an IP address other than the current address of the Host computer, the High Speed Data Acquisition may not function correctly. In this case, the LBTEL window will display the Host computer IP address as 0. The program will “hang” The LBTEL window will appear as follows:



To correct this problem:

1. Press ESC key to quit the LBTEL program.
2. Save the current configuration  
Type: SAVE
3. Disconnect from the module
4. Quit the DSALink3 program
5. Cycle power on the DSA Module
6. Restart the DSALink3 program
7. Re-connect to the module.

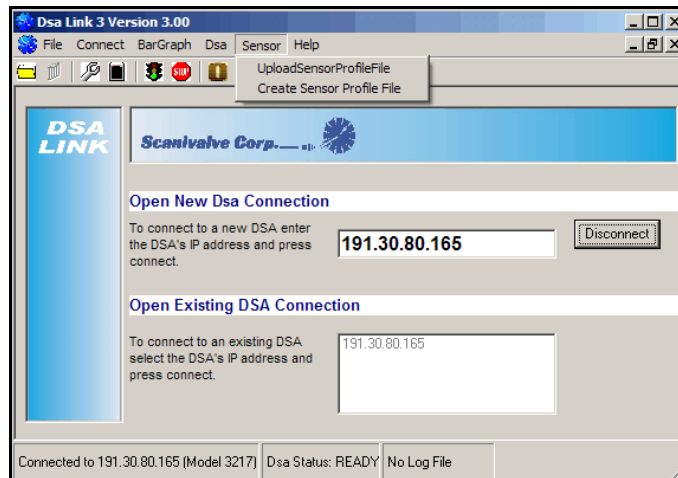
The High Speed Data Acquisition function will now operate correctly.

## DSALink3 Operation - Sensor

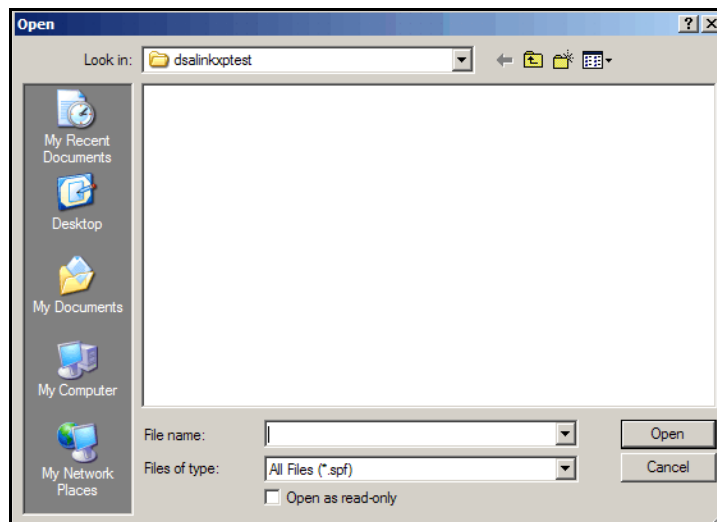
The sensor menu allows the user to create or upload sensor profile files. Sensor profile files are generated when individual sensors are calibrated. When a replacement sensor is purchased, a sensor profile file is included with the sensor. This file must be uploaded to the module. It is critical that a user carefully follow this procedure for upload. If all of the steps are not followed, the sensor coefficients could be corrupted.

### Upload Sensor Profile File

1. Replace the sensor and insure operation by reading the output of the new sensor in raw counts
2. Select: Sensor  
Select: Upload Sensor Profile File

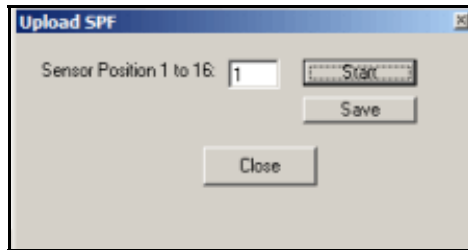


3. A window will open that will ask for the location and file name of the Sensor Profile File. The file must have the extension **.spf**.





4. Enter the location and name of the file and click Open.
5. The progress window will open. Enter the channel number where the replacement sensor is installed and Click Start.



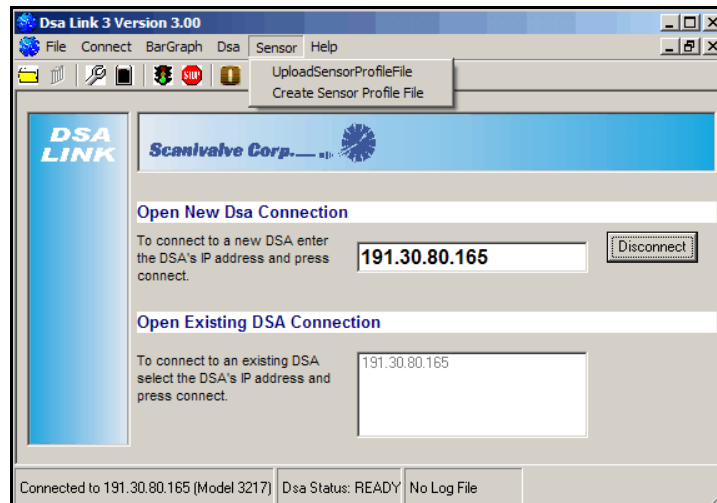
6. The software will delete the old coefficients, upload the new file, and execute a FILL command. This information will be displayed in the window. When the process is complete, the user will be prompted to save the new coefficients. Click SAVE To complete the process.
7. If another channel will be modified, the Upload process must be re-started.
8. Click: Close to end the process

## Create Sensor Profile File

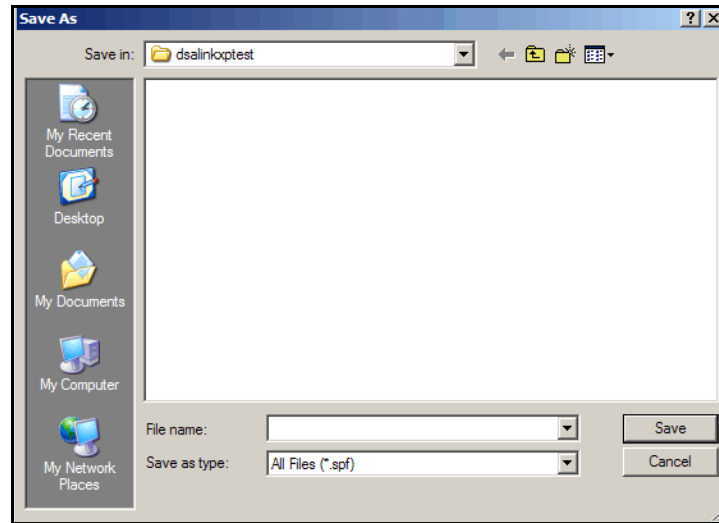
A user can also use this software to create a Sensor Profile File. This would be useful if a user needs to move a sensor from one module into another.

Select: Sensor

Select: Create Sensor Profile File

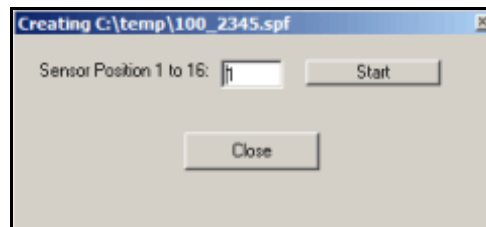


A window will open that will request the destination and name of the file to be created.



The destination may be any valid drive. The file extension must be **.spf**. Click Save to continue the process.

The SPF creating window will open. Enter the location of the sensor to be used to create the file. Click Start to initiate the process.



The software will extract the master coefficient points to the specified file. When the process is complete the phrase "Done creating file" will appear in the box.

Click Close to complete the process.

## **.DSALink3 Operation - Program Shutdown**

To exit the program:

Stop the Scan Function

Select: **DSA**

Select: **Stop(or All Stop)**

Close all file operations

Select: **File**

Select: **Close DSA Log File**

Close the Network Connection

Select: **Network**

Select: **Close**

Exit the Program

Select: **File**

Select: **Exit**

If you have any problems with these procedures or the operation of the DSALink3 Software, please contact:

Scanivalve Corp, Product Support Department

Tel: (800) 935 -5151

(509) 891 -9970

Fax: (509) 891- 9481

E-Mail: [scanco@scanivalve.com](mailto:scanco@scanivalve.com)

## **APPENDIX A - Change List**

This section contains change information to assist a user in determining the differences between different versions of software.

Version 3.00 - March 25, 2005

First release.

Version 3.01 - July 29, 2005

Corrected a bug in the Sensor upload routine when uploading new sensor coefficients to a DSA3007 or DSA3207.

Version 3.02 - September 2005

Added a High Speed Data Acquisition function to the program.

Version 3.03 - December 2005

Corrected a bug in the bargraph display when the module type is a DSA3207.