

## 100 PSI Pressure Sensor



- ✓ Measure pressure from 0 to 100 PSI
- ✓ Made with 316 stainless steel and high temperature auto-graded plastic
- ✓ 0.5V – 4.5V linear voltage output
- ✓ Works for oil, fuel, water or air pressure
- ✓ Mating connector and wire harness (pigtail) included
- ✓ Compatible with many Dataq Instruments hardware products including DI-2108-P, DI-4108, DI-4208, and DI-4718B (with appropriate 8B module) models

## 100 PSI Pressure Sensor Description

### Overview

The Autex 100 PSI pressure sensor (Dataq part number 2000361) allows Dataq Instruments data acquisition and data logger units to acquire oil, fuel, air, or water pressure (PSI) information. The combination of these two products provides a compact solution, with transducer excitation provided by the data logger. The logger itself allows data to be communicated to a connected PC over either a USB or Ethernet interface. Optionally, many data loggers can store data to a removable USB thumb drive to satisfy stand-alone applications. Even with a connected pressure sensor, the data logger channel capacity allows additional channels of information to be acquired and correlated with pressure information to satisfy nearly any level of measurement expansion.

## 100 PSI Pressure Sensor Features

### Rugged Construction

Made with 316 stainless steel and high temperature plastic, the Autex 100 PSI pressure sensor is extremely rugged making it perfect for automotive applications or anywhere high temperature is a concern.

### Easy Installation

A water-sealed quick disconnect with mating connector and wire harness is included for easy installation.

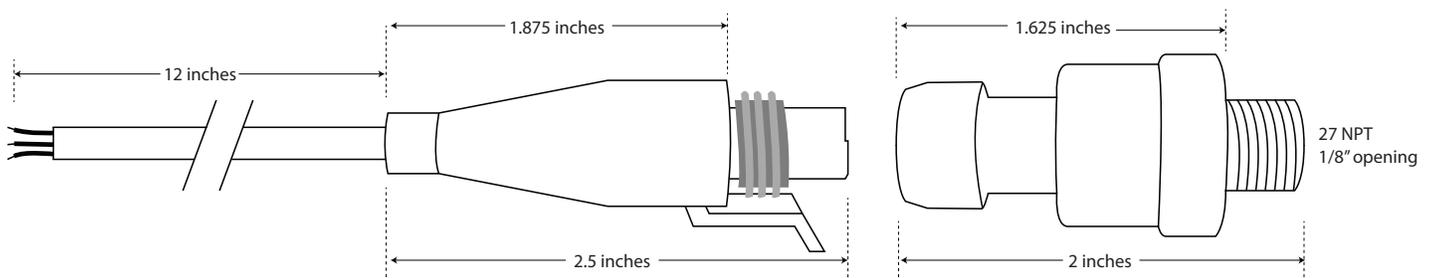
### Low Power Consumption

Easily power the Autex 100 PSI pressure sensor with the +5V or +15V pin available on most Dataq Instruments data loggers.

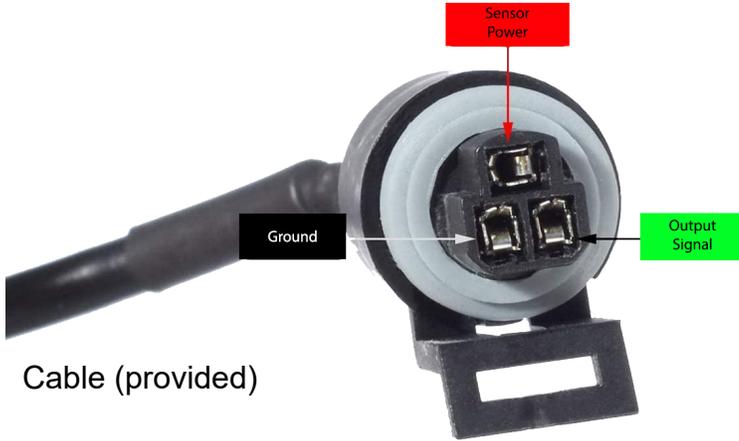
### Compatibility

Use the Autex 100 PSI pressure sensor with almost any Dataq data logger or data acquisition system including, but not limited to the DI-1100 (requires excitation power), DI-2108, DI-2108-P, DI-4108, DI-4208, DI-808, DI-4718B (send email to [sales@dataq.com](mailto:sales@dataq.com) for compatibility questions).

## 100 PSI Pressure Sensor Dimensional Drawing



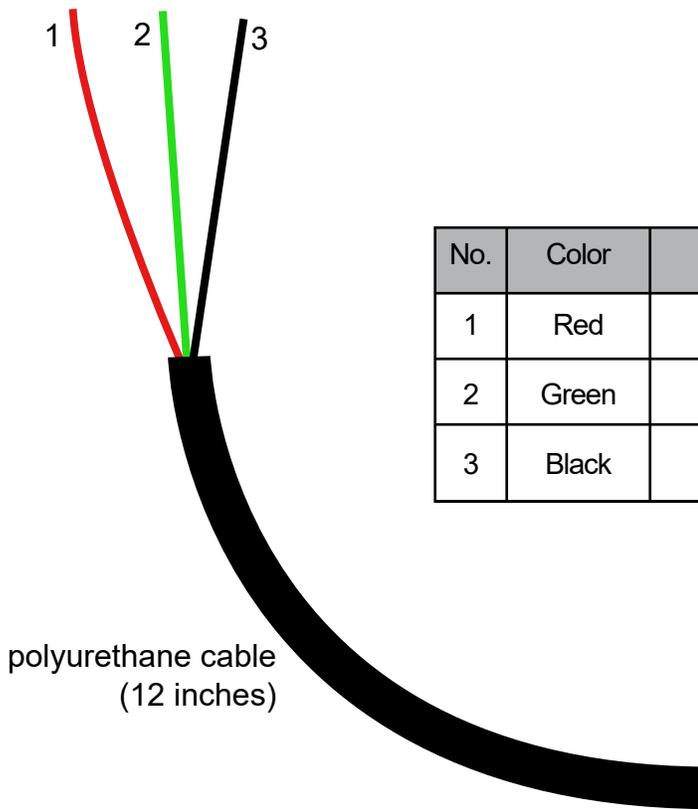
# 100 PSI Pressure Sensor Wiring Code



Cable (provided)



Pins (at end of probe)

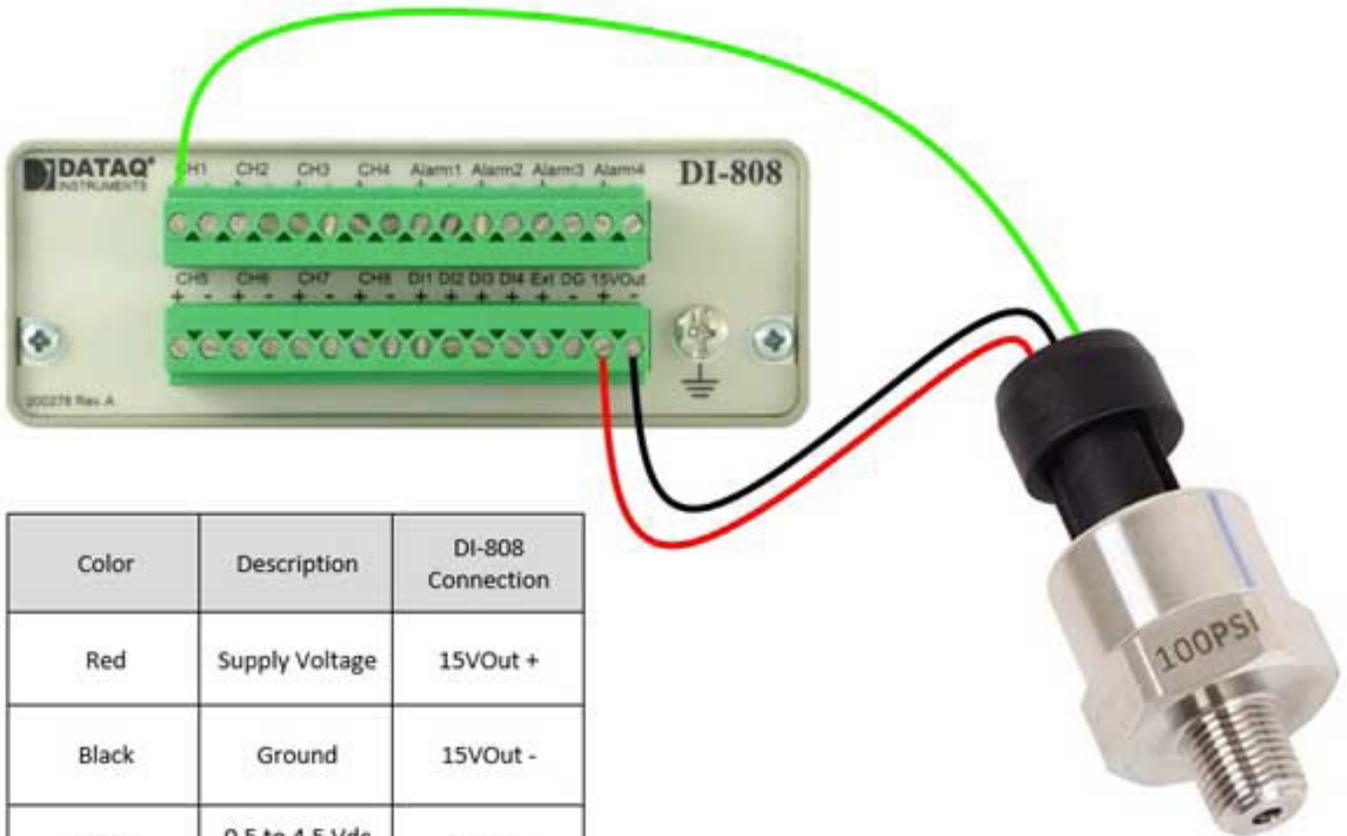


polyurethane cable  
(12 inches)

No.	Color	Description	Connection
1	Red	+5V Sensor Power	+5V
2	Green	Output Signal	Channel # +
3	Black	Ground	GnD

## Connecting the Pressure Sensor to your DI-808 Data Logger

Connect the Red wire to the positive (+) terminal of the 15V supply, and the Black wire to the negative (-) terminal. Connect the Green wire to positive (+) terminal of any of the analog inputs (CH1 in this case) to measure Pressure.



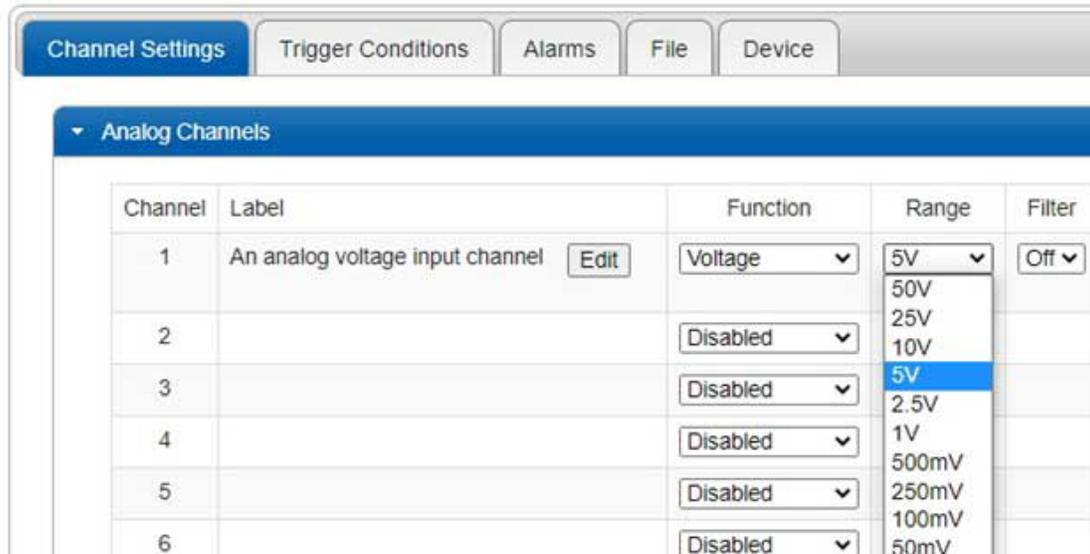
Color	Description	DI-808 Connection
Red	Supply Voltage	15VOut +
Black	Ground	15VOut -
Green	0.5 to 4.5 Vdc Output	CH1 +

## Configuring DI-808s on-board web server for use with your Pressure Sensor

Follow these steps to change the settings in the DI-808s on-board web server to get the best pressure readings from your pressure sensor.

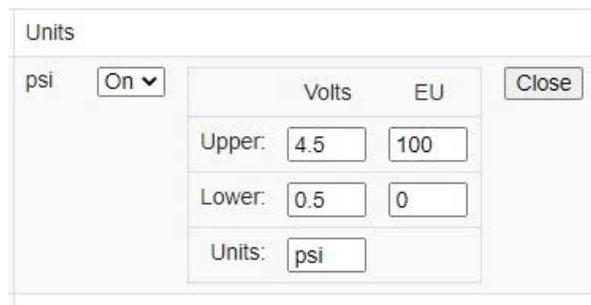
### 1. Choose a Function

In the Channel Settings tab, choose Analog Channels, select Voltage from the Function pull-down menu, and a range of 5V (as shown below).



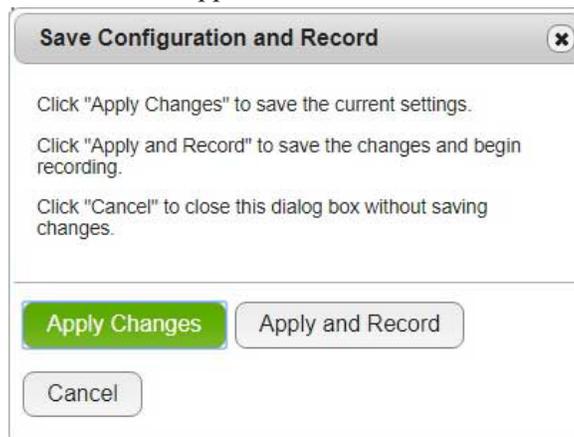
### 2. Change Engineering Units

In the Units column, turn on units. Next, enter 4.5 for Upper > Volts and 100 for Upper > EU. Enter 0.5 for Lower > Volts and 0 (zero) for Lower > EU. Enter psi for Units. Use the image below for reference.



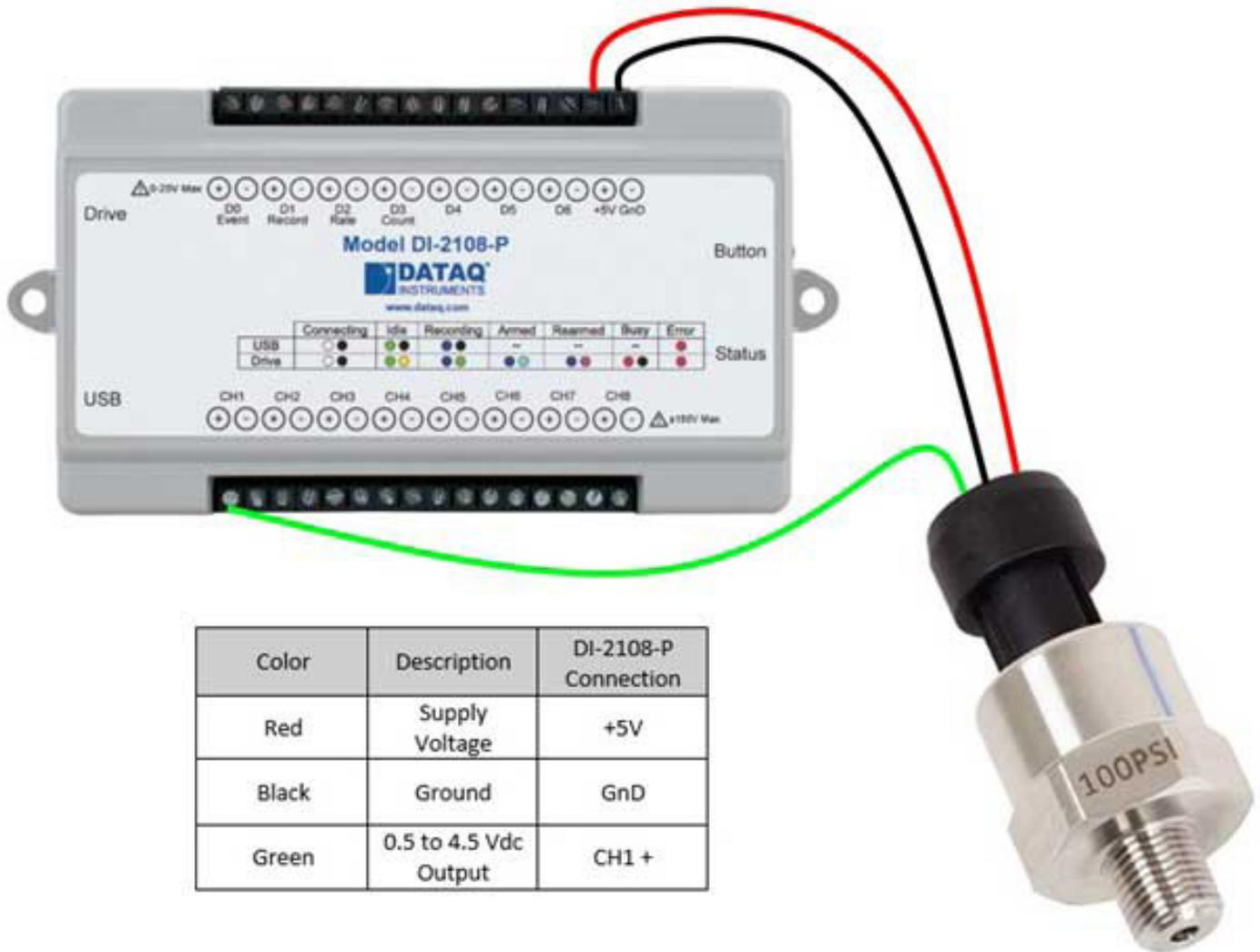
### 3. Apply Settings

Click the Apply Changes and Record button in the upper left-hand corner of the browser window to apply the changes.



## Connecting the 100 PSI Pressure Sensor to your DI-2108-P Data Logger

With a unipolar measurement range of 0-5V, the DI-2108-P is uniquely suited for this measurement; spreading the 16-bit ADC resolution over a more narrow range (0-5V as opposed to  $\pm 5V$ ). To connect the Autex 100 PSI Pressure Sensor to your DI-2108-P, begin by connecting the Red wire to the positive (+) terminal of the 5V supply, and the Black wire to the negative (-) terminal (as shown below). Next, connect the Green wire to the positive (+) terminal of any of the analog channels (CH1 in this case).

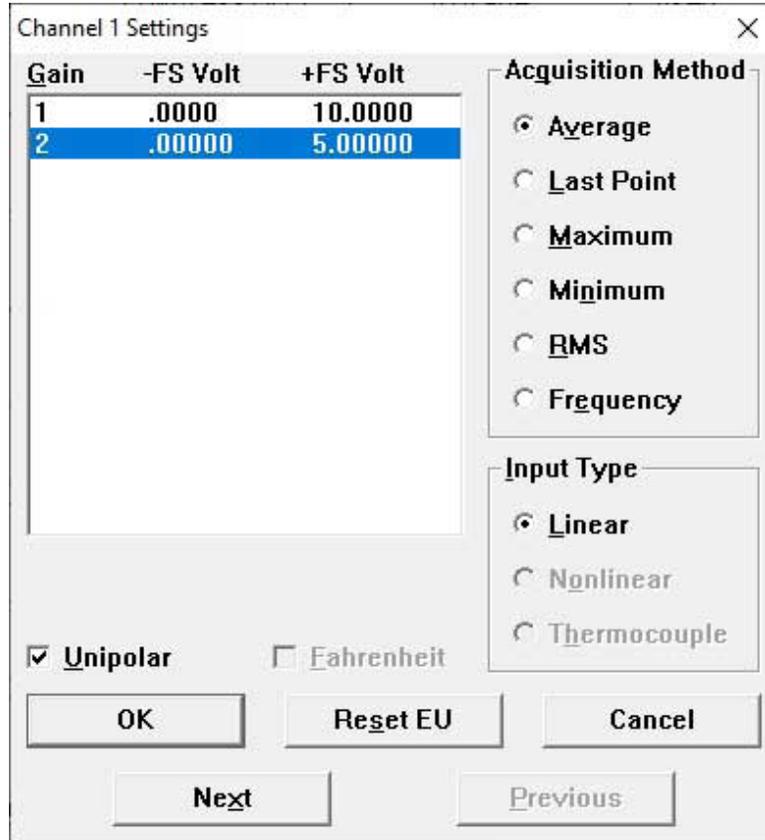


## Configuring WinDaq for use with your 100 PSI Pressure Sensor

Follow these steps to change the settings in WinDaq Acquisition software to get the best readings from your Autex pressure sensor.

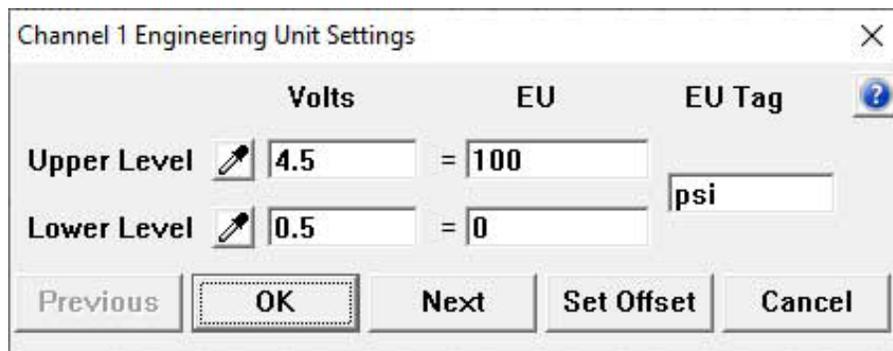
### 1. Change Gain

With channel 1 enabled, press F10 or select the menu item Edit > Channel Settings. Click 'Unipolar' checkbox and select the Gain Setting that corresponds to the 0-5V measurement range (shown below). Click the OK button to save the setting to that channel.



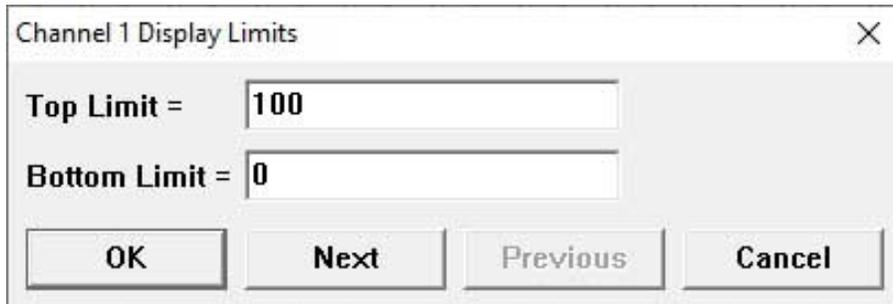
### 2. Change Engineering Units

Use Engineering Unit Settings to calibrate your channel. Press Ctrl+F8 or select the menu item Edit > Engineering Unit Settings. Enter 4.5 for Upper Level > Volts and 100 for Upper Level > EU. Next, enter 0.5 for Lower Level > Volts and 0 (zero) for Lower Level > EU. Enter psi for EU Tag. Click the OK button to save the settings. Use the image below for reference.

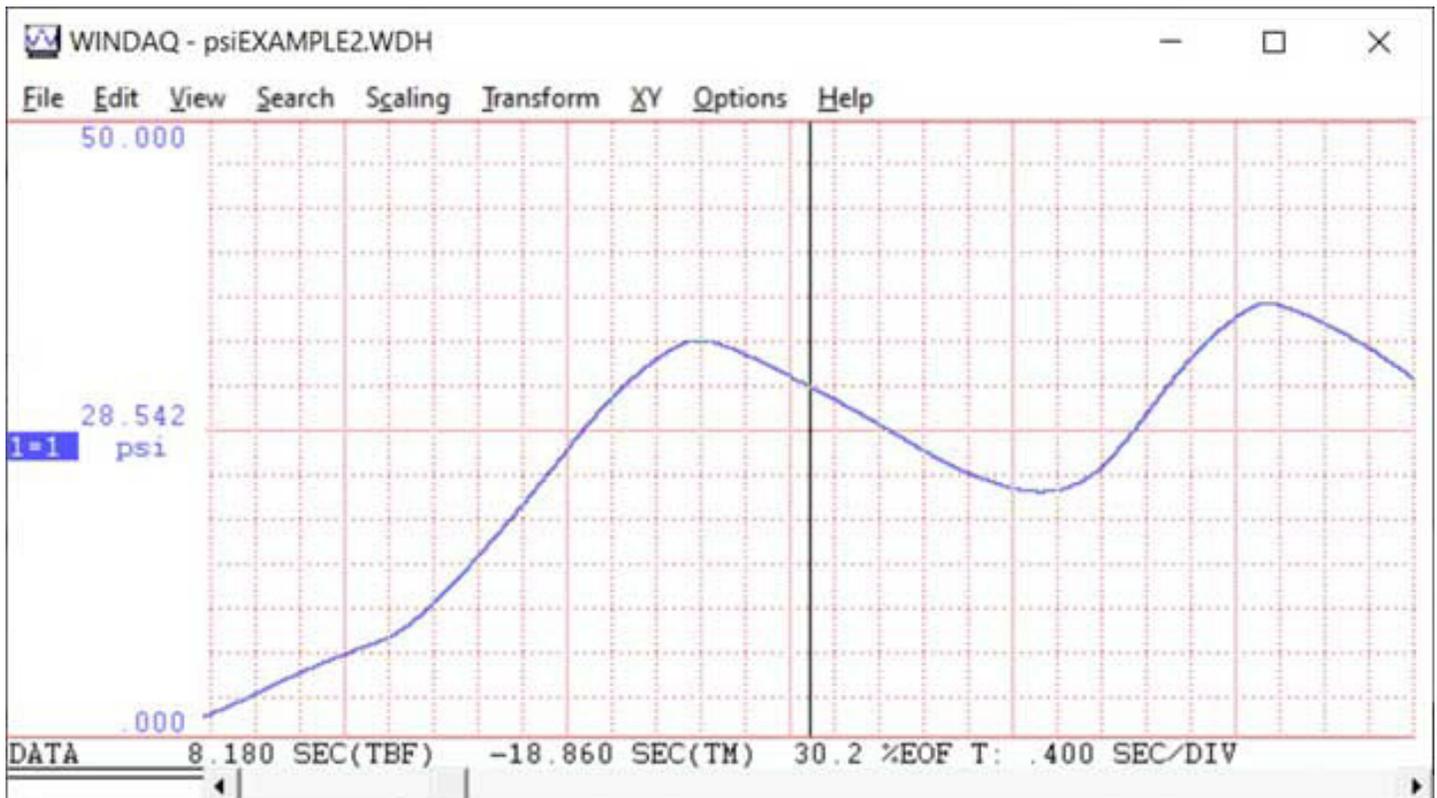


## 3. Set Display Limits

Zoom in on your data by setting the display limits. Select the channel then press ALT + F9 or select the menu item Scaling > Limits. Enter a Top Limit and a Bottom Limit to display based on the readings you think you will get. If you do not know what your readings will be you can always enter the maximum readings of the Pressure sensor (for pressure the top limit is 100 and the bottom limit is 0 - as shown below).



With the Pressure Sensor connected to the data logger, and WinDaq configured to display pressure in psi, you're ready to acquire data.

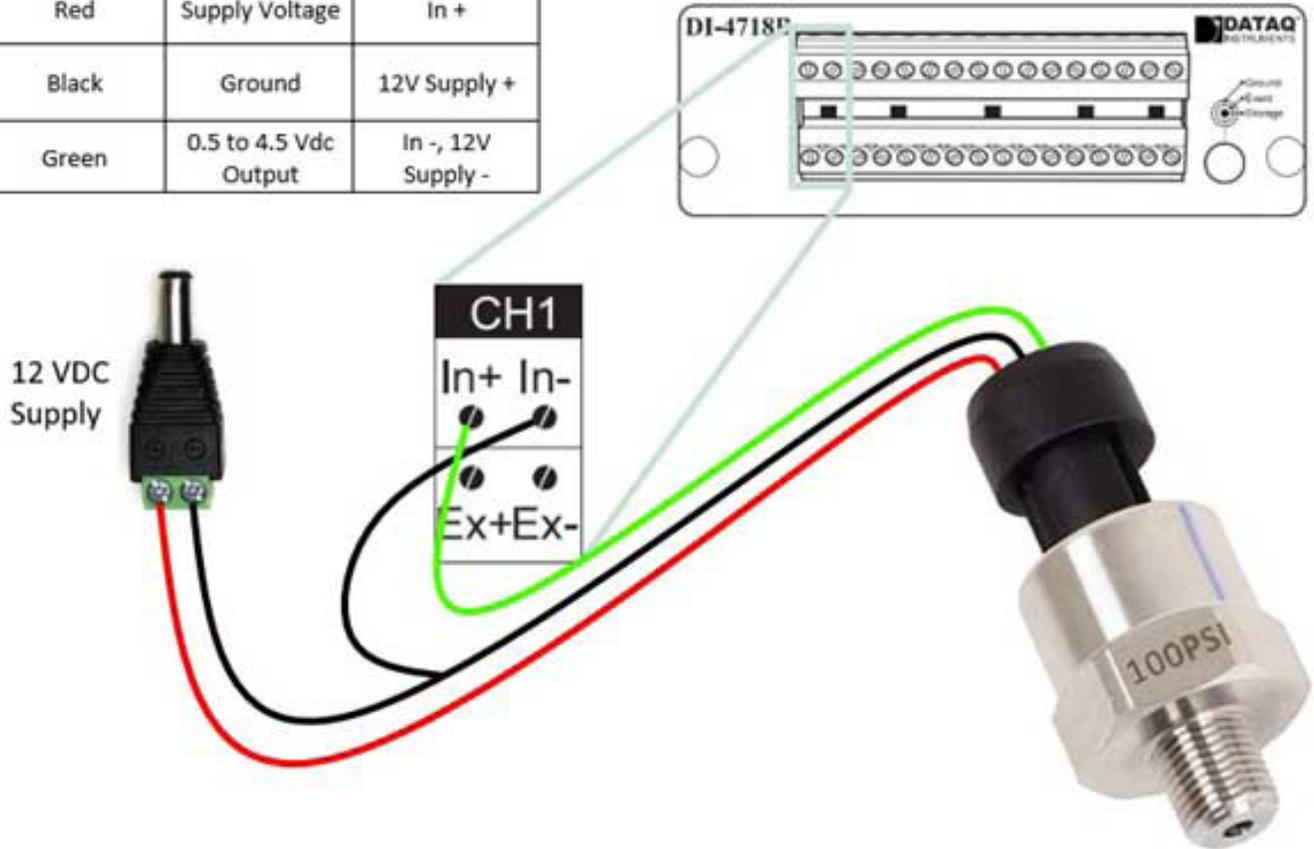


Note that connection and configuration for the Pressure Sensor is the similar for all contemporary DATAQ data loggers, including but not limited to the DI-2108, DI-2008 and DI-4108/4208.

## Connecting the Pressure Sensor to your DI-4718B Using a DI-8B41-02 Amplifier

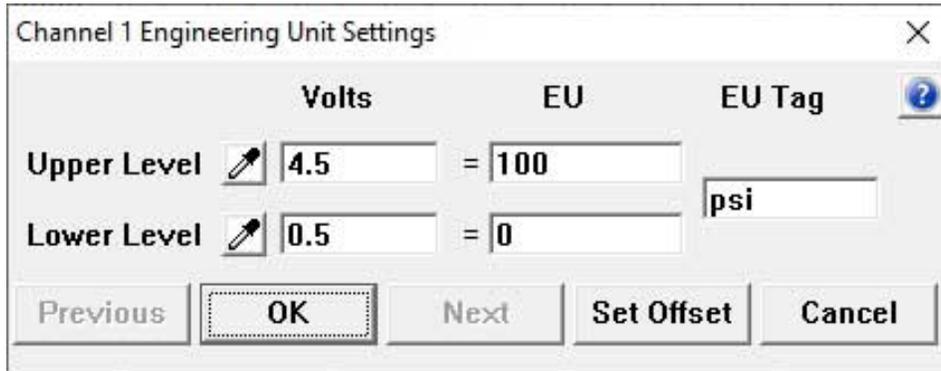
You can use a DI-4718B along with a -5V to +5V DI-8B41-02 amplifier and an AC/DC adaptor (part #101087) to acquire pressure from the Autex 100 PSI sensor. With a DI-8B41-02 amplifier plugged into channel one of the DI-4718B, connect the Green wire to the In+ terminal, the Red wire to the positive (+) terminal of the 12 VDC supply and the black wire to both the In- terminal on the DI-4718B and the negative (-) terminal of the 12 VDC supply (as shown below).

Color	Description	DI-4718B Connection
Red	Supply Voltage	In +
Black	Ground	12V Supply + In -
Green	0.5 to 4.5 Vdc Output	In -, 12V Supply -



## 1. Change Engineering Units

Since the DI-8B42-01 amplifier outputs +5V with +5V applied to the input, and our 100 psi flow sensor has a voltage output of 0.5 to 4.5Vdc, press Ctrl+F8 or select the menu item Edit > Engineering Unit Settings. Enter 4.5 for Upper Level > Volts and 100 for Upper Level > EU. Enter 0.5 for Low Level > Volts and 0 (zero) for Low Level > EU, and change the EU Tag to psi. Click the OK button to save the settings. Use the image below for reference.

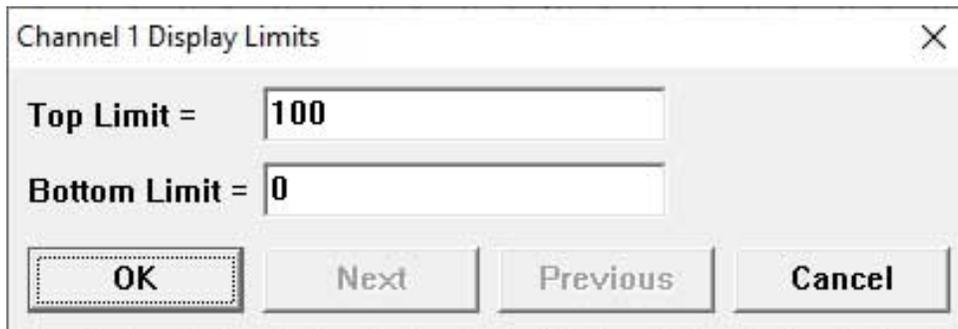


The screenshot shows the 'Channel 1 Engineering Unit Settings' dialog box. It has a title bar with a close button (X) and a help button (?). The dialog is organized into a table with three columns: 'Volts', 'EU', and 'EU Tag'. There are two rows: 'Upper Level' and 'Lower Level'. Each row has a pencil icon to the left of the input fields. The 'Upper Level' row has '4.5' in the 'Volts' column, '=' in the middle, and '100' in the 'EU' column. The 'Lower Level' row has '0.5' in the 'Volts' column, '=' in the middle, and '0' in the 'EU' column. The 'EU Tag' column has a text box containing 'psi'. At the bottom of the dialog are five buttons: 'Previous', 'OK', 'Next', 'Set Offset', and 'Cancel'. The 'OK' button is highlighted with a dotted border.

	Volts		EU	EU Tag
Upper Level	4.5	=	100	psi
Lower Level	0.5	=	0	

## 2. Set Display Limits

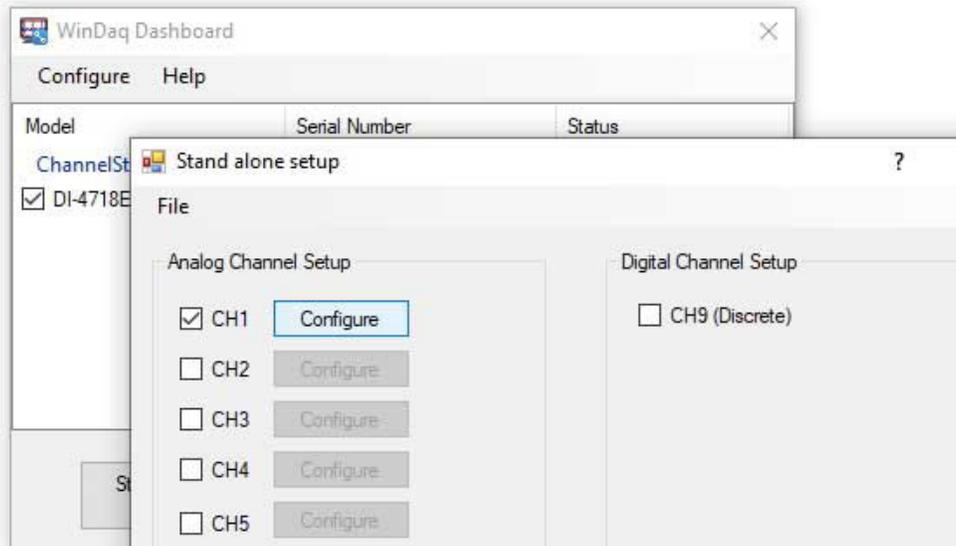
To zoom in on your data, set the display limits. Select the channel then press ALT + F9 or select the menu item Scaling > Limits. Enter a Top Limit and a Bottom Limit to display based on the readings you think you will get. If you do not know what your readings will be you can always enter the maximum readings of the Flow sensor (for pressure the top limit is 100 and the bottom limit is 0 - as shown below).



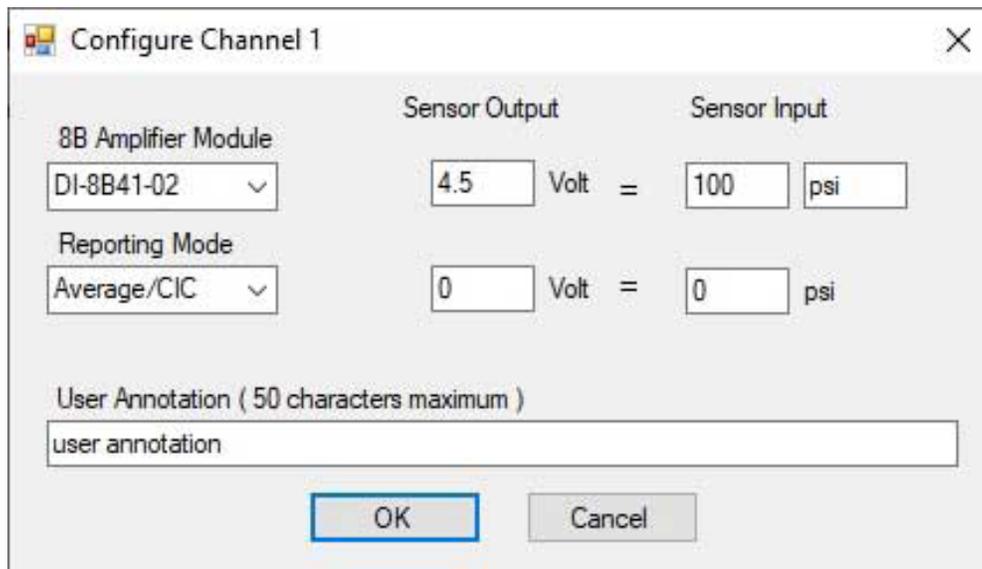
The screenshot shows the 'Channel 1 Display Limits' dialog box. It has a title bar with a close button (X). The dialog contains two input fields: 'Top Limit =' with the value '100' and 'Bottom Limit =' with the value '0'. At the bottom of the dialog are four buttons: 'OK', 'Next', 'Previous', and 'Cancel'. The 'OK' button is highlighted with a dotted border.

## Configuring Stand-alone Mode for use with your Pressure Sensor and a DI-4718B

Run the WinDaq Dashboard and select 'Stand Alone Setup' from the 'Configure' pull-down menu.

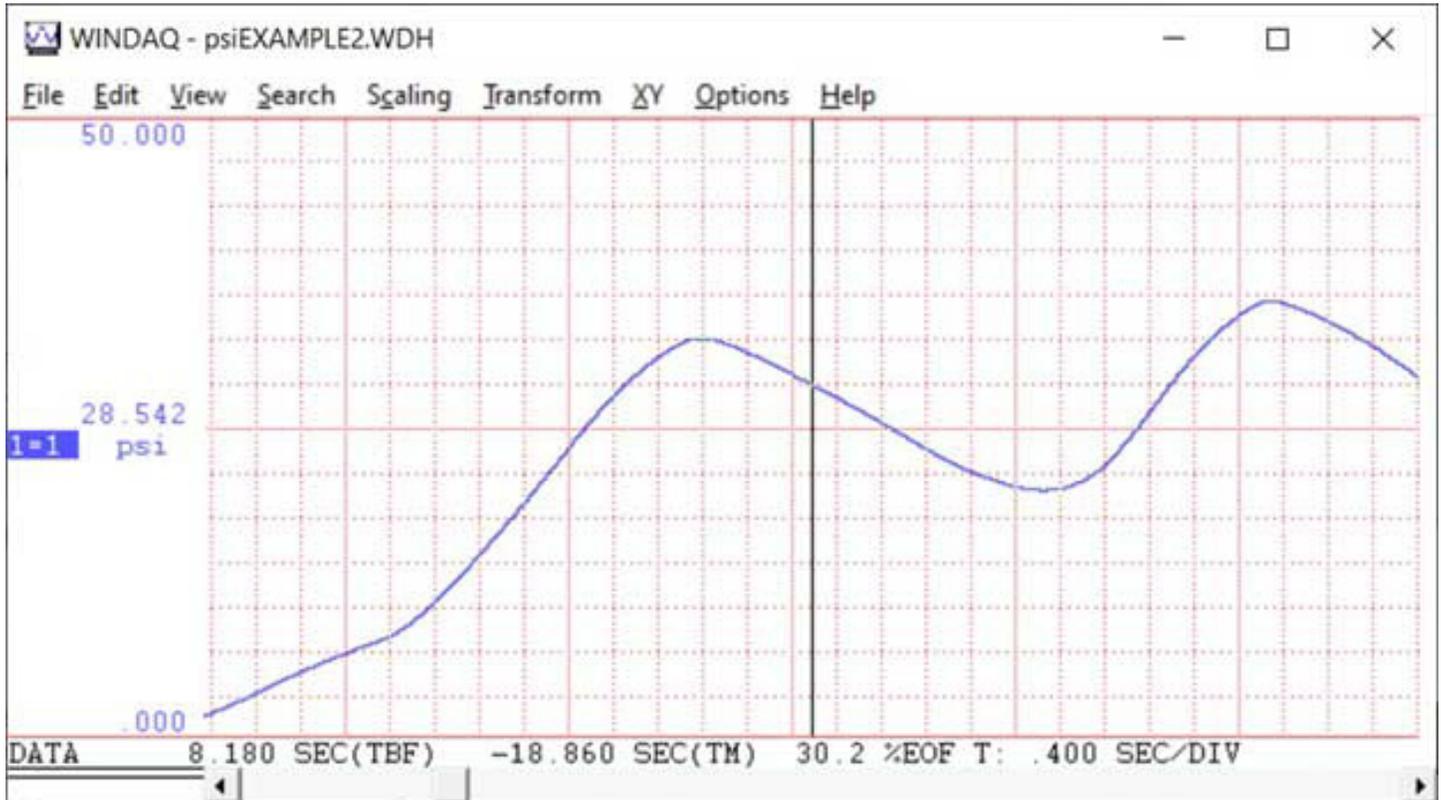


In the Configure window, enter 4.5 and 0 for Sensor Output, and 100 and 0 for Sensor Input (as shown below). Change engineering units to 'psi'.



## Configuring Stand-alone Mode for use with your Pressure Sensor and a DI-4718B

Here we see a Pressure waveform (in psi) recorded to the USB flash drive in stand-alone mode.



## Specifications (sensor only)

<b>Measurement Range:</b>	0 to 100 PSI	<b>Temperature Effect on Sensitivity:</b>	Typical: $\pm 0.02\%$ FS/°C Maximum: $\pm 0.05\%$ FS/°C
<b>Material:</b>	316 stainless steel and high temperature auto-graded plastic	<b>Shock Resistance:</b>	100g
<b>Output:</b>	0.5V – 4.5V linear voltage output 0 psi outputs 0.5V 50 psi outputs 2.5V 100 psi outputs 4.5V	<b>Anti-Shock:</b>	$\leq \pm 0.01\%$ FS(X,Y,Z axes, 200Hz/g)
		<b>Response Time:</b>	$\leq 1$ ms
		<b>Insulation Resistance:</b>	$> 100$ m $\Omega$ 500VDC
<b>Working Temperature:</b>	-40 to +125°C	<b>Explosion-proof Class:</b>	ExiaTTCT6
<b>Accuracy:</b>	$\pm 1\%$ FS	<b>Electromagnetism Compatibility:</b>	EN50081-1 EN50082-2 IEC61000-4-3
<b>Thread:</b>	1/8"-27 NPT		
<b>Overload Capacity:</b>	2 times	<b>Wiring connector:</b>	Water sealed quick-disconnect. Mating connector and wire harness (pigtail) included.
<b>Pressure Medium:</b>	Any gas or liquid compatible with 316L stainless steel		
<b>Load Resistance:</b>	$\leq (\text{supply power} - 6.5\text{V} / 0.02\text{A})\Omega$	<b>Wiring:</b>	Red for IN+ Black for GND Green for OUT
<b>Long-term stability:</b>	$\pm 0.2\%$ FS/year		
<b>Temperature Effect on Zero:</b>	Typical: $\pm 0.02\%$ FS/°C Maximum: $\pm 0.05\%$ FS/°C	<b>Warranty:</b>	1 year

## Ordering Guide

Description	Order Number
Autex stainless steel 0-100 PSI Pressure Sensor with 0-5V to 4.5V linear voltage output. Includes mating connector and wiring harness.	2000362



DATAQ Instruments, Inc.  
241 Springside Drive  
Akron, Ohio 44333  
Phone: 330-668-1444  
Fax: 330-666-5434

### Data Acquisition Product Links

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