

## How to configure a Fluke data acquisition system for use with transducers

### Application Note

This application note explains how to configure one of the following Fluke data acquisition products when you want to use it with a transducer (for example, a pressure or humidity transducer):

- Hydra Series Portable Data Acquisition
- NetDAQ® Networked Unit
- 2680 Series Data Acquisition System

First you need to determine what will be coming in to the data logger's or data acquisition system's input connector from the transducer. Typical units are 0 to 10 V, 0 to 5 volts, 0 to 20 mA, or 4 to 20 mA. Your transducer specifications will tell you the unit's input and output.



Figure 1. Fluke Calibration current shunt set, part number 2620A-101.

### Physical connection

#### Voltage

Simply connect the high and low wires coming from the pressure transducer to the high and low terminals on the desired channel of the data logger's or data acquisition system's universal input connector.

#### Current

You will need a current shunt to convert the current coming in from the transducer to voltage. Fluke Calibration has a readily available set, part number 2620A-101. These shunts, shown below, have a 10  $\Omega$  rating and are designed to work within the input connector for any current source 0 to 100 mA. However, you can use any shunt of the correct value for your application.

Connect the shunt and then connect the wires into the same terminals, just right on top of the shunt as shown in Figure 2.

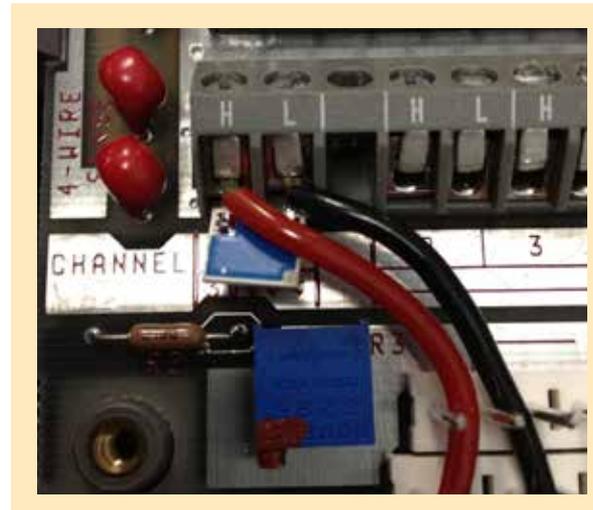
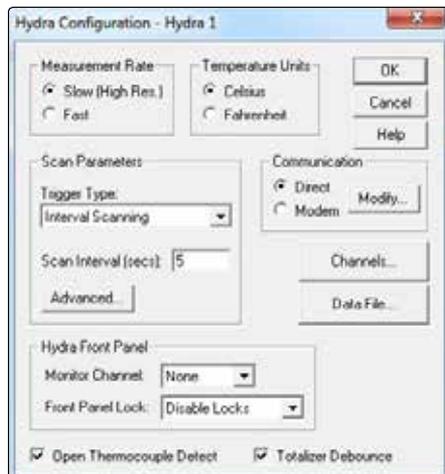


Figure 2: Setup for current, using a shunt.

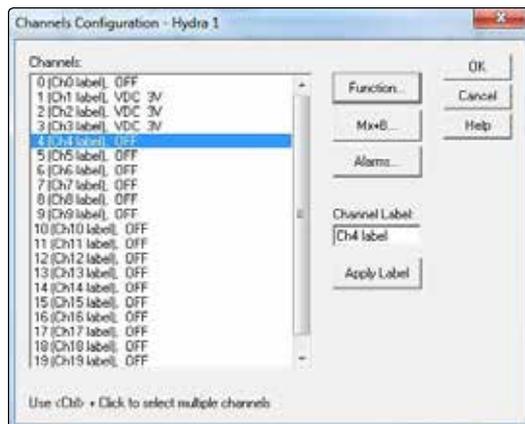
## Software configuration

Now you'll use the software to configure the channel.

Click the "Channels" button.



Highlight the channel you want to configure and then click "Function."



Select "VDC" and "auto" for the range, or the appropriate range for your instrument, and type in the Units in "PSI" or whatever units your transducer will display then click "OK".

Select the Mx+B button.  
Select "Calculate Mx+B from point values."



## Current values

If the value coming in to your data acquisition system is current, you are using a current shunt, and the data acquisition system is reading voltage (4 to 20 mA or other current input). Calculate the minimum and maximum values for the input range using Ohms law ( $E = I \times R$ ).

**Note:** The voltage value must comply with the limits of the data acquisition system—keep this in mind when choosing a current shunt.

**Example:** I have a 10 Ω resistor and my transducer is putting 4 to 20 mA into my data acquisition system.

$$0.004 \times 10 = 0.04 \text{ V}$$

And

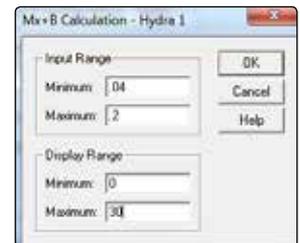
$$0.020 \times 10 = 0.2 \text{ V}$$

so now I will enter 0.04 V in the minimum Input Range field and 0.2 V into the maximum input field.

Then I will find the lower and upper display range of the transducer and input that into the Display Range fields.

So if my transducer will measure 0 to 30 psi, I enter 0 in the minimum field and 30 in the maximum field.

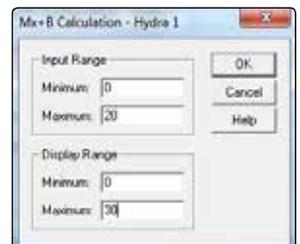
Click OK.



## Voltage values

If the value coming in to your data acquisition system is voltage (0 to 10 V, 0 to 5 V, etc.), you will configure your software channel like above, except you will simply enter the lower and upper input ranges and the Minimum and Maximum display ranges of the transducer. The data acquisition system is reading straight voltage so you will not have to do any manual calculations.

Click OK. Run a test.



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