HOW DO I PROGRAM THE DUALPRO ANALOG INPUTS?

Calculating the Scaling Factors

One of the features of the Dualpro is the ability to program a linear input such that it displays in the desired engineering units. This is accomplished by using the input offset, input span, and input decimal point parameters. The input offset is the value to be subtracted from the input to achieve a zero display and has a range of –999 to 999.

The range of the input span, when used in combination with the span's floating decimal feature, permits values whose accuracy ranges from +0.001 to +999. The input decimal point identifies where the decimal point should be placed on the display and has a value of 0 to3, where 0 represents no decimal planes (i.e.: +999) and 3 represents three decimal places (i.e.: +0.001). The following procedure should be followed to determine the proper values to enter into the input parameters

- Place the input selection into linear mode
- Select Page Display / Data / and display the desired input.
- Input the voltage representing the zero value of the process, either by adjusting the process to zero or by simulation. Adjusting the actual process is best. Note: the instrument will probably not be displaying zero.
- On a sheet of paper, record the reading as INZ.
- Input the voltage representing the full scaled valued of the process in a similar manner as above. Record this reading as INF.
- Determine how the process units are to be displayed and to what accuracy, ie: 0 to 50 lph (liters per hour) could be displayed as 0 to 50, 0 to 50.0 or 0 to 50.00. Remember that if the process does not have the accuracy to justify a high resolution it should not be used. Also remember that the instrument display only has 4 digits and if the value is negative, only 3 digits.
- From the display range, determine the full-scale counts (FSC), without the decimal point and the decimal point location (IDP). In the case of 0 to 50 lph, the FSC is 50 and the IDP is 0. In the case of 0 to 50.0 lph, the FSC is 500 and the IDP is 1
- Calculate the input span (ISP) as the full-scale counts divided by the difference in the instrument readings, ISP = FSC/(INF-INZ)).
- Input the data into the instrument.

Entering Scale Factors

Press the PAGE DISP key and select the INP (input). Press the ENTER key until the required input is displayed (IN A, IN B, or IN C).

Select CJCx NO where x is the input letter if the input is not a thermocouple requiring cold junction compensation.

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Enter the INZ value as the input offset number (IxOF). A positive number is subtracted from the input value. A negative number is added to the input value.

Enter the ISP value as the input span number (IxSP). When entering the ISP, the sign and decimal location for ISP are set when the left most digit is falshing. The DOWN ARROW key will toggle the sign of the number and the UP ARROW key will shift the decimal point to the left.

Set the input decimal point (IxDP) equal to IDP.

Change the input selection for the input from LIN to PROG (program). This will apply the scale factors that were entered for that input.

Vary the process over its range to test the accuracy of the scaled values. Minor adjustments may be needed to achieve the desired results.

Record all the values and control mode settings for future reference.