Application Note AN_Calibrate_4-20mA:

Single point calibration of 4-20mA inputs

1. Overview

4-20mA inputs usually require two point calibration to correct for both the 4mA level (ZERO) and the difference between 4mA and 20mA (SPAN).

4-20mA inputs that are spanned from zero may be single point calibrated starting at controller firmware version **T036** .

For example: A 4-20mA signal for conductivity, flow rate and steam demand is typically spanned from zero.
4-20mA may represent 0 uS to 10000 uS, or 0 GPM to 200 GPM or 0 lbs/hour to 75000 lbs/hour.

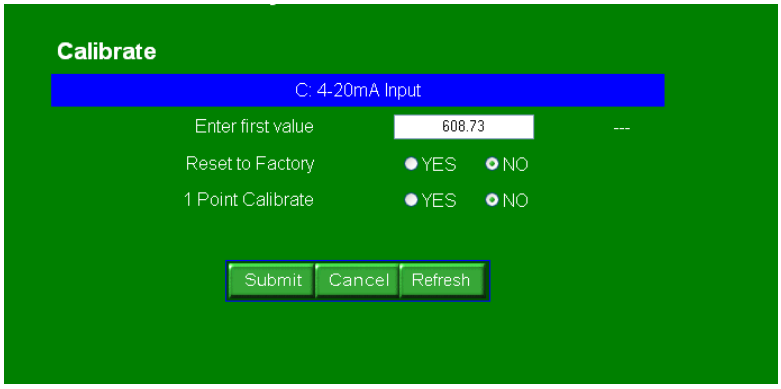
Other 4-20mA inputs are not typically spanned from zero and cannot be single point calibrated.
For example: A 4-20mA signal for may be 4mA = pH4 & 20mA=pH10.

SideBar: Sensors which do not use 4-20mA to represent their value can always be single point calibrated.

2. Selecting Single Point Calibration

The controller default is 4-20mA single point calibration OFF.

Connect to the controller using the browser and select **Sensors / Calibrate / '4-20mA Input'**
Set '**1 Point Calibrate**' to **YES** and **Submit**



The next calibration on this input using either the browser or the keypad will be single point.

3. 4-20mA Single Point Calibration

Accurate single point calibration requires that the 4-20mA transmitter sends exactly 4.00 mA at zero uS, GPM or lbs/hour. You may not notice the inaccuracy at 4mA if the 4-20mA signal does not vary over the full 4-20mA range.

BROWSER users

Select **Sensor / Calibrate / 4-20mA sensor name**

If **1 point Calibrate** is set to **YES**, you'll be prompted to **Enter current value**.

Key in the current value of the 4-20mA loop parameter.
For example, 4256 for a current loop measuring uS in the 0 to 10000uS range.

Then **Submit** & you'll be redirected to the **Diagnostic** page for the 4-20mA input.

Accuracy improves if the current loop is at least 35% of span.

Using the previous example, a current loop spanned at 4mA = 0uS
and 20mA = 10000uS would be have reduced accuracy if calibrated at 500uS

KEYPAD users

Ensure that you have set **'1 Point Calibrate'** previously set for the target 4-20mA input.

Key **UP** or **DOWN** until you view the target input. Key **ENTER**.

Key down to **Calibrate** & Key **ENTER**.

Key **ENTER** and edit **'First Value'**.

Key **ENTER** when complete and a second later the current value
will update to the calibrated value.

Reset to Factory:

The controller does not limit the values that may be entered to calibrate a 4-20mA input since a current loop may represent any value.
Reset to Factory sets the input to display millivolts.
4mA will display nominally 200mV and 20mA will display 1000mV.
Use Reset to Factory to check your 4mA and 20mA current loop transmitter levels.