

flowmeter 0 - 10000 GPM
0 - 10 V out

10 bit ADC
0 - 10 V input \leftarrow 1024

ADC out is 0x13A (hex)
314 dec

$$V_{out} = 314_{dec} \frac{10V - 0V}{2^{10} - 1}$$
$$= 3.066 V$$

$$Flow = V_{out} \times \frac{10000 - 0}{10 - 0}$$
$$= 3.066 \times \frac{10000}{10}$$
$$= 3066 \text{ GPM}$$

pressure sensor 32.7 psi

scale 0-75 psi
0-5V

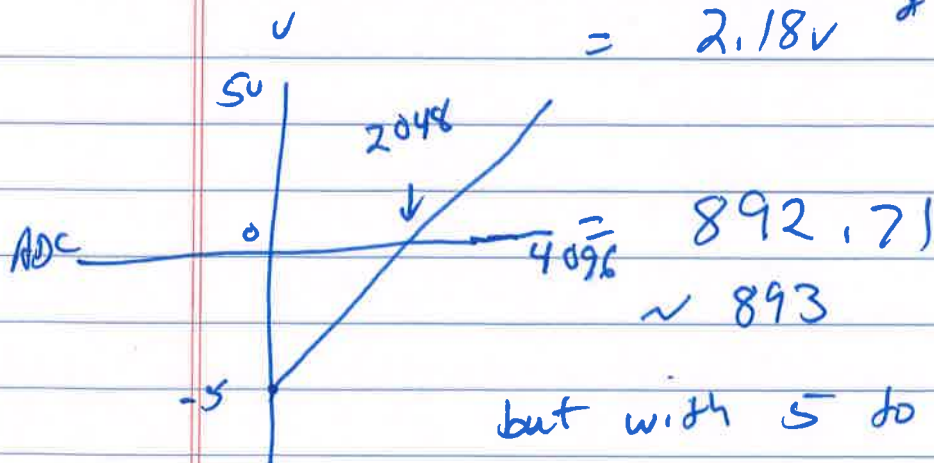
12 bit ADC

-5 to 5V scale

$$\begin{aligned} V_{out} &= \text{psi} \times \frac{V_{range}}{\text{psi range}} \\ &= 32.7 \text{ psi} \times \frac{5 - 0 \text{ V}}{75 \text{ psi} - 0 \text{ psi}} \\ &= 2.18 \text{ V} \end{aligned}$$

$$ADC_{out} = V_{in} \times \frac{ADC}{V_{FSR}}$$

$$= 2.18 \text{ V} \times \frac{2^{12} - 1}{5 - (-5)}$$



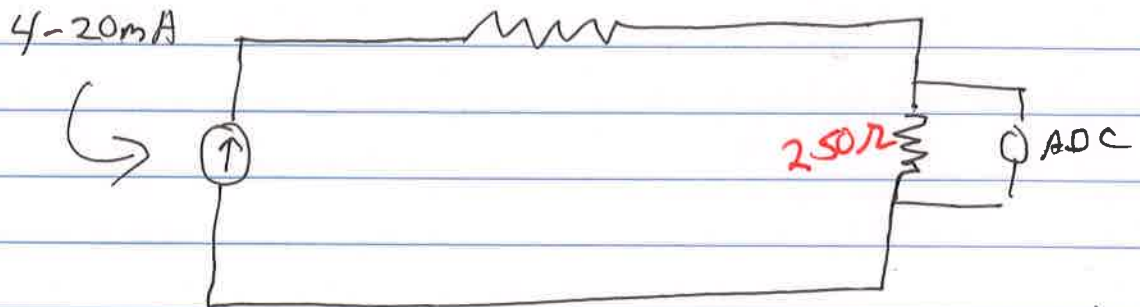
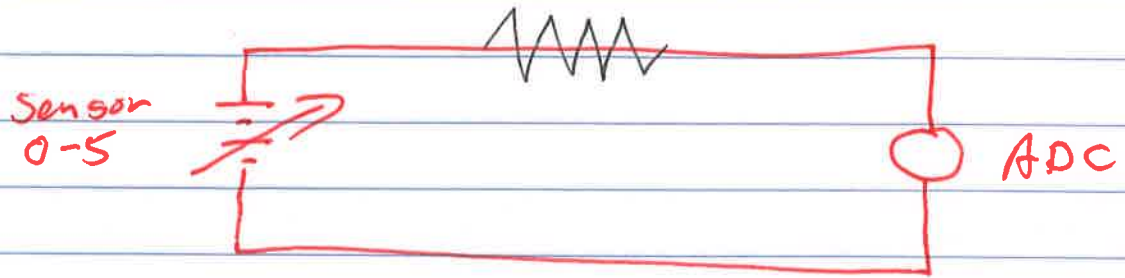
FSR ADC
4096

but with 5 to -5V scale
of the ADC

we add $2048 + 893 \Rightarrow$

2941

Voltage Vs Current Loop



$$\frac{U}{IR}$$

Low scale

$$4\text{mA} \times 250\Omega$$

$$= 1\text{V}$$

High

$$20\text{mA} \times 250$$

$$= 5\text{V}$$