

Calculation of Transfer Function for Temperature signal conditioning Circuit:

$$V_{out}(s) = (1/Cs) / (R + 1/Cs) * V_{in}(s)$$

$$V_{out}(s) = 1 / (1 + R * Cs) * V_{in}(s)$$

$$G(s) = V_{out}(s) / V_{in}(s) = 1 / (1 + Rcs)$$

$$|G(jw)| = |V_{out}(jw)| / |V_{in}(jw)|$$

$$|G(jw)| = 1 / \sqrt{1 + (wRC)^2}$$

$$|G(jw)| = 1.0000005$$

Summary of Measurement Accuracy:

$$V_{ref+} = 3.0v$$

$$V_{ref-} = 0v$$

The voltage 3v has a 12 bit ADC result

ADC result ranges from 0 to 4095

Voltage resolution is $3/4095$

$$\text{Input Voltage} = 3 * (\text{real voltage})$$

$$\text{Received Voltage} = (\text{displayed voltage}) * (75 / 1024)$$