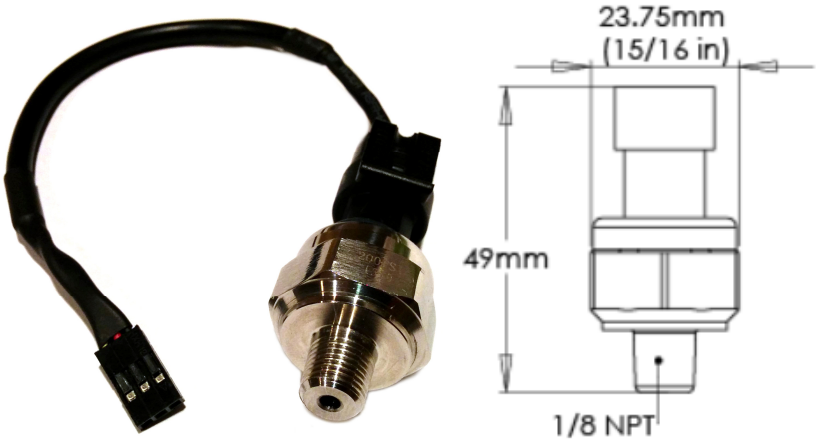
ANALOG PRESSURE SENSOR DATA SHEET

The REV Robotics Analog Pressure Sensor is a 5V sensor that can measure pressures up to 200 PSI. It outputs an analog voltage that is proportional to the measured pressure.



APPLICATIONS

- Real-time pressure feedback
- Pressure-based decisions
  - Is there enough pressure left for a specific action?
- Determining leak rates
- Prototyping
  - How much pressure does a specific action take?
- Measuring actuation pressure
- Pressure feedback to dashboard

SPECIFICATIONS

Typical Supply Voltage (V_{CC})	5VDC
Output Voltage Range	0.5 - 4.5VDC
Accuracy	1.5%
Response time	≤ 2.0ms
Current Draw	≤ 10mA

V_{OUT} at Pressure (p)
$V_{OUT} = V_{CC} \times (0.004 \times p + 0.1) \pm 1.5\%$

Working Pressure Range	0 - 200 PSI
Max Force Pressure	348 PSI
Burst Pressure	725 PSI
Working Temperature	0 - 85°C
Storage Temperature	0 - 100°C
Fitting Thread	NPT 1/8-27
Weight	0.09 lbs

CONNECTION DIAGRAM

CALCULATING PRESSURE

The output voltage of the sensor (VOUT) depends on the supply voltage (VCC) and the pressure (p):

$$V_{OUT} = V_{CC} \times (0.004 \times p + 0.1)$$

Given the output voltage, pressure can be calculated as follows:

$$p = 250\left(\frac{V_{OUT}}{V_{CC}}\right) - 25$$

It may be helpful to normalize the output voltage against a known pressure since variances in the supply voltage may introduce error. To normalize against a known pressure:

1. Bring the system up to a know pressure (p_0).
2. Measure the sensor's output voltage (V_0).
3. Calculate the normalized supply voltage (V_N):

$$V_N = \frac{V_0}{(0.004 \times p_0 + 0.1)}$$

4. Calculate pressure based on the normalized supply voltage (V_N):

$$p = 250\left(\frac{V_{OUT}}{V_N}\right) - 25$$