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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Supply Voltage</td>
<td>5VDC</td>
</tr>
<tr>
<td>Output Voltage Range</td>
<td>0.5 - 4.5VDC</td>
</tr>
<tr>
<td>Accuracy</td>
<td>1.5%</td>
</tr>
<tr>
<td>Response time</td>
<td>≤ 2.0ms</td>
</tr>
<tr>
<td>Current Draw</td>
<td>≤ 10mA</td>
</tr>
</tbody>
</table>

\[
V_{OUT} = V_{CC} \times (0.004 \times p + 0.1) \pm 1.5\%
\]

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Pressure Range</td>
<td>0 - 200 PSI</td>
</tr>
<tr>
<td>Max Force Pressure</td>
<td>348 PSI</td>
</tr>
<tr>
<td>Burst Pressure</td>
<td>725 PSI</td>
</tr>
<tr>
<td>Working Temperature</td>
<td>0 - 85°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>0 - 100°C</td>
</tr>
<tr>
<td>Fitting Thread</td>
<td>NPT 1/8-27</td>
</tr>
<tr>
<td>Weight</td>
<td>0.09 lbs</td>
</tr>
</tbody>
</table>

CONNECTION DIAGRAM

- Analog Output
- + 5V
- Ground

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 (p₀).
2. Measure the sensor’s output voltage (V₀).
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):

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