GENERAL DESCRIPTION
The air proximity sensor is a non-contact, no-moving-part sensor, capable of detecting the presence of an object at ranges up to 1/8". In the absence of an object, air flows freely from the sensor resulting in a near zero output signal. The presence of an object within the sensing range deflects the normal air flow and results in a positive output signal.

At low supply pressure, flow from the sensor exerts only minute force on the object being sensed and is consequently appropriate for use where the object is lightweight, or easily marred by mechanical sensors. Since there are no moving mechanical parts in the air proximity sensor, there are no inherent wear mechanisms or life limitations. In this regard, the sensor is not cycle dependent and is particularly appropriate for applications requiring large numbers of cycles. Also, the air proximity sensor is inherently explosion-proof and self-purging. Consequently, it is suitable for many adverse environments.

SPECIFICATIONS
Supply Pressure: Up to 10 psig.
Supply Flow: 0.5 scfm @ 1 psig
2.3 scfm @ 10 psig
Output Signal Pressure: See Output Pressure vs. Range Curves. Generally used to trigger air/air amplifier or air/electric switch.
Response Time: 1 millisecond (measured at sensor output).
Sensing Range: See Output Pressure vs. Range Curves. Nominal maximum range is 1/8 inch.
Materials of Construction:
  Body – Stainless Steel
  Connectors – Brass, Delrin
  Tubing – Polyurethane
Air Supply Requirements: Dry air filtered to 1 micron.
Minimum Target Size:
Stationary Objects
  Cylinder 1/8" dia.
  Slot 0.090" w.
  Circular Hole 0.130" dia.
  Circular Disc 0.130" dia.
Moving Targets
  Pulse Duration Object Size - In (sec) Approx. = Object Velocity - In/sec

APPLICATIONS
• High Speed Part Sensing: Rapid response time of sensor.
• Manufactured Parts: Counting, Gaging, Position, Presence.
• Containers and Packages: Counting, Motion, Presence.
• Die Protection: Part or Stock Presence and Position.
• Paper, Film, Textile Sensing: Splice, Edge, Double Thickness Detection.

PERFORMANCE CHARACTERISTICS (For General Reference Only)
Air Proximity Sensor

**Principle of Operation**

In the absence of an object disturbing the free flow of air exiting from the sensor, the output pressure signal is in an "off" condition. This "off" condition is a near zero output pressure.

When an object is located inside the sensing range, the sensor flow is deflected with a resultant pressure buildup in the output. This pressure signal is the "on" condition of the sensor. The amount of pressure sensed increases as the object moves closer to the sensor. Nominal maximum sensing range is 1/8 inch.

**Air Proximity Sensor Symbol**

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**Air/Air Amplifier**

**DESCRIPTION**

The air/air amplifier requires only low pressure signals to pilot a directional control valve, which in turn, can operate at supply pressures up to 100 psig. A control signal of 2" H2O pressure is sufficient to shift the 4 way valve and produce an output signal up to 100 psig. The main valve is of five ported-4 way construction, and can be used additionally as a 3 way valve, either normally closed or normally open.

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>KLUF2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Valve</td>
<td>5 ports, 2 positions, 4 way</td>
</tr>
<tr>
<td>Signal Pressure</td>
<td>Valve shifts at 2&quot; H2O increasing pressure, Valve resets at 1/2&quot; H2O decreasing pressure</td>
</tr>
<tr>
<td>Supply Pressure</td>
<td>30 to 100 psig</td>
</tr>
<tr>
<td>Pilot Pressure</td>
<td>50 psig optimum pressure</td>
</tr>
<tr>
<td>Main Valve Flow</td>
<td>CV equals .08 (limited by 1/16&quot; ID barbs)</td>
</tr>
<tr>
<td>Range of Proximity Sensor</td>
<td>Up to 1/8&quot;</td>
</tr>
<tr>
<td>Air/Amplifier Combination</td>
<td></td>
</tr>
</tbody>
</table>

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Air/Electric Switches

DESCRIPTION
The air/electric switches presented here operate readily with the air proximity sensor. Each responds to low pressure air signals, and each has special characteristics which increase the total range of applications of the air proximity sensor. Considerations in selecting a switch are current requirements, response time, differential or single ended operations, and maximum required sensing range.

FEATURES

<table>
<thead>
<tr>
<th>P/N OKC-661</th>
<th>Excellent vibration resistance; small size; pressure, vacuum or differential operation; fast response time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/N OKC-664</td>
<td>Greatest current capacity (10 amps); pressure only; SPDT contacts; moderate response time.</td>
</tr>
<tr>
<td>P/N OKC-819</td>
<td>Smallest size; fastest response time; up to 60 milliamps; pressure, vacuum or differential operation.</td>
</tr>
</tbody>
</table>

Specifications for P/N OKC-661
- **Type**: Single Pole Double Break
- **Maximum Current**: 200 ma @ 30 VDC
- **For Resistive Load**: Neon lamp @ 120 VAC
- **Media**: Air or inert gas only
- **Differential Pressure**: 0.5” H₂O minimum
- **To Operate**: 1 psig maximum
- **Response Time**: 20 millisecond
- **Input Connections**: For use with 5/32” ID tubing
- **Body Materials**: Plastic
- **Terminals**: 3/16” Male Tab Type. Mating connectors furnished
- **Range**: 1/8” maximum

Specifications for P/N OKC-664
- **Type**: Single Pole Double Throw
- **Maximum Current**: 10 amps @ 125 or 250 VAC
- **Media**: Air or inert gas only
- **Pressure to Operate**: 4” H₂O minimum
- **Response Time**: 50 millisecond
- **Input Connection**: For 1/16” ID tubing
- **Body Materials**: Plastic
- **Terminals**: Screw style
- **Range**: 3/32” maximum

Specifications for P/N OKC-819
- **Type**: Single Pole Double Break
- **Maximum Current**: 200 ma @ 30 VDC
- **For Resistive Load**: Neon lamp @ 120 VAC
- **Media**: Air or inert gas only
- **Differential Pressure**: 0.5” H₂O minimum
- **To Operate**: 1 psig maximum
- **Response Time**: 20 millisecond
- **Input Connections**: For use with 5/32” ID tubing
- **Body Materials**: Plastic
- **Terminals**: 3/16” Male Tab Type. Mating connectors furnished
- **Range**: 1/8” maximum

NOTES

1. A separate electrical connector is provided for soldering to the electrical wire terminals. Soldering must be done with the electrical connectors removed from the switch to prevent damage to the switch contacts by soldering heat.
2. When controlling inductive loads, such as small relays, it is good practice to use RC suppression or diodes, as required to prevent arcing.
3. Range – Maximum sensing distance for combination of air proximity sensor and air/electric switch.
4. Response Time – Combined response time of air proximity sensor and air/electric switch.