NPC-1210 Series
Medium/Low Pressure Sensors

**Features**
- High sensitivity
- High accuracy
- Interchangeable
- Temperature Compensated: 0°C to 60°C (32°F to 140°F)
- PCB-mountable package
- Dual In-line Package (DIP)
- Solid-state reliability
- Individual device traceability

**Applications**
- Industrial Automation
- Air Flow Monitors
- Process Control
- Medical Equipment
- Underground Cable Leak Detection
- Ventilation
- Respirator Monitoring

Amphenol
Advanced Sensors
NPC-1210 Series Specifications

Description

The NPC-1210 series of solid-state pressure sensors is designed to provide a cost-effective solution for applications that require calibrated performance over a wide temperature range. Packaged in a dual-inline configuration, the NPC-1210 Series is intended for printed circuit board mounting. Optional pressure port and lead configurations provide superior flexibility in low profile applications where pressure connection orientation is critical.

The NPC-1210 Series is based on NovaSensor’s advanced SenStable® piezoresistive sensing technology. Silicon micromachining techniques are used to ion implant piezoresistive strain gages into a Wheatstone bridge configuration. The NPC-1210 Series offers the added advantage of superior temperature performance over the temperature compensated range of 0°C to 60°C (32°F to 140°F). A gain set resistor is included to normalize the FSO for field interchangeability.

NPC-1210 Series Schematic Diagram

NPC-1210 Series package diagram

1. All dimensions are for reference only.
2. Tube length: L = 0.49 in (12 mm), S = 0.33 in (8.3 mm), N = No tube
3. Lead pins can be either in the same or the opposite direction of the pressure tube. Option (1) has the leads in the “Up” position, the same direction as the tube. Option (3) has the leads in the “Down” position, the opposite direction from the tube.
4. Gauge and differential pressure devices are calibrated by applying pressure to the positive differential port (P2) and venting to atmosphere the reference port (P1). Absolute pressure devices use only P1 to apply vacuum or pressure.
NPC-1210 Series Specifications

Medium Pressure Sensors

Pressure Ranges
- Gauge and Differential:
  - 5 psi (34 kPa, 0.34 bar)
  - 15 psi (100 kPa, 1.0 bar)
  - 30 psi (210 kPa, 2.1 bar)
  - 50 psi (340 kPa, 3.4 bar)
  - 100 psi (690 kPa, 6.9 bar)
- Absolute:
  - 15 psi (100 kPa, 1.0 bar)
  - 30 psi (210 kPa, 2.1 bar)
  - 50 psi (340 kPa, 3.4 bar)
  - 100 psi (690 kPa, 6.9 bar)
- For other pressure ranges, please contact NovaSensor.

Low Pressure Sensors

Pressure Ranges
- Gauge and Differential:
  - 10 in H₂O (2.5 kPa, 0.025 bar)
  - 1 psi (6.9 kPa, 0.069 bar)
- Absolute:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Minimum</th>
<th>Typical</th>
<th>Maximum</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSO 10 inH₂O</td>
<td>mV</td>
<td>25</td>
<td>50</td>
<td>70</td>
<td>2, 3</td>
</tr>
<tr>
<td>FSO 1 psi</td>
<td>mV</td>
<td>50</td>
<td>75</td>
<td>110</td>
<td>2, 3</td>
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<tr>
<td>Zero Pressure Output</td>
<td>mV</td>
<td>-2</td>
<td>—</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Linearity</td>
<td>%FSO</td>
<td>-0.5</td>
<td>—</td>
<td>0.5</td>
<td>4, 8</td>
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<tr>
<td>Pressure Hysteresis</td>
<td>%FSO</td>
<td>-0.1</td>
<td>—</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Input Impedance</td>
<td>Ω</td>
<td>2500</td>
<td>4000</td>
<td>6000</td>
<td></td>
</tr>
<tr>
<td>Output Impedance</td>
<td>Ω</td>
<td>4000</td>
<td>5000</td>
<td>6000</td>
<td></td>
</tr>
<tr>
<td>Thermal Accuracy–Span</td>
<td>%FSO</td>
<td>-1.0</td>
<td>—</td>
<td>1.0</td>
<td>3, 5</td>
</tr>
<tr>
<td>Thermal Accuracy–Zero</td>
<td>%FSO</td>
<td>-1.25</td>
<td>—</td>
<td>1.25</td>
<td>3, 5</td>
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<tr>
<td>Temperature Coefficient–Resistance</td>
<td>%/°C</td>
<td>—</td>
<td>0.22</td>
<td>—</td>
<td>5</td>
</tr>
<tr>
<td>Thermal Hysteresis–Zero</td>
<td>%FSO</td>
<td>—</td>
<td>0.1</td>
<td>—</td>
<td>5</td>
</tr>
<tr>
<td>Input Excitation</td>
<td>mA</td>
<td>—</td>
<td>1.5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Pressure Overload</td>
<td>psi (bar)</td>
<td>5 (0.34)</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

1. Supply current = 1.5 mA and ambient temperature = 77°F (25°C), unless otherwise noted. Gauge and differential pressure devices are calibrated by applying pressure to the positive differential port (P2) and venting to atmosphere the reference port (P1). The NPC-1210 is interchangeable only when used with the gain set resistor shown in the schematic diagram. Maximum gain-set resistor mismatch is 2%.
2. Output span of unamplified sensor.
3. Compensation resistors are an integral part of the sensor package; no additional external resistors are required. Pins 7 and 8 must be kept open.
4. Best fit straight line.
5. Temperature range 32°F to 140°F (0°C to 60°C), reference to 77°F (25°C).
6. 3X or 200 psi (13.78 bar) maximum, whichever is less.
7. Exposed materials are pyrex, ceramic, silicon, epoxy, RTV, and stainless steel.
8. 5 psi (0.34 bar) spec.: Linearity: 0.25 ±%FSO, TC-span: 0.75 ±%FSO, TC-zero: 0.75 ±%FSO, otherwise noted.
9. Port 1 is limited to 60 PSIG for differential and absolute pressure sensors. Contact factory for 50 PSIA/D and 100 PSIA/D units.
NPC-1210 Series Specifications

Ordering Information

The code number to be ordered may be specified as follows:
NPC-1210 (Medium Pressure)

<table>
<thead>
<tr>
<th>Code</th>
<th>Pressure Range</th>
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<tbody>
<tr>
<td>005</td>
<td>5 psi (0.3 bar)</td>
</tr>
<tr>
<td>015</td>
<td>15 psi (1 bar)</td>
</tr>
<tr>
<td>030</td>
<td>30 psi (2 bar)</td>
</tr>
<tr>
<td>050</td>
<td>50 psi (3.4 bar)</td>
</tr>
<tr>
<td>100</td>
<td>100 psi (7 bar)</td>
</tr>
</tbody>
</table>

Code Type:
- **D**: Differential
- **A**: Absolute
- **G**: Gauge

Lead Configurations:
- 1: Up
- 3: Down

Tube Options:
- **L**: Long
- **S**: Short
- **N**: None *

NPC-1210 -___ -        ___   -        ___   -         ___   Typical model number

* Order NPC-1210-XXXG-XN in place of NPC-1210-XXXD-XN

Warranty

Amphenol Advanced Sensors warrants its products against defects in material and workmanship for 12 months from the date of shipment. Products not subjected to misuse will be repaired or replaced. Amphenol Advanced Sensors reserves the right to make changes without further notice to any products herein. NovaSensor makes no warranty, representation or guarantee regarding the suitability of its products for any particular application, nor does Amphenol Advanced Sensors assume any liability arising out of the application or use of any product or circuit and specifically disclaims and all liability without limitation consequential or incidental damages. The foregoing warranties are exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. No implied statutory warranty of merchantability or fitness for particular purpose shall apply.