NPC-100 and NPC-120 Series
NovaSensor Disposable Medical Pressure Sensors

Features
• Solid state, high reliability
• Media compatibility
• High performance
• Factory filled with dielectric gel
• Small size
• Fully tested
• Temperature compensated
• Low cost disposable design
• Designed to AAMI specifications

Applications
• Medical instrumentation
• Blood pressure measurement
• Infusion pumps
• Kidney dialysis machines

Amphenol Advanced Sensors
NPC-100 and NPC-120 Series Specifications

The NovaSensor NPC-100 and NPC-120 Series pressure sensor are specifically designed for use in disposable medical applications. The devices are compensated and calibrated per the Association for the Advancement of Medical Instrumentation (AAMI) guidelines for industry acceptability. The sensors integrate a high-performance, pressure sensor die with temperature compensation circuitry and gel protection in a small, low-cost package.

The NPC-100 and NPC-120 Series are manufactured in a class 1000 clean-room to minimize possible sources of contamination. A specially designed silicon micromachined sensing element is used to meet or exceed all industry requirements while minimizing assembly and test cost for maximum customer value. Thick-film laser-trimming is employed for final compensation and calibration. Sensitivity is maintained to ±1% and linearity is better than 1% in the physiological operating pressure range.

The NPC-100 and NPC-120 Series are batch-manufactured in ceramic plate form and shipped as an intact array or in Tape and Reel for easy customer acceptance. The sensors integrate a high-performance, pressure sensor die with temperature compensation circuitry and gel protection in a small, low-cost package.

### NPC-100 Series pressure sensor port interface

- **Material:** Polycarbonate
- **Gel Tube Interface:** Polycarbonate
- **Media Interface:** Medical grade, dielectric gel

### NPC-120 Series pressure sensor port interface

- **Material:** Polycarbonate
- **Gel Tube Interface:** Polycarbonate
- **Media Interface:** Medical grade, dielectric gel

### Parameter | Value | Units | Notes
--- | --- | --- | ---
**General**
- **Pressure Ranges:** –50 to 300 mmHg
- **Overpressure:** 125 psi
- **Electrical @ 72°F (22°C) Unless Otherwise Stated**
  - **Input Excitation:** 1 to 10 VDC, Calibrated for 6 VDC
  - **Dielectric Breakdown:** 10,000 VDC
  - **Risk Current:** 2 µA, Maximum (per AAMI), 5
  - **Input Impedance:** 1800 to 3300 Ω
  - **Output Impedance:** 285 to 315 Ω
- **Environmental**
  - **Temperature**
    - **Compensated:** 15°C to 40°C, °C (59°F to 104°F)
    - **Operating:** 15°C to 40°C, °C (59°F to 104°F)
    - **Storage:** –25°C to 70°C, °C (–13°F to 158°F)
  - **Humidity:** 10 to 90 %
  - **Light Sensitivity:** 1 mmHg, maximum (per AAMI BP22)
  - **Operating Product Life:** 168 hours
  - **Shelf Life:** 5 years
- **Mechanical**
  - **Weight:** <0.0044 lb (<2 g)
  - **Media Interface:** Medical grade, dielectric gel
  - **Gel Tube Interface Material:** Polycarbonate
  - **NPC-100 and NPC-120 Series pressure sensor port interface**
  - **NPC-100 Series package diagram**
  - **NPC-120 Series package diagram**

### Performance Parameters

- **Offset** mmHg
- **Sensitivity** µV/V/mmHg
- **Calibration** mmHg
- **Symmetry** %
- **Linearity** (–30 to 100 mmHg) mmHg
- **Linearity** (100 to 200 mmHg) % output
- **Linearity** (200 to 300 mmHg) % output
- **Thermal Coefficient Offset** mmHg/°C
- **Thermal Coefficient Span** %/°C
- **Frequency Response** Hz
- **Phase Shift** degrees
- **Offset Drift** mmHg/hours

### Parameter

- **Type**
- **Maximum** (per AAMI BP22)

### Notes

1. Tolerances reflect typical flaring during the singulation process.
1. Tolerance on electrical pad location is ±0.010 in (±0.25 mm).
2. Contact pads are suitable for soldering.
3. Split pads on +Out and –Out must be connected for proper operation.
4. All dimensions assume a nominal 0.01 in (0.25 mm) distance between the edge of the solder pads to the edge of the ceramic. This distance will vary slightly from part to part.

NPC-100 Series electrical interface

0.152 in (3.86 mm) 0.168 in (4.27 mm) 0.201 in (5.10 mm) 0.223 in (5.66 mm)

Ordering Information

The code number to be ordered may be specified as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Blank: Sold in 120-Up Snapstrate</th>
<th>Typical model number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPC-100</td>
<td>T</td>
<td>NPC-100 - T</td>
</tr>
<tr>
<td>NPC-120</td>
<td>Tape and reel</td>
<td></td>
</tr>
</tbody>
</table>

Storage Conditions

After the original packaging has been opened, reels and trays should be stored in a nitrogen dry box or moved to a clean room for assembly. The storage environment should be free of: sulfur bearing materials or other corrosive compounds such as paper products, cardboard, acid batteries, elastomer or rubber products, vulcanized rubber, adhesives or plastics that release sulfur over time.
Warranty

NovaSensor 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. NovaSensor 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. NovaSensor does not 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 or merchantability or fitness for particular purpose shall apply.