

## NPC-1220 Series

Solid State

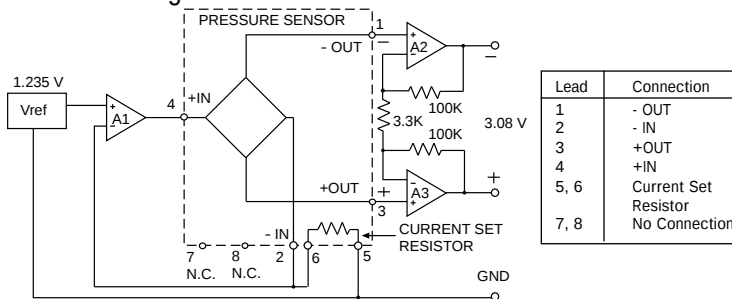
Pressure Sensor

Low-Medium Pressure

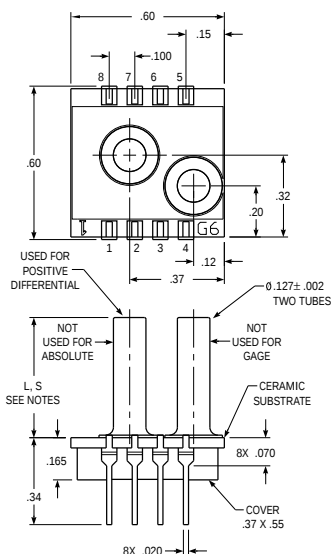
The NPC-1220 series of solid state pressure sensors are designed to provide a cost effective solution for applications that require calibrated performance over a wide temperature range. Packaged in a dual-in-line configuration, the NPC-1220 series is intended for printed circuit board mounting. Optional pressure port and lead configurations give superior flexibility in low profile applications where pressure connection orientation is critical.

The NPC-1220 series is based on Lucas 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-1220 offers the added advantage of superior temperature performance over the temperature compensated range of 0°C to +60°C. A current set resistor is included to normalize the FSO for field interchangeability. Additionally, the NPC-1220 series is available in pressure ranges from 0 to 5 through 0 to 100 psi. Please contact the factory for other pressure ranges.

### Schematic Diagram



### Package Diagram

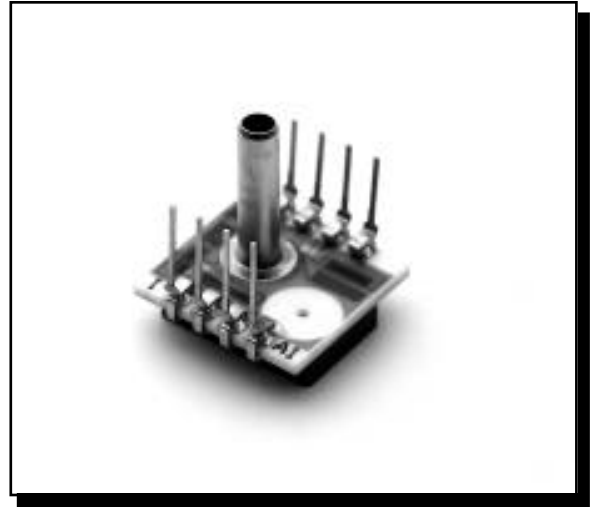


#### Notes:

1. All dimensions are in inches.
2. Tube length; L = 0.490, S=0.325, N = No tube (Contact factory).
3. Lead pins can be either be 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 of the tube.

(1) See Notes

(3) See Notes



### APPLICATIONS

- Industrial automation
- Air flow monitors
- Process control
- Liquid level
- Medical equipment
- Water measurement
- Underground cable leak detection

### FEATURES

- 50 mV Full-scale Output
- $\pm 0.1\%$  accuracy
- Interchangeable
- Temperature Compensated 0°C to 60°C
- PCB mountable package
- Media compatible
- DIP package
- Solid state reliability
- Individual device traceability

### PRESSURE RANGES

- Gauge and Differential  
5, 15, 30, 50 and 100 psi
- Absolute  
15, 30, 50 and 100 psi

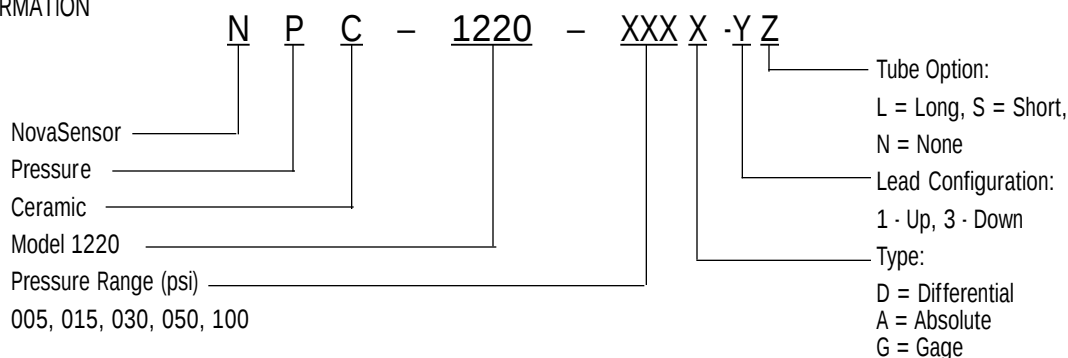
# NPC-1220 Sensor Specification

| PARAMETER                          | VALUE                                                                         | UNITS                                              | NOTES         |      |         |
|------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------|---------------|------|---------|
| ENVIRONMENTAL                      |                                                                               |                                                    |               |      |         |
| Temperature Operating              | -40 to +125                                                                   | °C                                                 | -40 to +257°F |      |         |
| Compensated                        | 0 to +60                                                                      | °C                                                 | +32 to +140°F |      |         |
| Storage                            | -55 to +150                                                                   | °C                                                 | -67 to +302°F |      |         |
| MECHANICAL                         |                                                                               |                                                    |               |      |         |
| Weight                             | 2.5                                                                           | grams                                              |               |      |         |
| Media Compatibility:               | Positive differential and gage ports<br>Absolute, negative differential ports | Compatible with wetted materials<br>Dry gases only | 7             |      |         |
| PERFORMANCE (Note 1)               |                                                                               |                                                    |               |      |         |
| Parameter                          | Units                                                                         | Min.                                               | Typ.          | Max. | Notes   |
| Full Scale Output (FSO)            | mV                                                                            | 49.5                                               | 50            | 50.5 | 2, 3    |
| Zero Pressure Output               | ±mV                                                                           | —                                                  | —             | 2    | 3       |
| Linearity                          | ±%FSO                                                                         | —                                                  | —             | 0.1  | 4, 8    |
| Pressure Hysteresis                | ±%FSO                                                                         | —                                                  | —             | 0.1  |         |
| Input Impedance                    | Ω                                                                             | 2500                                               | 4000          | 6000 |         |
| Output Impedance                   | Ω                                                                             | 4000                                               | 5000          | 6000 |         |
| Thermal Accuracy–Span              | ±%FSO                                                                         | —                                                  | —             | 0.5  | 3, 5, 8 |
| Thermal Accuracy–Zero              | ±%FSO                                                                         | —                                                  | —             | 0.5  | 3, 5, 8 |
| Temperature Coefficient–Resistance | %/°C                                                                          | —                                                  | 0.22          | —    | 5       |
| Thermal Hysteresis–Zero            | ±%FSO                                                                         | —                                                  | 0.1           | —    | 5       |
| Input Excitation                   | mA                                                                            | —                                                  | 1.5           | 2.0  |         |
| Pressure Overload                  | Rated                                                                         | —                                                  | —             | 3X   | 6       |

## Notes:

1. Ambient temperature = 25°C, unless otherwise noted.
2. Output span of the unamplified sensor using the current set resistor and the circuit shown in the schematic diagram.
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. The NPC-1220 is interchangeable only when used with the current set resistor shown in the schematic diagram.
4. Best fit straight line
5. Temperature range 0-60°C, reference to 25°C.
6. 3X or 200 psi maximum, whichever is less.
7. Wetted materials are pyrex, ceramic, silicon, epoxy, RTV and nickel.
8. Call factory for 5 PSI spec.

## ORDERING INFORMATION



Sales Terms: Lucas NovaSensor standard sales terms apply. Prices and specifications are subject to change without notice.

Warranty: Lucas NovaSensor warrants its products against defects in material and workmanship for 12 months from date of shipment. Products not subjected to misuse will be repaired or replaced. THE FOREGOING IS IN LIEU OF ANY OTHER EXPRESSED OR IMPLIED WARRANTIES. Lucas NovaSensor reserves the right to make changes to any product herein and assumes no liability arising out of the application or use of any product or circuit described or referenced herein.



LUCAS NOVASENSOR

SM0004 Rev. A

1055 Mission Court · Fremont · California 94539 Toll Free: 800-962-7364 Tel: 510-661-6000 Fax: 510-770-0645