



# NPI-19 Series

## NovaSensor Low Pressure Sensors



### Features

- Solid state, high reliability
- 316L stainless steel, ISO sensor design
- $\pm 0.5\%$  static accuracy
- Temperature compensated 32°F to 158°F (0°C to 70°C)
- 125 mV typical FSO on current version
- 75  $\pm 1$  mV FSO on voltage version
- Thermal errors less than 2% FSO
- Two standard ranges:
  - 0 to 2.5 psig (0 to 172 mBar)
  - 0 to 5 psig (0 to 345 mBar)
- Standard configurations include:
  - 0.74 in (19 mm) diameter x 0.28 in (7.1 mm) long cylinder with o-ring seals
- Custom configurations and other pressure ranges available. Please consult the factory.

### Applications

- Process control systems
- Hydraulic systems and valves
- Biomedical instruments
- Refrigeration and HVAC controls
- Appliances and consumer electronics
- Ship and marine systems
- Aircraft and avionic systems

NPI media isolated sensors are designed to operate in hostile environments and yet give the outstanding sensitivity, linearity, and hysteresis of a silicon sensor. The piezoresistive sensor chip is housed in a fluid-filled cylindrical cavity and isolated from measured media by a stainless steel diaphragm and body. The NPI Series employs SenStable® processing technology, providing excellent output stability. It is available in either a constant current or constant voltage version.

The modular design allows for a variety of pressure port modules, which are hermetically welded to the sensor header module. There are other standard port styles available. Please consult NovaSensor for more details.

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## Advanced Sensors

# NPI-19 Series Specifications

| Operating                                        |                                                           |                  |                                                           |                  |
|--------------------------------------------------|-----------------------------------------------------------|------------------|-----------------------------------------------------------|------------------|
| Constant Current (1.5 mA)                        |                                                           |                  | Constant Voltage (10 V)                                   |                  |
|                                                  | Value                                                     | Notes            | Value                                                     | Notes            |
| General                                          |                                                           |                  |                                                           |                  |
| Pressure Ranges                                  |                                                           |                  |                                                           |                  |
| 2.5 PSI                                          | 0 to 2.5 psi (0 to 172 mbar)                              | 17.2 kPa         | 0 to 2.5 psi (0 to 172 mbar)                              | 17.2 kPa         |
| 5 PSI                                            | 0 to 5 psi (0 to 345 mbar)                                | 34.5 KPa         | 0 to 5 psi (0 to 345 mbar)                                | 34.5 KPa         |
| Maximum Overpressure                             | 3x pressure                                               | rated            | 3x pressure                                               | rated            |
| Electrical @ 77°F (25°C) unless otherwise stated |                                                           |                  |                                                           |                  |
| Input Excitation                                 | 1.5 mA maximum                                            | 2 mA maximum     | 10 VDC                                                    | 12 VDC           |
| Insulation Resistance                            | 10 <sup>8</sup> Ω                                         | @ 50 VDC         | 10 <sup>8</sup> Ω                                         | @ 50 VDC         |
| Input Impedance                                  | 4000 Ω                                                    | typical          | 10,000 Ω                                                  | typical          |
| Output Impedance                                 | 5000 Ω                                                    | ±20%             | 5000 Ω                                                    | ±20%             |
| Bridge Impedance                                 | 5000 Ω                                                    | ±20%             | 5000 Ω                                                    | ±20%             |
| Environmental                                    |                                                           |                  |                                                           |                  |
| Compensated Temperature                          | 32°F to 158°F                                             | (0°C to 70°C)    | 32°F to 158°F                                             | (0°C to 70°C)    |
| Operating Temperature                            | 14°F to 176°F                                             | (-10°C to 80°C)  | 14°F to 176°F                                             | (-10°C to 80°C)  |
| Storage Temperature                              | -40°F to 257°F                                            | (-40°C to 125°C) | -40°F to 257°F                                            | (-40°C to 125°C) |
| Mechanical                                       |                                                           |                  |                                                           |                  |
| Weight                                           | 0.02 lb (10 g)                                            | NPT-19A-XXX      | 0.02 lb (10 g)                                            | NPT-19A-XXX      |
| Media Compatibility                              | All corrosive media compatible with 316 L stainless steel |                  | All corrosive media compatible with 316 L stainless steel |                  |
| Case and Diaphragm Material                      | 316L stainless steel                                      |                  | 316L stainless steel                                      |                  |
| Recommended O-Ring                               | NPI-19A; 0.66 in x 0.039 in (16.76 mm x 1 mm)             |                  | NPI-19A; 0.66 in x 0.039 in (16.76 mm x 1 mm)             |                  |

| Compensated Performance    |       | (1.5 mA) |      |         | (10 VDC) |         |      |         |   |
|----------------------------|-------|----------|------|---------|----------|---------|------|---------|---|
| Parameter Notes            | Units | Minimum  | Type | Maximum | Units    | Minimum | Type | Maximum |   |
| Offset                     | mV    | -2       | ±1   | 2       | mV       | -2      | ±1   | 2       |   |
| Full Scale Output          |       |          |      |         |          |         |      |         |   |
| 2.5 PSI                    | mV    | 50       | 125  | 200     | mV       | 72      | 75   | 78      |   |
| 5 PSI                      | mV    | 50       | 125  | 200     | mV       | 74      | 75   | 76      |   |
| Static Accuracy            | %FSO  | -0.5     | 0.1  | 0.5     | %FSO     | -0.5    | 0.1  | 0.5     | 2 |
| Thermal Accuracy of Offset |       |          |      |         |          |         |      |         |   |
| 2.5 PSI                    | %FSO  | -2       | ±0.5 | 2       | %FSO     | -2      | ±0.5 | 2       | 3 |
| 5 PSI                      | %FSO  | -1.5     | ±0.5 | 1.5     | %FSO     | -1.5    | ±0.5 | 1.5     | 3 |
| Thermal Accuracy of FSO    |       |          |      |         |          |         |      |         |   |
| 2.5 PSI                    | %FSO  | -2       | ±0.5 | 2       | %FSO     | -2      | ±0.5 | 2       | 3 |
| 5 PSI                      | %FSO  | -1.0     | ±0.5 | 1.0     | %FSO     | -1.0    | ±0.5 | 1.0     | 3 |
| Thermal Repeatability      |       |          |      |         |          |         |      |         |   |
| 2.5 PSI                    | %FSO  | -0.3     | 0.1  | 0.3     | %FSO     | -0.2    | 0.1  | 0.2     | 3 |
| 5 PSI                      | %FSO  | -0.2     | 0.1  | 0.2     | %FSO     | -0.2    | 0.1  | 0.2     | 3 |

1. Performance with offset, thermal accuracy of offset, and thermal accuracy of FSO compensation resistors. All values measured at 77°F (25°C) and at 1.5 mA constant current or 10 VDC, unless otherwise noted.
2. Includes Linearity (BFSL), pressure hysteresis and repeatability errors.
3. 32°F to 158°F (0°C to 70°C) with reference to 77°F (25°C).
4. Consult factory for vacuum applications.

# NPI-19 Series Specifications

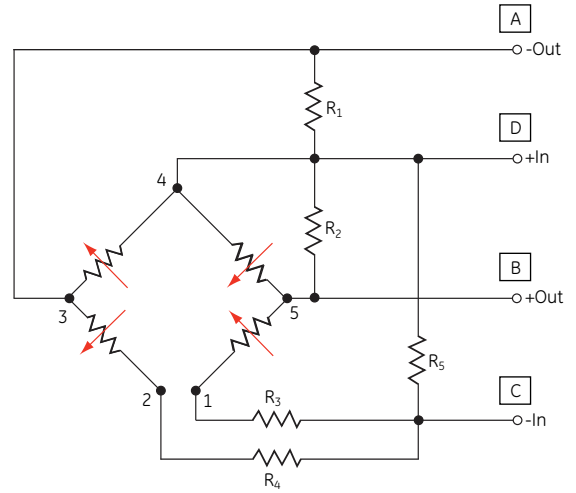
## Ordering Information

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

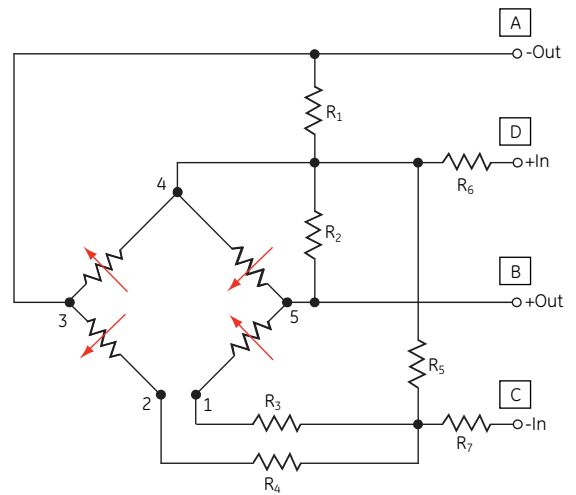
NPI-19 NovaSensor Pressure Type (ISO Sensor)

| Code | Pressure Port Type   | Code | Pressure Range             | Code | Description | Tolerance                        |
|------|----------------------|------|----------------------------|------|-------------|----------------------------------|
| A    | No port, o-ring seal | 021  | 2.5 psi (172 mbar), 1.5 mA | G    | Gauge       | Constant Current Supply (1.5 mA) |
|      |                      | 002  | 2.5 psi (172 mbar), 10 V   | H    |             | Constant Voltage Supply (10 VDC) |
|      |                      | 031  | 5 psi (345 mbar), 1.5 mA   | V    |             |                                  |
|      |                      | 005  | 5 psi (345 mbar), 10 V     |      |             |                                  |

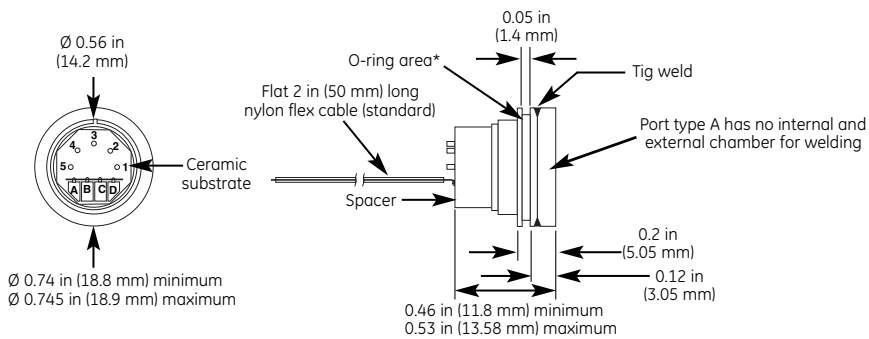
NPI-19 - \_\_\_\_ - \_\_\_\_ - \_\_\_\_ - \_\_\_\_ Typical model number



Pin number 4 connected to chip substrate.  
Constant current schematic diagram



Constant voltage schematic diagram



\*Uses o-ring 0.66 in ID x 0.039 in (16.76 mm x 1 mm) cross section.

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[www.amphenol-sensors.com](http://www.amphenol-sensors.com)

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