



# 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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# NPI-19 Series Specifications

Operating				
Constant Current (1.5 mA)			Constant Voltage (10 V)	
	Value	Notes	Value	Notes
<b>General</b>				
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
<b>Electrical @ 77°F (25°C) unless otherwise stated</b>				
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%
<b>Environmental</b>				
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)
<b>Mechanical</b>				
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
Thermal Accuracy of Offset										
2.5 PSI			%FSO	-2	±0.5	2	%FSO	-2	±0.5	2
5 PSI			%FSO	-1.5	±0.5	1.5	%FSO	-1.5	±0.5	1.5
Thermal Accuracy of FSO										
2.5 PSI			%FSO	-2	±0.5	2	%FSO	-2	±0.5	2
5 PSI			%FSO	-1.0	±0.5	1.0	%FSO	-1.0	±0.5	1.0
Thermal Repeatability										
2.5 PSI			%FSO	-0.3	0.1	0.3	%FSO	-0.2	0.1	0.2
5 PSI			%FSO	-0.2	0.1	0.2	%FSO	-0.2	0.1	0.2

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

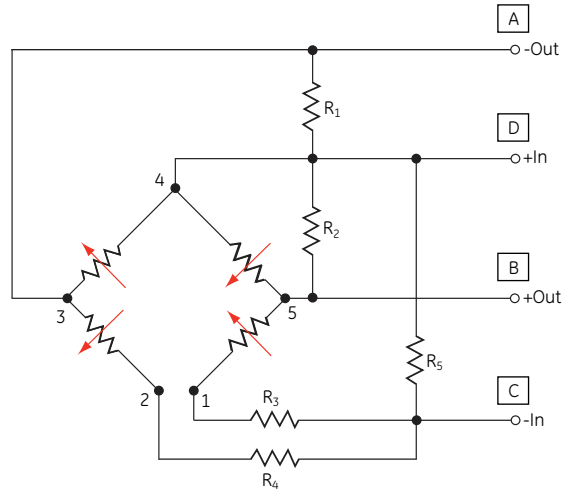
## Ordering Information

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

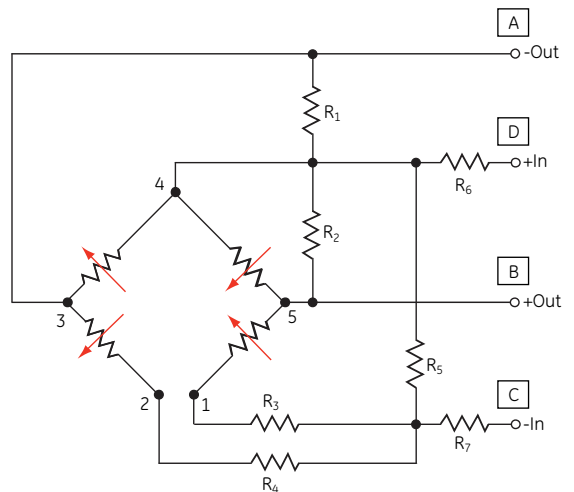
NPI-19 NovaSensor Pressure Type (ISO Sensor)

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			

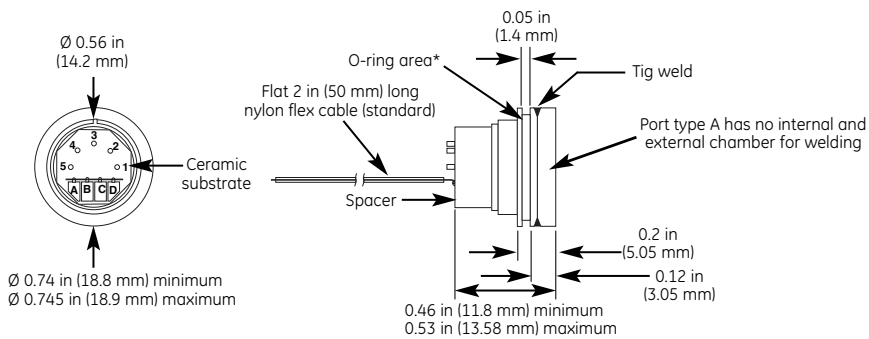
NPI-19 - \_\_\_\_ - \_\_\_\_ - \_\_\_\_ - \_\_\_\_ Typical model number



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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**Advanced Sensors**

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