TRW Automotive
Sensor and Components

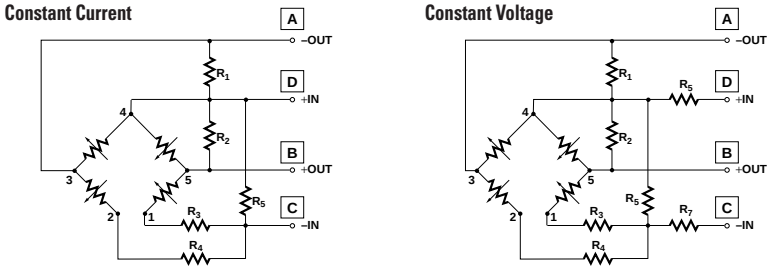
Lucas NovaSensor®
NPI-19
Low Pressure

Media Isolated Pressure Sensors

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. Available in either constant current or constant voltage version.

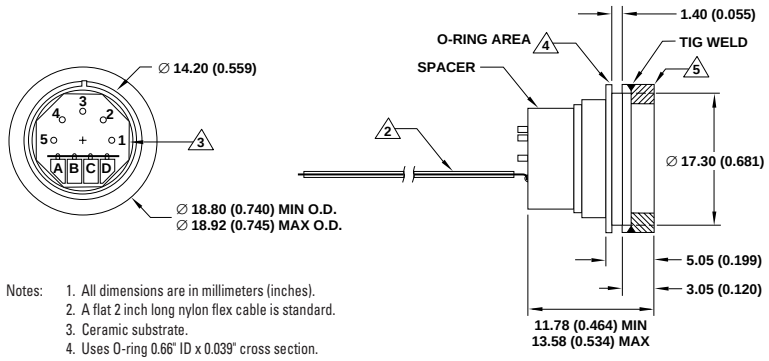
The modular design allows for a variety of pressure port modules, which are hermetically welded to the sensor header module. There are other standard port styles available. Please consult Lucas NovaSensor for more details.

Schematic Diagram



Note: Pin #4 connected to chip substrate.

Dimensions



Notes:
1. All dimensions are in millimeters (inches).
2. A flat 2 inch long nylon flex cable is standard.
3. Ceramic substrate.
4. Uses O-ring 0.66" ID x 0.039" cross section.
5. Port type A has no internal and external chamfer on weld ring

Features

- Solid state, high reliability
- 316 stainless steel, IsoSensor design
- ±0.5% Static accuracy
- Temperature Compensated 0-70°C
- 125 mV typical FSO on current version
- 75 ±1 mV FSO on voltage version
- Custom configurations are available. Please consult the factory

Applications

- Process control systems
- Hydraulic systems and valves
- Biomedical instruments

Operating Specifications

	CONSTANT CURRENT (1.5 mA)			CONSTANT VOLTAGE (10 V)		
PARAMETER	VALUE	UNITS	NOTES	VALUE	UNITS	NOTES
GENERAL						
Pressure Ranges	0–5	psi	34.5 kPa	0–5	psi	34.5 kPa
Maximum Overpressure		3x	rated pressure		3x	rated pressure
ELECTRICAL @ 25°C (77°F) unless otherwise stated						
Input Excitation	1.5	mA	2 mA max.	10	VDC	12 VDC max.
Insulation Resistance	50	Ω	@ 50 V_{DC}	50	Ω	@ 50 V_{DC}
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	0 to +70	°C	+32 to +158°F	0 to +70	°C	+32 to +158°F
Operating Temperature	–10 to +80	°C	+14 to +176°F	–10 to +80	°C	+14 to +176°F
Storage Temperature	–40 to +125	°C	–40 to +257°F	–40 to +125	°C	–40 to +257°F
MECHANICAL						
Weight	~10	grams	NPI-19A-XXX	~10	grams	NPI-19A-XXX
Media Compatibility	All corrosive media compatible with 316 stainless steel			All corrosive media compatible with 316 stainless steel		
Case and Diaphragm Material	316 stainless steel			316 stainless steel		
Recommended O-Ring	NPI-19A: 16.76 dia. x 0.99 (0.66 inch x 0.039 inch)			NPI-19A: 16.76 dia. x 0.99 (0.66 inch x 0.039 inch)		

COMPENSATED PERFORMANCE	(1.5 mA)				(10 VDC)				
Parameter	Units	Min.	Typ.	Max.	Units	Min.	Typ.	Max.	Notes
Offset	mV	–2	±1	2	mV	–2	±1	2	
Full Scale Output	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	%FSO	–1.5	±0.5	+1.5	%FSO	–1.5	±0.5	+1.5	3
Thermal Accuracy of FSO	%FSO	–1.0	±0.5	+1.0	%FSO	–1.0	±0.5	+1.0	3
Thermal Repeatability	%FSO	–0.2	0.1	0.2	%FSO	–0.2	0.1	0.2	3

Notes:
1. Performance with offset, thermal accuracy of offset, and thermal accuracy of FSO compensation resistors. All values measured at 25°C and at 1.5mA constant current or 10 VDC, unless otherwise noted.
2. Includes Linearity (BFSL), pressure hysteresis and repeatability errors.
3. 0 to +70°C with reference to 25°C.

HOW TO ORDER

Constant Current: N P I – 19 X – 031 G H
Constant Voltage: N P I – 19 X – 005 G V

- NovaSensor
- Pressure
- Type = IsoSensor
- Product Series
- Pressure Port Type
  A = No Port, o-ring seal
- H = Constant Current Supply (1.5mA)
  V = Constant Voltage Supply (10 VDC)
- G = Vented Gage
- Pressure Range,
  031 = 5 psi
  005 = 5 psi

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 without further notice to any products herein. Lucas NovaSensor makes no warranty, representation or guarantee regarding the suitability of its products for any particular application, nor does NovaSensor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims and all liability, including without limitation consequential or incidental damages.

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