

# Model 87N Ultrastable Pressure Sensor

**316 SS Pressure Sensor**  
**High Performance, Small Profile**  
**0-100 mV Output**  
**Temperature Compensated**  
**Absolute and Sealed Gage**  
**High Pressure (up to 5000 psi)**

## DESCRIPTION

**The Model 87N US** is a micro machined piezoresistive silicon pressure sensor. It is designed for OEM applications where compatibility with corrosive media must be maintained. The Model 87N US uses Measurement Specialties' proprietary ultrastable die for long term stability, making this sensor ideal for high performance, high pressure applications. The sensor chip is mounted in a 316 stainless steel package, sealing a small volume of silicon oil between the diaphragm and the sensor

chip. The ISO pressure housing utilizes the oil column to couple the piezoresistive sensor to the isolation diaphragm. A thick film ceramic compensation board with laser trimmed resistors, and additional gain set resistor to normalize pressure sensitivity are an integral part of the sensor package. A variety of threaded process fittings are available. Fittings include standards like 1/4 and 1/8 NPT as well as custom process fittings. Electrical options include cable and connector.



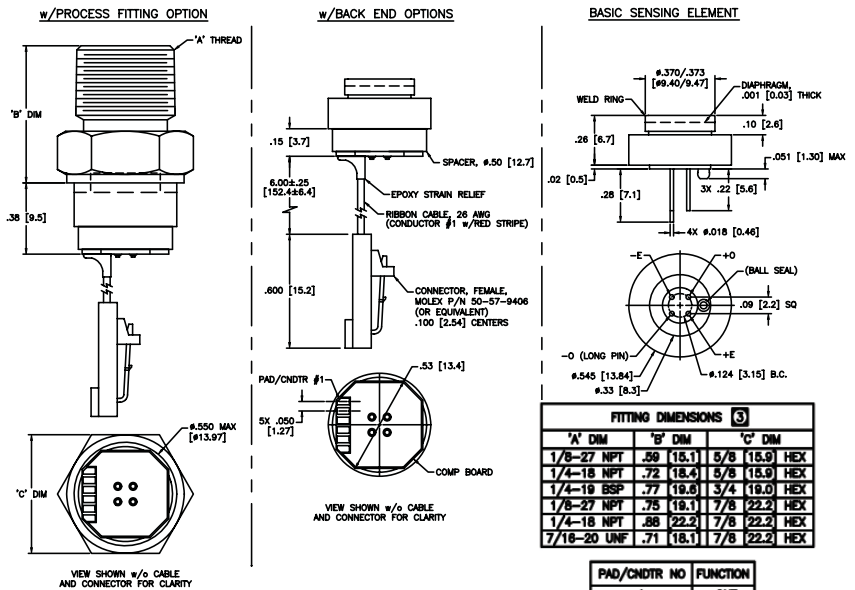
## FEATURES

- ◆ Weldable, Optional Process Fittings
- ◆  $\pm 0.25\%$  Pressure Non-linearity
- ◆  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  Compensated temperature range
- ◆  $\pm 0.25\%$  Interchangeable Span (provided by gain set resistor)
- ◆ Solid State Reliability
- ◆ Low Power

## APPLICATIONS

- ◆ Hydraulic Controls
- ◆ Process Control
- ◆ Robotics
- ◆ Oceanography
- ◆ Refrigeration/Compressors
- ◆ Pressure Transmitters

## dimensions



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## performance specifications

All parameters measured at 1.5mA drive and at 25°C after 10 second warm up, unless otherwise specified. Parameters are specified for the compensated version only.

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Span	75	100	150	mV	1
Zero Offset	-1	0	1	mV	
Pressure Non-linearity	-0.25		0.25	% Span	2
Pressure Hysteresis		50		μV	
Input Resistance	2000	2750	4000	Ω	
Output Resistance	4000		25000	Ω	
Temperature Error - Span	-0.75		+0.75	% Span	3
Temperature Error - Zero	-0.75		+0.75	% Span	3
Thermal Hysteresis - Span		±0.05		% Span	3
Thermal Hysteresis - Zero		±0.05		% Span	3
Long Term Stability of Span		±0.1		% Span/yr.	
Pressure Overload			3X	Rated	4
Burst Pressure			20K	PSI	
Supply Current	0.5	1.5	2.0	mA	
Output Load Resistance	5			MΩ	5
Insulation Resistance (50 VDC)	50			MΩ	6
Compensation Operating Temperature	-20°C to +85°C				7
Operating Temperature Range	-40°C to +125°C				7
Storage Temperature Range	-50°C to +125°C				7
Media - Pressure Port	Liquids and Gases compatible with 316L Stainless Steel				
Weight	9 grams				8

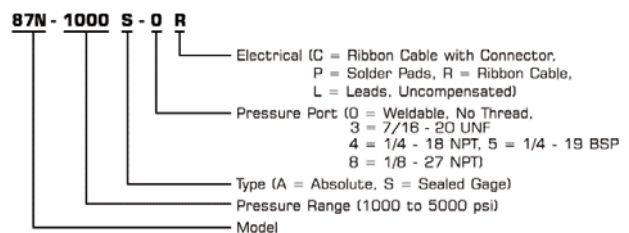
### Notes

- All 3000 psi and 5000 psi parts are tested at 2500 psi.
- Best fit straight line.
- Over temperature range -20°C to +85°C, with respect to +25°C.
- 3x or 10,000psi, whichever is less
- Load resistance to reduce measurement errors due to output loading.
- Between case and sensing element.
- Maximum temperature range for product with standard cable and connector is -20°C to +105°C.
- Weight depends upon configuration (cable, connector, pressure fitting).

### standard ranges

Range	psia	psis
0 to 1000	•	•
0 to 3000	•	•
0 to 5000	•	•

### ordering information



### connections

Pad/Cable No.	Function
1	+OUT
2	-EX
3	+EX
4	-OUT
5	GAIN
6	GAIN

### application schematic

