

### Features

- Weldable, Optional Process Fittings
- $\pm 0.25\%$  Pressure Non-linearity
- $\pm 0.75\%$  Temperature Performance
- Solid State Reliability
- Low Power

### Applications

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

## 87N Compensated

### Specifications

- 316L SS Pressure Sensor
- High Performance, Small Profile
- 0-100 mV Output
- Temperature Compensated
- Absolute and Sealed Gage

This is a micro machined piezoresistive silicon pressure sensor.

It is designed for OEM applications where compatibility with corrosive media must be maintained. The sensor chip is mounted in a 316L 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.

## Standard Ranges

Range	Psi A	Psi S
0 to 1000	•	•
0 to 3000	•	•
0 to 5000	•	•

## Performance Specifications

Unless otherwise specified: Supply Current: 1.5mA, Ambient Temperature: 25°C

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Span	75	150	210	mV	1
Zero Pressure Output	-1.0	0	+1.0	mV	
Pressure Non-Linearity	-0.25	-	+0.25	%Span	2
Pressure Hysteresis	-	±0.05	-	%Span	
Repeatability	-	±0.02	-	%Span	
Input Resistance	3.0	4.0	5.0	KΩ	
Output Resistance	4.0	-	25.0	KΩ	
Temperature Error – Span	-0.75	-	+0.75	%Span	3
Temperature Error – Offset	-0.75	-	+0.75	%Span	3
Thermal Hysteresis – Span	-0.25	±0.05	-	%Span	3
Thermal Hysteresis – Offset	-0.25	±0.05	+0.25	%Span	3
Long Term Stability – Span	-	±0.1	-	%Span/Year	
Long Term Stability – Offset	-	±0.1	-	%Span/Year	
Supply Current	0.5	1.5	2.0	mA	
Output Load Resistance	5	-	-	MΩ	4
Insulation Resistance (50VDC)	50	-	-	MΩ	5
Pressure Overload	-	-	3x	Rated	6
Pressure Burst	-	-	4x	Rated	7
Compensated Temperature	-20	-	+85	°C	
Operating Temperature	-40	-	+125	°C	8
Storage Temperature	-50	-	+125	°C	8

Media – Reference Port

LIQUIDS AND GASES COMPATIBLE WITH 316/316L ST STL

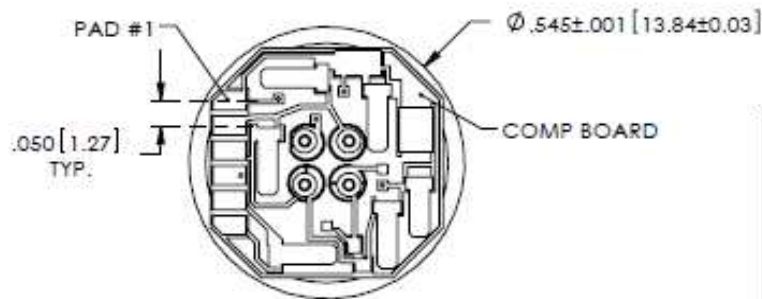
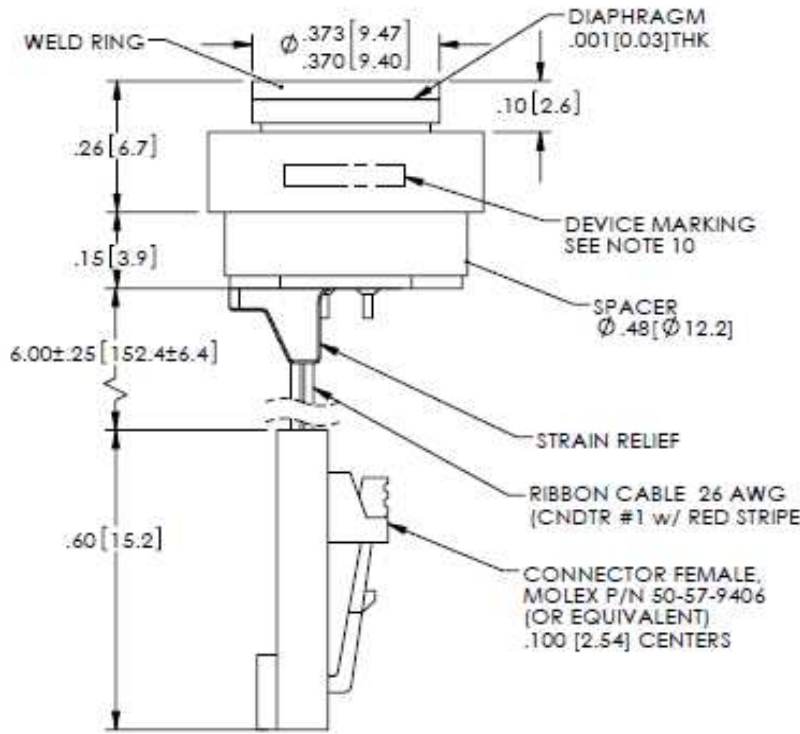
### Notes:

- Measured at vacuum for absolute (A) and ambient for sealed gage (S).  
for amplified output circuits, 3.012v ±1% interchangeability with gain set resistor.
- Best fit straight line
- Over temperature range -20°C to +85°C, with respect to +25°C.
- Load resistance to reduce measurement errors due to output loading.
- Between case and sensing element.
- Pressure overload 3x or 15,000 psi, whichever is less.  
The maximum pressure that can be applied without changing the transducer's performance or accuracy.
- Pressure burst 4x or 15,000 psi, whichever is less.  
The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer.
- Maximum temperature range for product with standard cable and connector is -20°C to +105°C.
- Testing:  
All 3000 and 5000 psi parts are tested at 2500 psi and calculated to full scale pressure respective.
- Marking:  
Parts are marked with model number, pressure range, type ("A" for absolute or "S" for sealed gage),  
Lot number, serial number and date code.
- Direct mechanical contact with diaphragm is prohibited. Diaphragm surface must remain free of defects (scratches, punctures, fingerprints, etc.) for device to operate properly. Caution is advised when handling parts with exposed diaphragms.  
Use protective cap whenever devices are not in use.

Dimensions

(DIMENSIONS ARE IN INCHES [mm] )

w/Back End Options



VIEW SHOWN w/o CABLE AND CONNECTOR FOR CLARITY

SENSOR PINOUT	
CNDTR NO.	FUNCTION
1	+OUT
2	-EX
3	+EX
4	-OUT
5	GAIN
6	

w/Process Fitting Options

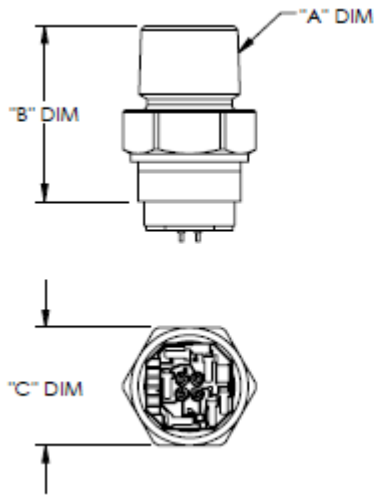
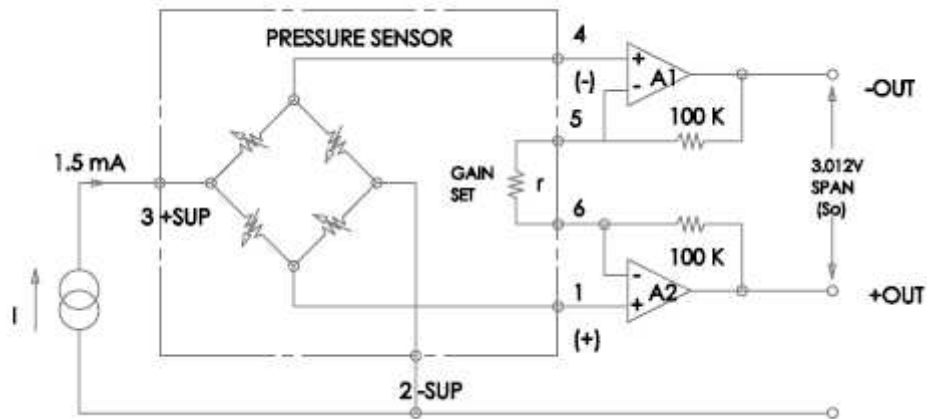


TABLE 1: MODEL w/ FITTING DIMENSION				
FITTING TYPE	MEAS P/N	"A" DIM	"B" DIM	"C" DIM
1	041-7053	1/4-18 NPT	1.16[29.5]	7/8 [22.2] HEX
2	041-7052	1/8-27 NPT	1.15[29.0]	7/8 [22.2] HEX
3	041-7051	7/16-20 UNF-2A	1.00[25.4]	7/8 [22.2] HEX
4	041-6703	1/4-18 NPT	.93[23.6]	5/8 [15.9] HEX
5	041-5024	1/4-19 BSP	.98[24.9]	3/4 [19.0] HEX
8	041-6789	1/8-27 NPT	.80[20.3]	5/8 [15.9] HEX
9	041-7125	1/4-19 BSP	1.12[28.4]	7/8 [22.2] HEX

NOTE : FITTING TYPE "4" ASSEMBLY SHOWN  
ALL DIMS ARE FOR REFERENCE ONLY

Equivalent Schematic



**Ordering Information**

**87N - XXXX X - X X**

Pressure Range (PSI)
1000
3000
5000

Type
A = Absolute
S = Sealed Gage

Electrical
P = Solder Pads
R = Cable
C = Cable w/Connector

Fitting Type
0= No Fitting
1 = 1/4 NPT, 7/8 HEX
2 = 1/8 NPT, 7/8 HEX
3 = 7/16 UNF, 7/8 HEX
4 = 1/4 NPT, 5/8 HEX
5 = 1/4 BSP, 3/4 HEX
8 = 1/8 NPT, 5/8 HEX
9 = 1/4 BSP, 7/8 HEX

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Version # 08/2020

