

Absolute and Sealed Gage

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



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 on a TO style header, which is resistance welded to a 316 stainless steel package, sealing a small volume of silicone 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 thickfilm 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.

- ▶ Weldable, Optional Process Fittings
- ▶ ± 0.25 Pressure Non-linearity
- ▶ $\pm 1.0\%$ Temperature Performance
- ▶ ± 0.25 Interchangeable Span
(provided by gain set resistor)
- ▶ Solid State Reliability
- ▶ Low Power

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

w/PROCESS FITTING OPTION

18 DIM

48 [11.6]

1/8\" A\" THREAD

1/16\" S50 MAX [1/16\" 1.37]

1\" DIM

VIEW SHOWN w/ CABLE AND CONNECTOR FOR CLARITY

w/BACK END OPTIONS

225 [5.7]

9.00.25 [152.46.4]

EPOXY STRAIN RELIEF

RIBBON CABLE, 26 AWG (CONDUCTOR #1 W/RED STRIPE)

CONNECTOR, FEMALE, MOLEX PIN 50-57-9406 (OR EQUIVALENT) .100 [2.54] CENTERS

.600 [15.2]

PAD/CNDR #1

.53 [13.4]

5X .650 [1.27]

VIEW SHOWN w/ CABLE AND CONNECTOR FOR CLARITY

COMP BOARD

BASIC SENSING ELEMENT

WELD RING

370/ 373 [9.40/9.47]

DIAPHRAGM, .001 [0.03] THICK

.26 [6.7]

.10 [2.6]

.061 [1.30] MAX

3X .22 [5.6]

.02 [0.5]

.28 [7.1]

4X .018 [0.46]

-(E)

+O

(BALL SEAL)

.09 [2.2] SQ

+E

-(O) (LONG PIN)

1/16\" S45 [13.84]

1/16\" S3 [8.39]

1/16\" S124 [3.15] B.C.

PROCESS FITTING DIMENSIONS			
A\" DIM	B\" DIM	C\" DIM	D\" DIM
1/8-27 NPT	.59 [15.1]	5/8 [15.9] HEX	
1/4-18 NPT	.72 [18.4]	5/8 [15.9] HEX	
1/4-19 BSP	.77 [19.6]	3/4 [19.0] HEX	
1/8-27 NPT	.75 [19.1]	7/8 [22.1] HEX	
1/4-18 NPT	.88 [22.2]	7/8 [22.2] HEX	
7/16-20 UNF	.71 [18.1]	7/8 [22.2] HEX	

ALL DIMENSIONS ARE IN INCHES [mm]

ALL PROCESS WETTED PARTS ARE 316 PROCESS STAINLESS STEEL

PERFORMANCE SPECIFICATIONS

All parameters measured at 1.5mA drive and at 25°C, after 10 second warm up, unless otherwise specified. Unless specifically indicated, only those parameters indicated as tested are verified on each part. Parameters are specified for the compensation version only.

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Full Scale Output 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	
Temp. Error - Span	-0.75		+0.75	% Span	3
Temp. Error - Zero	-0.75		+0.75	% Span	3
Thermal Hysteresis - Span		0.05		% Span	3
Thermal Hysteresis - Zero		0.05		% Span	3
Supply Current	0.5	1.5	2.0	mA	
Output Load Resistance	5			MΩ	4
Insulation Resistance (50 VDC)	50			MΩ	5
Compensation Operating Temperature	-20°C to +85°C				6
Operating Temperature Range	-40°C to +125°C				6
Storage Temperature Range	-50°C to +125°C				6
Media - Pressure Port	Liquids and Gases compatible with 316L Stainless Steel.				
Media - Reference Port	Liquids and Gases. Compatible with Silicon, Pyrex, Gold, Fluorosilicone Rubber and 316L Stainless Steel.				
Weight	11 g				7

- 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, % span, with respect to +25°C.
 - 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).

ORDERING INFORMATION

87N - 1000 S - 0 R

Electrical (C = Ribbon Cable with Connector,
P = Solder Pads, R = Ribbon Cable,
L = Leads, Uncompensated)

Pressure Port (0 = Weldable, No Thread,
4 = 1/4 - 18 NPT, 5 = 1/4 - 19 BSP,
8 = 1/8 - 27 NPT)

Type (A = Absolute, S = Sealed Gage)

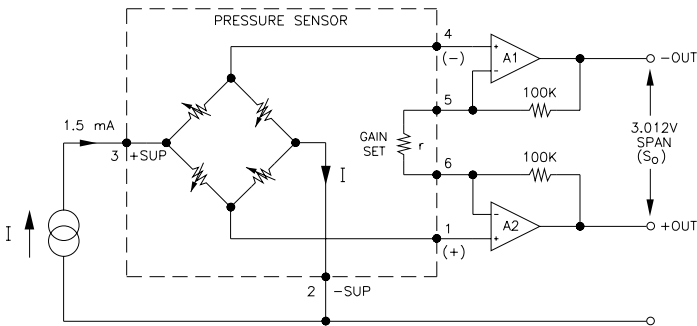
Pressure Range (1000 to 5000 psi)

Model

CONNECTIONS

PAD NO. / CABLE	FUNCTION
1	+OUT
2	-EX
3	+EX
4	-OUT
5	GAIN
6	GAIN

APPLICATION SCHEMATIC



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