



## A DIRECT REPLACEMENT FOR STRAIN GAGE TRANSDUCERS LOW-RANGE WET-WET CAPABILITY

### Features

- ❑ Ranges as low as  $\pm 0.08$  psi full scale
- ❑ Differential or absolute
- ❑ 5 to 12 Vdc Input, 5mV/V Output
- ❑ Stainless steel pressure cavities

### DESCRIPTION

The P300 D/A Pressure Transducer is designed for direct application in DC strain gage instrumentation systems which require low pressure ranges not generally available in strain gage transducers. Functionally, it is a direct replacement for a strain gage transducer, providing a 5 mV/V nominal DC output over an excitation range of 5 to 12 Vdc.

The P300D has a differential pressure transducer with symmetrical pressure cavities of stainless steel. Fluid pressures act directly on a central sensing diaphragm in a balanced variable reluctance design which eliminates the need for internal fluids to isolate transduction mechanisms such as strain gages or differential transformers from the measurand. The transducer can be disassembled for diaphragm replacement.

The P300A has an absolute pressure transducer with weld sealed stainless steel pressure and reference vacuum cavities. This unit is available in ranges as low 0.08 psia with an overpressure rating of 20 psia.

The transducer is coupled to an integrated circuit carrier demodulator which supplies 5 kHz excitation to the transducer and demodulates its output into a DC voltage linear with pressure. The input power is very low. and the output simulates that of a typical 350 ohm strain gage bridge. Screwdriver zero and span adjustments are available under the cover and connector terminals are available for use of an external calibration resistor.

### Accessories

Mating Connector	P/N 1280 – 1002
	Bendix PT06A-10-6S

### Specifications

<b>Ranges:</b>	P300D: $\pm 0.08$ to $\pm 3200$ psid FS P300A: 0-0.08 to 0-3200 psia FS Consult selection chart for specific ranges available
<b>Accuracy:</b>	$\pm 0.25\%$ FS differential, $\pm 0.5\%$ absolute, includes linearity, hysteresis, and repeatability
<b>Overpressure:</b>	P300D: 200% FS up to 4000 psi maximum, with less than 0.5% zero shift P300A: 20 psia or 200% FS Whichever is greater, up to 4000 psi maximum, with less than 0.5% zero shift.
<b>Line Pressure P300D:</b>	3200 psig max, with zero shift less than 1% FS / 1000 psi
<b>Pressure Media:</b>	Fluids compatible with type 410 stainless steel and Inconel
<b>O-Ring, P300D only:</b>	Buna-N; other compounds available
<b>Pressure Cavity Volume:</b>	$4 \times 10^{-3}$ cubic inch, symmetrical in P300D
<b>Volumetric Displacement:</b>	$3 \times 10^{-3}$ cubic inch FS
<b>Excitation:</b>	5 to 12 Vdc. 4 mA max, reverse polarity protected up to 0.5 A
<b>Signal Output</b>	P300D: $\pm 5$ mV/Vdc FS $\pm 2\%$ P300A: 0-5 mV/Vdc FS $\pm 2\%$
<b>Zero Balance:</b>	< 0.1 mV/Vdc Adjustable $\pm 20\%$
<b>Output Resistance:</b>	350 ohms $\pm 1\%$ differential
<b>Requency Response:</b>	0-200 Hz flat 10% for electronics
<b>Output Noise:</b>	< 5 $\mu$ V/V
<b>Insulation Resistance:</b>	10 megohms minimum, any terminal to case
<b>Operating Temp. Range:</b>	-65° to +250°F

## Pressure Range Selection Chart

RANGE DASH NO.	PSID/A	IN HG	IN H2O	TORR
20	.08	.16	2.22	4.14
22	.125	.25	3.5	6.5
24	.20	.41	5.5	10.3
26	.32	.65	8.9	16.5
28	.50	1.02	14.0	25.8
30	.80	1.6	22.2	41.4
32	1.25	2.5	35.0	65.0
34	2.0	4.1	55.0	103
36	3.2	6.5	90	165
38	5.0	10.2	140	258
40	8.0	16.0	222	414
42	12.5	25.0	350	650
44	20	41.0	550	1030
46	32	65.0	890	1650
48	50	102	1400	2580
50	80	160	2220	4140
52	125	250	3500	6500
54	200	410	5500	10300
56	320	650	8900	16500
58	500	1020	14000	25800
60	800	1600	22200	41400
62	1250	2500	35000	65000
64	2000	4100	55000	103000
66	3200	6500	89000	165000

## Specifications (CONTINUED)

**Compensated Temp. Range:** -65° to +250°F optional

**Temperature Error:** <2% FS/100°F

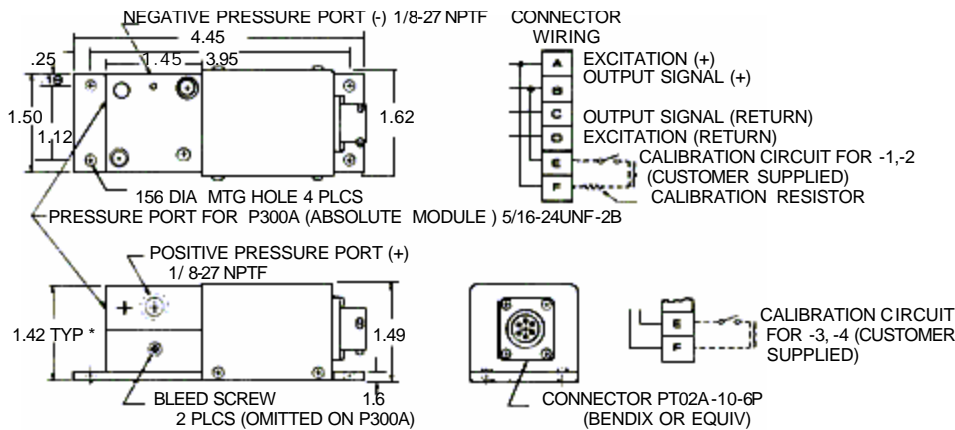
**Pressure Ports:** P300D: 1/8-27 NPT  
P300A: 5/16-24 UNF-2B

**Electrical Connector:** Bendix PT02A-10-6P or equivalent

**Size:** Mate PT06A-10-6S not furnished

**Weight:** See outline Drawing

16 oz. (0.45 kg.)

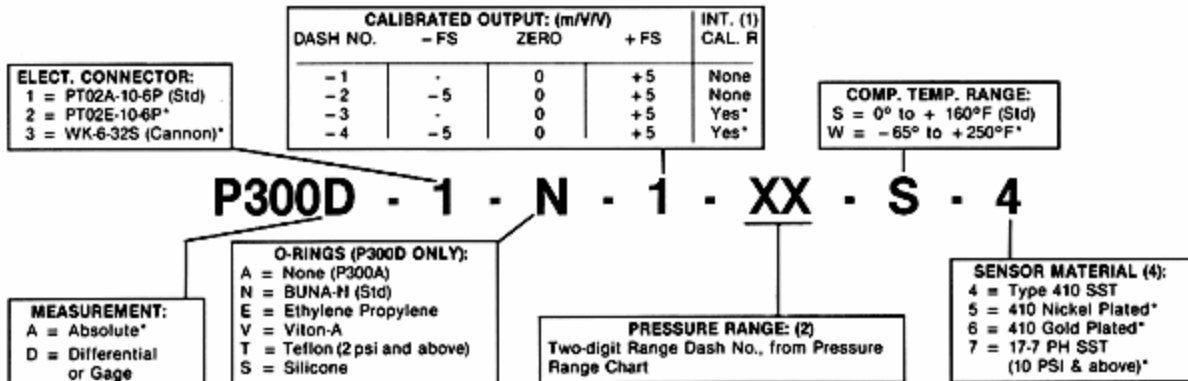


### How to Use the Pressure Range Chart

The pressure range is identified by a two digit range dash number taken from the chart above. This chart shows the full scale rangeability of each dash number—for example, a -30 range means that the P300 span can be adjusted to provide a 5 mV/V FS output for any pressure from 0.8 to 1.25 PSI. This also shows that Validyne can supply the P300 for any full-scale pressure between 0.08 and 3200 PSI. Note that the standard factory calibration is to the maximum full scale pressure range for each dash number. When ordering diaphragms for the P300D, the chart should be used as above. The range dash number is also the diaphragm dash number. When the pressure range chart is so used, the transducer will meet all of the performance specifications for the model.

\*THIS DIMENSION VARIES WITH PRESSURE RANGE

## Ordering Information For transducers, specify part number as follows:



### Notes:

- The internal Calibration Resistor Option (INT. CAL.R) provides an internal single-point calibration resistor which produces a positive step change in output of 4mV/V, or 80% FS.
- The transducer will be calibrated to produce 5 mV/V FS output at the maximum pressure rating for the Range Dash Number selected; e.g., a -40 range will be calibrated using 12.5 psi as the full scale pressure value.
- Optional features marked with an asterisk (\*) are extra cost options. See current Price List.
- SENSOR MATERIAL, Optional 5 and 6 are available only on P300D (Gage and Differential types).



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