



Features

- Full Scale Differential Pressure Ranges as Low as ± 0.008 psid
- High Line Pressure Capability
- Wet-Wet Differential
- Equal Pressure Inlet Volumes
- Low Acceleration Sensitivity
- Field Replaceable Sensing Diaphragms

Description

The Validyne DP103 is designed for exceedingly low differential pressure measurement applications where high accuracy is required under rough physical conditions. With full scale ranges down to ± 0.008 psid (± 0.56 cm H₂O), this instrument is being used in the measurement of very low flow rates of gases where symmetrical pressure cavities are required for dynamic response. It is also used in very small leak detection and pressure null detection systems.

Applications involving corrosive liquids and corrosive gases are easily handled as all surfaces exposed to the media are corrosion resistant steel. Overpressure as high as 100 psid will not destroy the sensing diaphragm and with recalibration the instrument may continue to be used.

Used with a typical Validyne carrier demodulator, ± 10 Vdc output may be obtained for a pressure of ± 0.008 psid. The transducer may be located 1000 feet or more from the electronics with no problem.

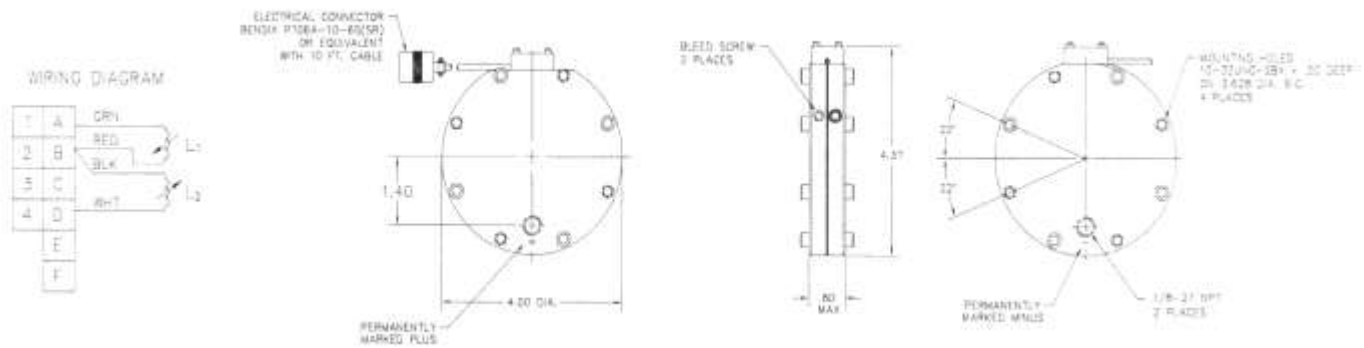
Specifications

Standard Ranges:	± 0.008 to ± 12.5 psid FS See Diaphragm Selection Chart on the following sheet.
Accuracy*:	$\pm 0.5\%$ Full Scale $\pm 200\%$ Full Scale with less than
Overpressure:	0.5% Full Scale Zero Shift
Overpressure Limit:	15 psi for -26 and below 100 psi for -28 and above
Line Pressure:	100 psig, less than 1% Zero Shift
Inductance:	20mH nominal, each coil
Zero Balance:	$\leq \pm 5$ mV/V at rated excitation
Excitation:	Rated: 5 Vrms at 5kHz Limits: 30 vrms at 3kHz 1 to 20 kHz with 20 mh coils
Sensitivity:	20mV/V for Full Scale, nominal
Pressure Media:	Corrosive fluids, compatible with 410ss, Inconel, and Buna N O-Rings.**
Temperature:	Operating: -65 to 250°F Specified: 77°F
Thermal Zero Shift:	1%FS/100°F typical
Thermal Sensitivity Shift:	5%/100°F typical
Pressure Cavity Volume:	35×10^{-3} cubic inch (.57 cc)
Volumetric Displacement:	$3. \times 10^{-3}$ cubic inch (.057 cc)
Pressure Connection:	1/8-27 NPTF
Electrical Connection:	Bendix PT06A-106S (SR) or equivalent, 10ft. cable provided
Size:	1.25" X 4" X 4.375"
Weight:	39 ounces (1.11 Kg)
Replacement Diaphragms:	Order P/N 8-XX Diaphragm Dash Number from selection chart on the following sheet.

*Includes the effects of Linearity, Hysteresis, and Repeatability.

**See Ordering Information on the following sheet for available options.

Installation Drawing



Diaphragm Selection Chart

Use this chart to specify transducer diaphragm range.

Range Dash No.	Pressure Range Chart					
	PSI	IN HG	IN H ₂ O	KPA	TORR	CM H ₂ O
	0.003	0.006	0.09	0.022	0.17	0.22
06	0.005	0.010	0.14	0.035	0.26	0.35
08	0.008	0.016	0.22	0.055	0.41	0.56
10	0.0125	0.25	0.35	0.086	0.65	0.88
12	0.020	0.041	0.55	0.14	1.03	1.40
14	0.032	0.055	0.89	0.22	1.65	2.25
16	0.05	0.102	1.40	0.35	2.58	3.50
18	0.08	0.16	2.22	0.55	4.14	5.60
20	0.125	0.35	3.5	0.86	6.5	8.80
22	0.20	0.41	5.5	1.40	10.3	14.0
24	0.32	0.65	8.9	2.2	16.5	22.5
26	0.50	1.02	14.0	.5	25.8	35.0
28	0.80	1.6	22.2	5.5	41.4	56.0
30	1.25	2.5	35.0	8.6	65.0	88.0
32	2.0	4.1	55.0	14.0	103.0	140.0
34	3.2	6.5	90.0	22.0	165.0	225.0
36	5.0	10.2	140.0	35.0	258.0	350.0
38	8.0	16.0	222.0	55.0	414.0	560.0
40	12.5	25.0	350.0	86.0	650.0	880.0

To order replacement diaphragms, specify:
Model code and Range Dash No.
 8 (DP103) and -06 thru -40

How To Use The Diaphragm Selection Chart

First, select the appropriate engineering units desired (PSI, IN HG, IN H₂O, KPA, TORR, or CM H₂O). Find the desired full-scale pressure range in this column. Then, note the corresponding **Range Dash Number** in the far left column. When ordering, use this number to specify the "-XX" in the part number (See "Ordering Information").

Example: To obtain a 2.22" H₂O transducer, select a -18 Range Dash Number. This transducer may be calibrated from 0" H₂O to any full-scale pressure range between 1.40" and 2.22" H₂O.

If the pressure range desired falls between the ranges listed, use the Range Dash Number for the next higher range.

Example: To obtain a .10 PSI transducer, select a -20 Range Dash Number. This transducer may be calibrated from 0 PSI to any full scale pressure range between .08 and .125 PSI, including 0 to 0.10 psi.

Using the **Pressure Range Chart** assures that the transducer model selected will meet all performance specifications.

Ordering Information

For Transducers, specify part numbers as follows:

Pressure Range Two-Digit Range Dash Number See the Diaphragm selection Chart.	Temperature Range S = 77°F (STD)	Sensor Material 4 = 410 Stainless Steel (STD)
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DP103 – XX – N – 1 – S – 4 – D

O-Rings N = Buna-N (STD) E = Ethylene Propylene V = Viton-A S = Silicone T = Teflon (2 psi & above)	Electrical Connectors 1 = PTA06A-10-6S Bendix (STD) 2 = PT06E-10-6S Bendix 3 = WK-4-21 C-1/4, Cannon 4 = WK-4-22 C-1/4, Cannon 7 = NONE, Cable Ends Pigtailed 8 = NONE, Wire Leads Pigtailed	Cable Length Cable Type A = 1 FT Belden 8434 B = 18 IN Belden 8434 C = 5 FT Belden 8434 D = 10 FT Belden 8434 E = 15 FT Belden 8434 F = 25 FT Belden 8434 G = 50 FT Belden 8434 H = 100 FT Belden 8434 K = As Specified 4 leads 24 GA L = As Specified Belden 8434
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