



Model P55

Differential Pressure Transmitter



Features:

- **Small, Rugged DP Transmitter for Liquid Service**
- **+/-5 Vdc or 4-20 mA Two-Wire Output**
- **Full Scale Range from 2.22" H₂O to 3200 psi**
- **316 SS, Inconel Sensor Materials Available**
- **0.25% Accuracy – 0.1% Accuracy Optional**

The Validyne Model P55 is a compact differential pressure transmitter designed for industrial measurement applications. The variable reluctance sensing technology allows the P55 to be used in a wide variety of low pressure measurements where fast dynamic response, high resistance to vibration and superior signal stability through ambient temperature change is required. The P55 will accept both gases and liquids directly at the sensing diaphragm; there are no internal isolation fluids to slow the sensor response or cause excessive temperature shift errors.

The P55 is available in three output configurations: 4-20 mA current sink output, DC output and isolated DC output. The 4-20 mA output version is a true two-wire system which will operate over a supply voltage of 9 to 55 Vdc.

The DC version is a direct replacement for the Vdc signal. The isolated DC output version provides the same +/-5 Vdc signal, isolated from the power supply by 100 MOhms

The P55 is also available in an absolute pressure version with a welded variable reluctance sensor. Zero and span controls are available for external adjustment, and the wiring may be via connector or pigtail options.

Sensor wetted parts include 410 steel, suitable for inert gases and hydrocarbons, 316 SST for water-based fluids and Inconel for corrosive applications. (See ordering information)

The P55 is Ideal for:

- **Level Measurements**
- **Hydraulic Systems**
- **Vehicle Testing**

P55 Specifications

General Specifications –

Ranges:

P55D: +/-0.08 psid to +/-3200 psid
P55A: 0 - 0.08 psia to 0 - 3200 psia

Accuracy:

P55D: +/-0.25% FS, includes
Non-linearity, hysteresis
And non-repeatability
P55E: +/-0.1% FS. as above
P55A: +/-0.5% FS, as above
P55D: +/-0.5% FS, ranges -62, -64

Overpressure:

P55D: 200% FS up to 4000 psi
Maximum with less than
0.5% FS output shift
P55A: 20 psia or 200% FS,
whichever is greater, up to
4000 psia maximum, for
Less than 0.5% zero shift

Line Pressure:

P55D: 3200 psig maximum, with
Zero shift less than 1%/Kpsi

Pressure Ports:

P55D: 1/8" female NPT with 8-32
Bleed Screw & Gasket, STD
P55A: 5/16-24 UNF-2B with 1/8"
Male NPT adapter included

Environmental Specifications -

Operating Temp: -65 F to +250 F

Compensated Temp: 0 to +160 F
-65F to +250 F (Optional)

Temperature Errors: +/-0.5% FS
For Operating Temperature
Range of 0 F to +160 F

+/-0.9% FS
For Operating Temperature
Range of -65 F to +250 F

Includes non-linearity and
hysteresis errors

Sensor Physical Specifications -

Pressure Media: Liquids & gases compatible
with 410, 316 SST and Inconel

O-Rings: Buna-N Standard, other
compounds available

Pressure Cavity Volume: 0.012 cu in, each port

Volumetric Displacement: 0.0003 cu in at FS

Weight: 16 Oz.

Power Requirements -

Power Supply: 9 to 55 Vdc, unregulated

Current Draw:
4-20 mA Output: 25 mA max
+/-5 Vdc Versions: 3 mA, typ

Signal Output -

4-20 mA Output: 4 to 20 mA
DC Voltage Output: +/-5 Vdc @ 0.5 mA

Zero Balance: By external adjustment
Span: By external adjustment

Frequency Response: Low Pass Filter at 250 Hz, -3 db

Line Regulation: 0.02%

Output Noise: 2 mVrms

Insulation Resistance: 100 MOhms, any terminal to
case

Ordering Information

P55D-1-N-1-40-S-4-A

Measurement

A = Absolute
 D = Differential
 E = Extended Accuracy 0.1% F.S.

Electrical Connection

1 = PT02A Amphenol Connector
 2 = PT02E Environmental Connector
 4 = 1/2" NPT Conduit w/24" Leads

O-Rings

L = Fluorosilicone
 N = Buna-N (STD)
 E = Ethylene Propylene
 V = Viton-A
 S = Silicone
 K = Kalrez
 T = Teflon (2 psid & above)
 C = Customer Supplied

Output Type

1 = 0 to +5 Vdc
 2 = 0 to ±5 Vdc
 3 = 0 to +2.5 to +5 Vdc
 4 = 4-20 mA
 5 = 4-12-20 mA
 6 = 0 to +5 Vdc, Isolated
 7 = 0 to ±5 Vdc, Isolated
 8 = 0 to +2.5 to +5 Vdc, Isolated

Pressure Connection

A = 1/8" Female NPT w/8-32 Bleed Port
 B = 1/8" Female NPT & 1/8" Female NPT Bleed Port
 E = 5/6" Female per AND 10050-2, No Bleed Port, 55A Only
 F = 1/4" OD Tube X 1" Long, No Bleed Port

Sensor Material

3 = 316 SS (w/Teflon-coated diaphragm, 1 psid and higher)
 4 = 410 SST
 5 = 410 SST Nickel Plated
 6 = 410 SST Gold Plated
 8 = Inconel (w/Teflon-coated diaphragm, 1 psid and higher)

Operating Temp. Range

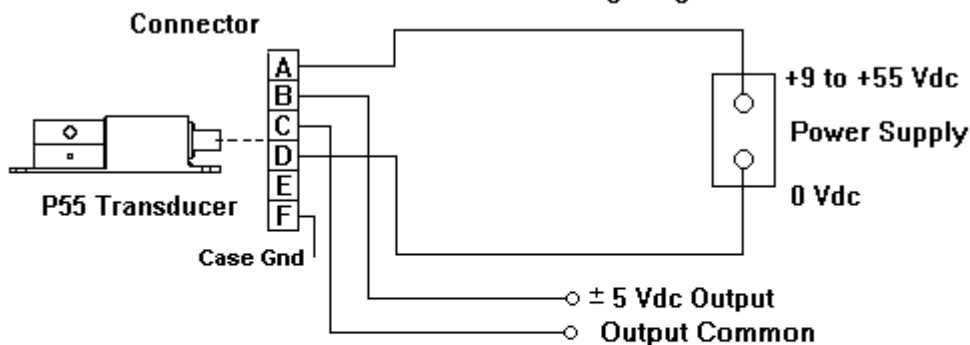
S = 0 F to 160 F
 W = -65 F to +250 F

Pressure Ranges

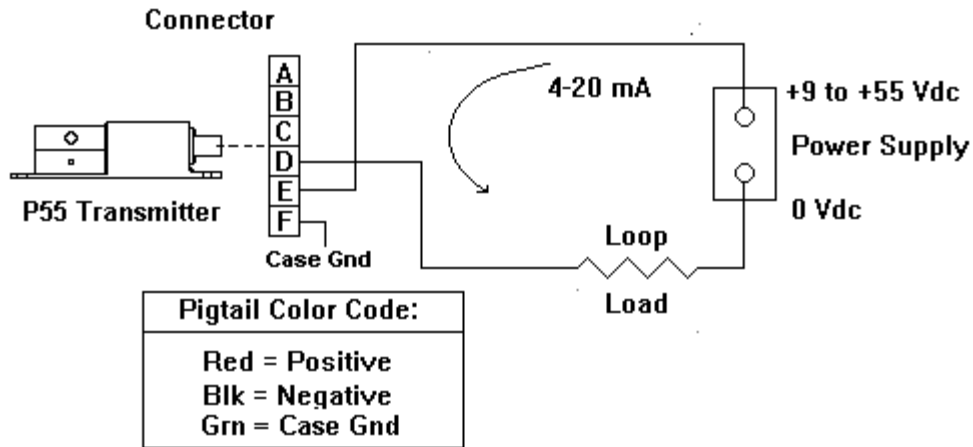
XX = Two Digit Range Code (see chart)

Wiring Diagram

Transducer Wiring Diagram



Non-Isolated Pigtail Color Code:	Isolated Pigtail Color Code:
Red = + Power Yel = - Power	Red = + Power Blk = - Power
Orn = + Signal Gry = Output Common	Orn = + Signal Grv = - Signal
Grn = Case Gnd	Grn = Case Gnd



PRESSURE RANGE CHART						
Range Dash No.	PSI	IN HG.	IN H₂O	KPA	TORR	CM H₂O
20	.125	.25	3.5	.86	6.5	8.80
22	.20	.41	5.5	1.40	10.3	14.0
24	.32	.65	8.9	2.2	16.5	22.5
26	.50	1.02	14.0	3.5	25.8	35.0
28	.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	140
34	3.2	6.5	90	22.0	165	225
36	5.0	10.2	140	35.0	258	350
38	8.0	16.0	222	55.0	414	560
40	12.5	25.0	350	86.0	650	880
42	20	41.0	550	140	1030	1400
44	32	65.0	890	220	1650	2250
46	50	102	1400	350	2580	3500
48	80	160	2220	550	4140	5600
50	125	250	3500	860	6500	8800
52	200	410	5500	1400	10300	14000
54	320	650	8900	2200	16500	22500
56	500	1020	14000	3500	25800	35000
58	800	1600	22200	5500	41400	56000
60	1250	2500	35000	8600	65000	88000
62	2000	4100	55000	14000	103000	140000
64	3200	6500	89000	22000	165000	225000