

## P17 Very Low Range Differential Pressure Transducer



### Features:

- Full Scale Differential Pressure Ranges as low as  $\pm 0.1$  In H<sub>2</sub>O
- DC Power/DC Signal
- Small Displacement Volume
- 1/8" NPTF Pressure Ports
- Rugged Construction

The Validyne Model P17 is a DC powered differential pressure transducer designed for exceedingly low differential pressure measurements. With a full scale range down to  $\pm 0.1$  inH<sub>2</sub>O, this sensor is ideal for the measurement of very low flow rates of air and inert gases. It can also be used in small leak detection and pressure null detection systems.

The P17 can be mounted conveniently inside your enclosure using standoffs. Custom configurations for your application include:

- FS pressure ranges
- Power supply voltage
- Output signal
- Pressure ports
- Compensated temperature range

The P17 is self-contained and produces a DC voltage output signal proportional to its pressure range. 4-20 mA current sink output along with digital outputs via USB or RS485 are also available as options.

Zero and span controls are available for external adjustments with the analog output options. Digital options allow zero and span adjustments via the USB or RS485.

For digital versions, pressure readings are given in calibrated engineering units, temperature, calibration date, serial and model number are also all available via the digital connection. The sample rate on the USB option is 10 samples per second.

Sensor wetted parts include 410 steel, suitable for inert gases and hydrocarbons. The P17 has an operating temperature range of -65F to 250F and a compensated temperature range of 40F to 140F.

### The P17 is Ideal for:

- Small Leak Detection
- Null Detection Systems
- Very Low Flow Rates



# P17 Very Low Range Differential Pressure Transducer

## Specifications

### General Specifications –

**Ranges:** ±0.1 to ±350 inH<sub>2</sub>O Full Scale

**Accuracy:** 0.5% Full Scale, includes Non-linearity, hysteresis And non-repeatability

**Overpressure:** +200% Full Scale with less than 0.5% full scale zero shift.

**Line Pressure:** 100 psig, less than 3% zero shift

**Overpressure Limit:** Up to 4x FS

### Environmental Specifications -

**Operating Temp:** -65°F to 250°F (-54 to 121°C)

**Compensated Temp:** +40F to +140F (4°C to 60°C)

**Temperature Errors:** +/-0.75% full scale from +40F to +140F.

### Sensor Physical Specifications -

**Pressure Media:** Air & gases compatible with 410SST

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

**Pressure Cavity Volume:** 35x10<sup>-3</sup> cubic inch

**Volumetric Displacement:** 3x10<sup>-3</sup> cubic inch

**Weight:** 1 lb, typical.

**Size:** 4" x 1.13" x 6.5"

### Power Requirements -

**Power Supply:** 9 to 55 VDC, unregulated (analog version)

**Current Draw:**  
4-20 mA Output: 25 mA max  
+/-5 VDC Output: 3 mA, typical  
Output via RS485: 3 mA, typical

### Signal Output -

**4-20 mA Output:** 4 to 20 mA  
**DC Voltage Output:** +/-5 VDC @ 0.5 mA  
**RS485 & USB Options:** Digital

**Zero Balance:** By external adjustment  
**Span:** By external adjustment

**Digital Versions:** Via RS485/USB

**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

### O-RINGS

**N = BUNA-N (STD)**  
 E = Ethylene Propylene  
 V = Viton-A  
 S = Silicone  
 T = Teflon

\*Consult factory for other O-

MODEL  
NUMBER

# P17 - 10 - N - 1

### PRESSURE RANGE

Two digit Range  
 Dash Number  
 See Page 6

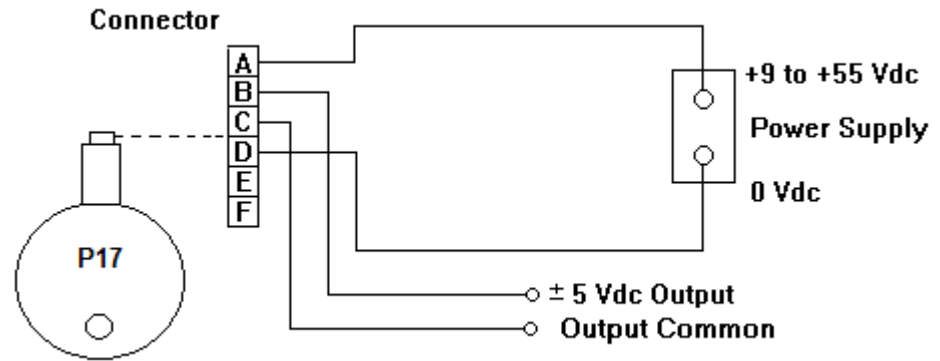
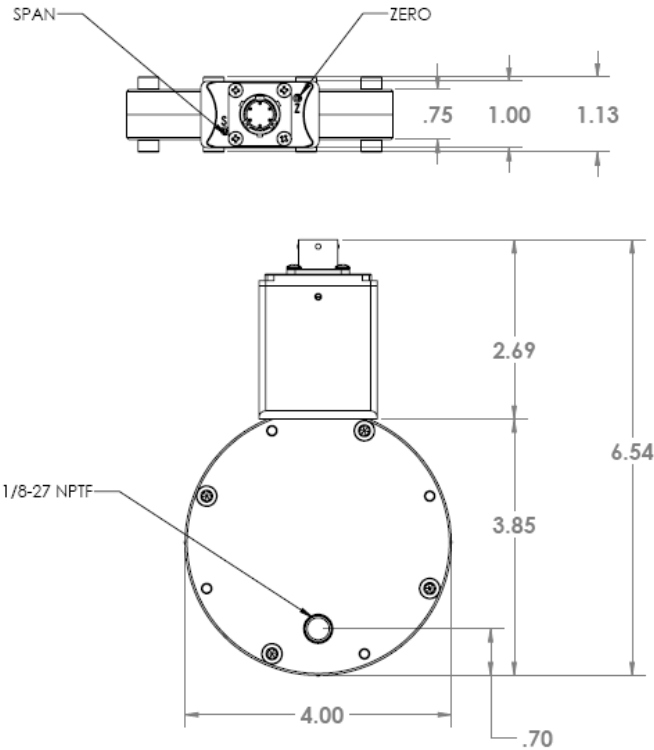
### CALIBRATED OUTPUT:

	-FS	ZERO	+FS
1 =		0	+5V
2 =	-5v	0	+5V
3 =	0	+2.5V	+5V
4 =		4mA	20mA
5 =	4mA	12mA	20mA
9 =	Two Way USB		
X =	Two Way RS485		
Y =	One Way USB		
Z =	One Way RS485		

### Special Requirements?

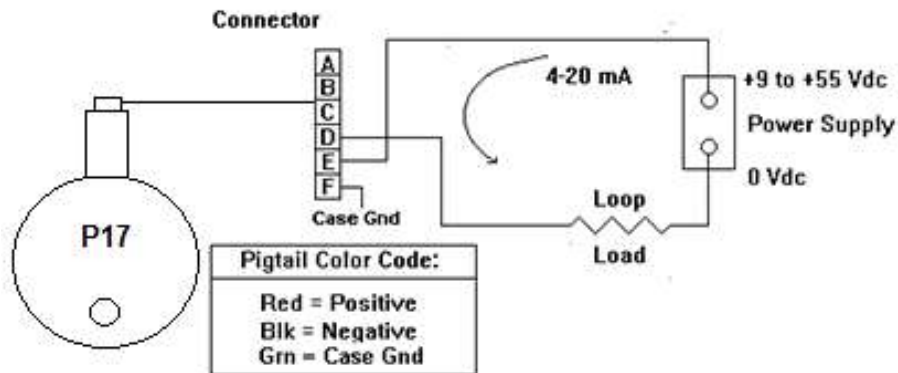
With over 3000 custom specifications already we are confident we can customize a solution to fit your needs. Form factor, housing, pressure ports, electrical connectors, outputs and calibrations are all customizable. Contact our factory via email or phone today!

**Outline Drawing & Electrical Connections**



**P17 Voltage Option Wiring**

## Outline Drawing & Electrical Connections



P17 Current Option Wiring

### Mating Connector and Cable (Optional)

- |                |   |                       |
|----------------|---|-----------------------|
| <b>11322-X</b> | PT06A-10-6S to 5 Lugs (A, B, C, D & Shield) | Voltage output option |
| <b>12458-X</b> | PT06A-10-6S to Pigtails (D & E)             | Current output option |
- X = Length of cable in feet.

#### Electrical Connector for Serial (RS485) Option (See ordering info):

- A: + Power
- B: + Signal
- C: - Signal (Common)
- D: - Power (Common)
- E: Tx Data
- F: Rx Data

#### Electrical Connector for USB Option (See ordering info):

- A: No Connection
- B: - Power
- C: - Data
- D: + Data
- E: + Power
- F: N/C

## Ordering Information – Range Chart

Range Code	Psi	In Hg	In H2O	KPa	Torr	CM H2O
06	0.0050	0.010	0.14	0.035	0.26	0.35
08	0.0080	0.016	0.22	0.055	0.41	0.56
10	0.0125	0.026	0.35	0.086	0.65	0.88
12	0.020	0.041	0.55	0.140	1.03	1.40
14	0.032	0.065	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	0.25	3.5	0.86	6.5	8.8
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	3.5	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	89.0	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

- Units can be calibrated in other engineering units as well. Contact the factory for details.
- For pressures in between range codes, pick the lower range code

Updated 6/5/19