



DP850



DP851

## Features:

- ❑ Differential Pressure Ranges from 0.025" H<sub>2</sub>O FS to 10.0" H<sub>2</sub>O FS
- ❑ 4-20mA ( 2 wire) or 0-5 Vdc ( 3 wire) output
- ❑ Infinite resolutions
- ❑ 12-45 Vdc unregulated power
- ❑ Easy to install
- ❑ Unaffected by humidity

## Applications:

- ❑ Heating, Ventilation and Air Conditioning
- ❑ Variable Air Volume Control (VAV)
- ❑ Energy Management Systems
- ❑ Pressure Control in Clean Rooms
- ❑ Filter Pressure Drop
- ❑ Pollution Control

## DESCRIPTION

For almost two decades Validyne Engineering Corporation has been a leader in the design of instrumentation for the true measurement of ultra low differential pressures. The extensive experience obtained during this time span has been applied to the design of the Models DP850 and DP851.

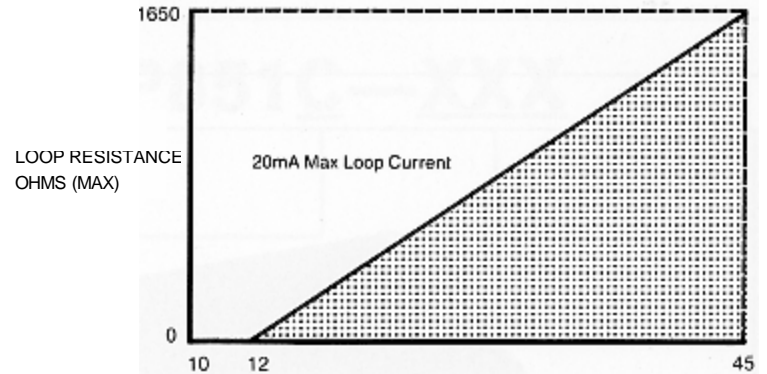
The variable reluctance method of transduction utilized in the designs is one of the few methods to allow the direct measurement of ultra low pressures. With this method one does not need the over amplification of sensor signals, hence contributing greatly to system stability and accuracy.

The pressure sensing element is a stainless steel diaphragm clamped between case halves of the same material, in a symmetrical assembly. Pick-off coils imbedded in the case halves sense deflection of the diaphragm in response to applied pressure. Self-contained electronics provide excitation to the pick-off coils and translate diaphragm movement into either a 4-20 mA current loop signal or a 0-5Vdc output for convenient use in any systems application.

## Specifications:

<b>Pressure Ranges:</b>	<b>Model DP851</b> 0-0.25" H <sub>2</sub> O FS 0-0.05" H <sub>2</sub> O FS 0-0.1" H <sub>2</sub> O FS <b>Model DP850</b> 0-0.25" H <sub>2</sub> O FS 0-0.5" H <sub>2</sub> O FS 0-1.0" H <sub>2</sub> O FS 0-2.5" H <sub>2</sub> O FS 0-5.0" H <sub>2</sub> O FS 0-10.0" H <sub>2</sub> O FS
<b>Pressure Media:</b>	Air or gases (conductive and non-conductive) compatible with 410 and 304 SST, tygon, Brass, HyMu 80 and epoxy.
<b>Overpressure:</b>	10 times FS range or 10" H <sub>2</sub> O, whichever is greater.
<b>Maximum Line Pressure</b>	140" H <sub>2</sub> O with less than 1% zero shift
<b>Accuracy:</b>	±0.5% FS (Best fit straight line) includes non-linearly, hysteresis and non-repeatability
<b>Resolution:</b>	Infinite
<b>Operating Temperature:</b>	0-160°F
<b>Temperature Effects</b>	Accuracy including temperature effects. ±1.5%FS from 50°F to 90°F ±2.0%FS from 40°F to 120°F
<b>Humidity:</b>	0-95% RH, non-condensing (internal)
<b>Mounting Position:</b>	Instrument is calibrated at the factory with diaphragm in vertical position. The easily accessible zero adjust pot on top of the case allows correction for different mounting positions.
<b>Electrical Connections:</b>	Terminal Strip 2 terminals for current output 3 terminals for voltage output
<b>Excitation:</b>	12-45 VDC, unregulated, 3mA max (voltage versions)
<b>Output:</b>	4-20 mA (DP850C and DP851C) 0-5 Vdc (DP850V and DC851V)
<b>Approximate Weight:</b>	14oz. (0.4 kg) – DP850 22 oz. (0.6 kg) – DP851
<b>Zero Adjust:</b>	Externally accessible Span is set at factory.
<b>Mounting:</b>	Instrument has mounting bracket for easy installation.
<b>Pressure Connections:</b>	Barbed fittings for 1/4" ID hose.
<b>Damping:</b>	0.5 Hertz lowpass filter, standard

## LOAD vs. POWER SUPPLY VOLTAGE (4-20mA MODELS)



## POWER SUPPLY VOLTAGE

$$V_{ps} = (20 R_T) + 12$$

Where:

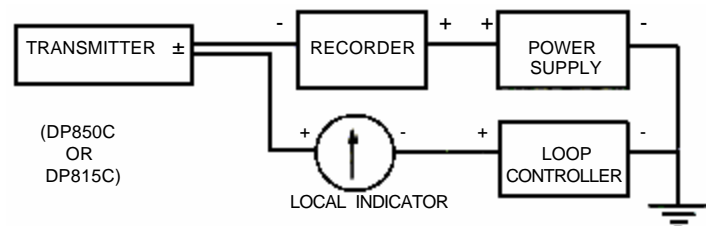
$V_{ps}$  = Min. Req'd. Power Supply Voltage

$R_T$  = Total Loop Resistance (KO)

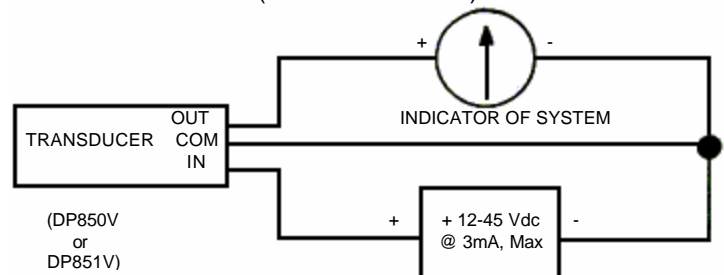
20 = Full Scale Current in mA

12 = Min. Power Supply Required, Volts

## TYPICAL WIRING CONNECTIONS (4-20mA MODELS)



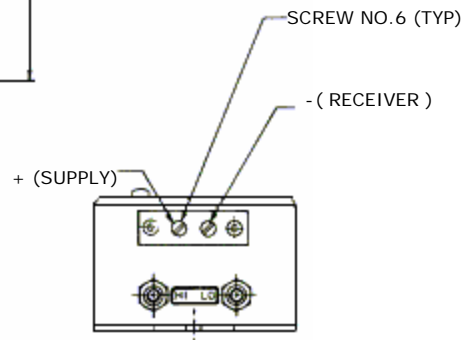
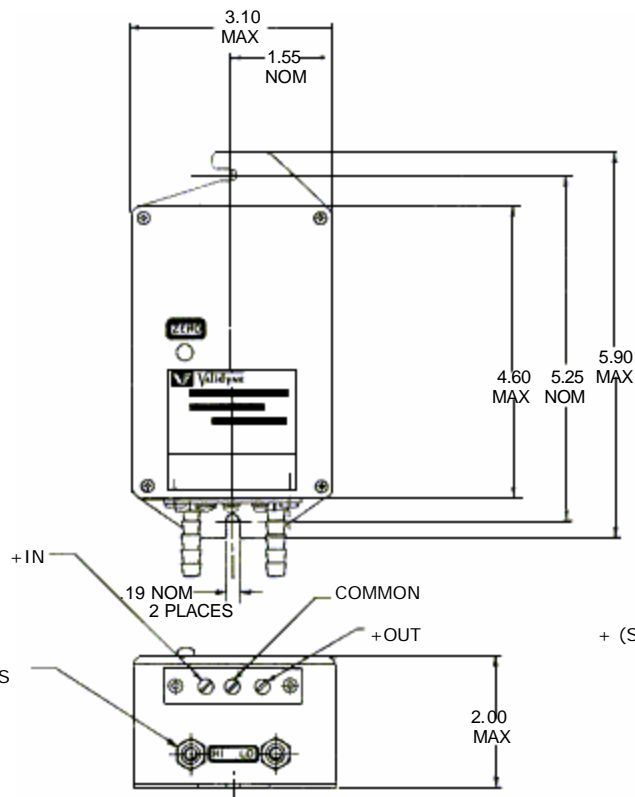
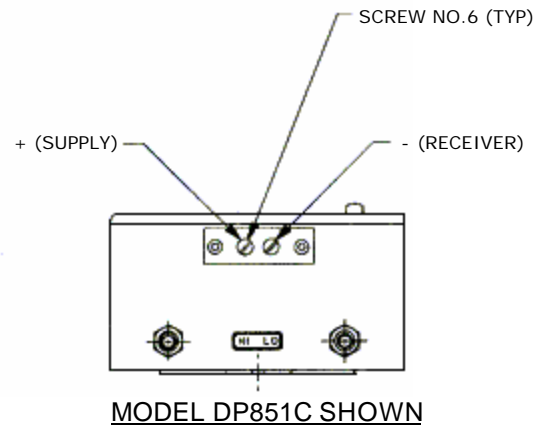
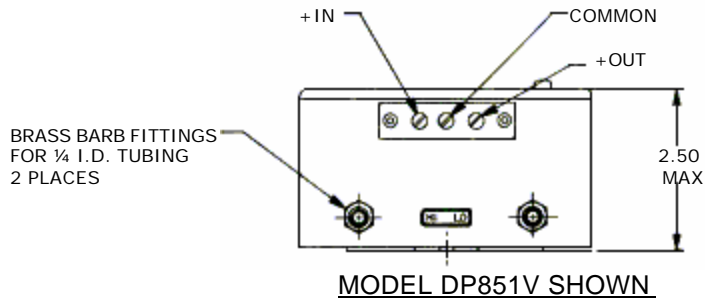
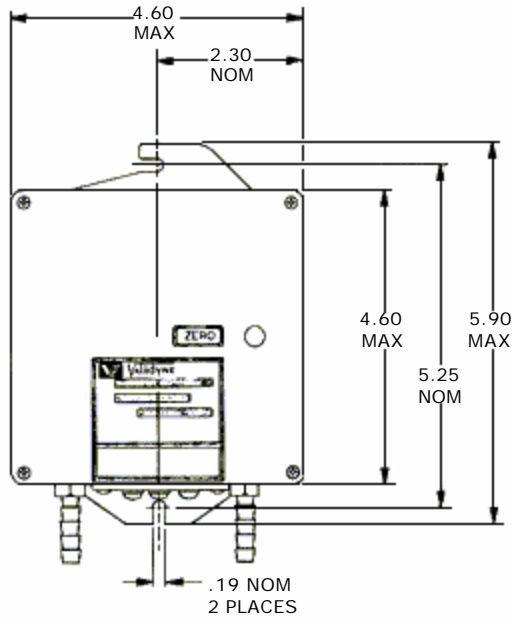
## TYPICAL WIRING CONNECTIONS (0-5Vdc MODELS)



## Warranty:

All Validyne pressure transducers and transmitters are warranted to be free from defects in material or workmanship under normal conditions of use and service. Warranty period is three years from date of delivery. A complete statement of warranty is available from Validyne upon request.

# Dimensional Drawings:



## Ordering Information

**DP851C—XXX**

**OUTPUT**

C = 4-20mA  
V = 0-5 -Vdc

**FS RANGE**

(in. H<sub>2</sub>O)  
P10 = 0.10  
P05 = 0.05  
P02 = 0.025  
(P indicates  
decimal point)

**DP850C—XXX**

**OUTPUT**

C = 4-20mA  
V = 0-5 -Vdc

**FS RANGE**

(in. H<sub>2</sub>O)  
P25 = 0.25  
P50 = 0.50  
1P0 = 1.0  
2P5 = 2.5  
10P = 10.0  
(P indicates  
decimal point)



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