VALIDYNE ENGINEERING

P532

Two-Wire or Four-Wire Pressure Transmitter

Features

- ☐ **Measures Ultra-Low Differential and Gauge Pressures From 0.10" H_2O Full-Scale**
- ☐ **Absolute Ranges As Low As 0.08 PSIA Full-Scale**
- ☐ **4-20 mA or 10-50 mA dc Output**
- ☐ **Optional P Output**
- ☐ **Available in Two- And Four-Wire Configurations**
- ☐ **Integral 3 ½ Digit Liquid Crystal Local Display Available**
- ☐ **Field Repairable**

Description

Validne's P532 Pressure Transmitters are ideally suited for measuring extremely low liquid and gas pressures in industrial applications. Full-scale differential pressure ranges from 0.10" H_2O to 2" H_2O with line pressure rating of 100 psig, and ranges of 2" H_2O to 3200 psid with line pressures up to 3200 psig are offered. Gauge pressure ranges start at 0.10" H_2O and absolute pressure from 0.08 psia full-scale. This unique design, which utilizes a diaphragm-type variable reluctance pressure sensor, provides many outstanding advantages including:

- All surfaces of the transducer and pressure manifold ports which come in contact with the process fluid are corrosion resistant. This eliminates the need for isolating membranes and transfer oil fill techniques normally required for most industrial applications, particularly those involving P measurements across flow elements.
- Extremely low volumetric displacement – 3×10^{-4} inches^3 for most ranges – for full-scale pressure changes.
- Total diaphragm deflection of less than 0.0015" for full-scale pressure excursion provides excellent dynamic response characteristics at low stress levels. This prolongs the life of the instrument in applications involving extensive pressure cycling.
- Gauge and differential pressure sensors may be easily disassembled in the field for cleaning or range changing, by replacing the sensing diaphragm. (A family of low-cost, interchangeable diaphragms are available from factory stock to cover any full-scale pressure range between the limits shown in the Specifications.)

The P532 Assembly includes the appropriate sensor, a pressure manifold assembly (which serves to isolate the sensor from external mounting and plumbing stresses), and an all solid-state electronics module housed in a moisture-proof, dust-resistant NEMA 4 enclosure.

Electrical connections and Zero and Span adjustments are readily accessible under a water-tight, removable cover. Each P532 is factory adjusted and precision calibrated to the full-scale range specified by the customer.

Available options include a 3 ½ digit liquid crystal local output display, square-rooted output for use with non-laminar flow elements, a choice of O-ring seal compounds and sensor materials for corrosive service, and choices of input power.

Functional Specifications

Pressure Media: Liquids, Gases or Vapors

Pressure Ranges: Any full-scale value between the limits shown may be specified (See Ordering Information)

Differential Ranges: 0.10" to 2.0" H_2O at 100 psig line pressure; 2.25" H_2O to 3200 psid at 3200 psig line pressure; (Unidirectional or bi-directional ranges can be specified)

Gauge/Vaccum Ranges: 0-0.10" H_2O FS to 0-3200 psig FS

Absolute Ranges: 0-0.8 psia FS to 0-3200 psia FS

Outputs: 4-20 mA dc. 10-50 mA dc; linear or square root function

$I_0 = 4 + 16 \sqrt{\frac{P_{IN}}{P_{FS}}}$ mA dc, or

$I_0 = 10 + 40 \sqrt{\frac{P_{IN}}{P_{FS}}}$ mA dc

Power Supply

2-Wire Configuration: 14-40 Vdc, External Supply Required

4-Wire Configuration: 115 Vac, ±10%, 50/60 Hz (Std.); 230 Vac, ±10%, 50Hz (Optional)

Load Limitations: See Figure 1

Indication: Optional 3½ digit liquid crystal display (LCD) independently adjustable for readout in engineering units; 0-1999 counts, max.; selectable decimal point

Span and Zero Adjust: Continuously adjustable; Adjustable range ±10%, nominal, of full-scale pressure; accessible under removable moisture-proof cover

Operating Temperature: 0 to +160°F

Humidity: 0-100% relative humidity

Overpressure Limits

Differential & Gauge: Ranges < 2.25" H_2O, 15 psid max without damage
Ranges ≥ 2.25" H_2O, 500% of full-scale pressure, or 4500 psid, whichever is less, without damage

Absolute: 500% FS or 20 psia, whichever is greater, 4500 psia max

Line Pressure (Diff.)

Ranges ≥2.25" H_2O: 3200 psig, with less than 1% Full-Scale/1000 psig zero shift

Ranges <2.25" H_2O: 100 psig, with less than 1% Full-Scale/100 zero shift

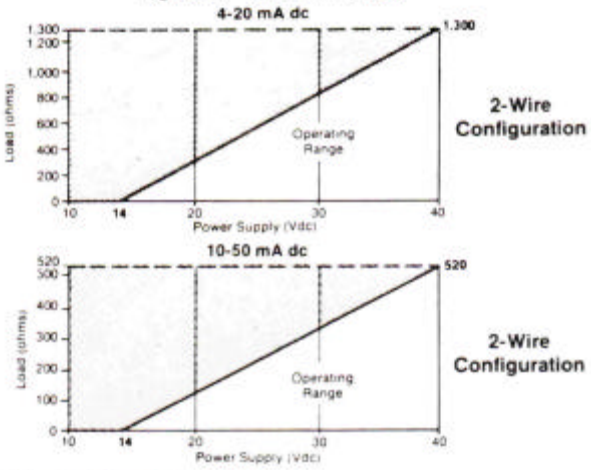
Volumetric Displacement: Ranges ≥ 2.25" H_2O = 3×10^{-4} in^3/Full-Scale
Ranges < 2.25" H_2O = 3.5×10^{-3} in^3/Full Scale

Volumetric Symmetry: Cavity volumes and displacements symmetrical on differential and gauge units.

Repair and Maintenance

All transducers are easily removed from the transmitter housing for repair or replacement if required. In addition, the differential and gauge pressure transducers can be disassembled for cleaning and replacement of the diaphragm if necessary.

Figure 1. Load Limitations



4-Wire Configuration

(1) Max Load Resistance for 4-20 mA dc Output is 1000 ohms.
(2) Max Load Resistance for 10-50 mA dc Output is 320 ohms.

Performance Specifications

Accuracy: 0.25% Full-Scale including linearity, hysteresis and repeatability

Stability: 0.5% Full-Scale for six months

Conformity (P Units): 0.5% Full-Scale from 20-100% of range

Temperature Effect

Zero Shift: Less than 1% FS/100°F (all ranges)

Span Shift: Less than 2%/100°F (ranges ≥ 2.25" H_2O).
Less than 0.05%/°F (ranges < 2.25" H_2O)

Supply Voltage Effect: Less than 0.01% FS per volt variation (2-wire configuration)

Load Effect: No load effect other than the change in power supplied to the transmitter (2-wire configuration)

Physical Specifications

Pressure Ports: ¼ -18 NPT Female; two ports on differential and gauge units; one port on absolute units

Enclosure: NEMA 4 with Neoprene cover gasket; enameled steel, (stainless steel enclosure optional)

Weight: 6.5 lbs. for ranges ≥ 2.25" H_2O
8.0 lbs. for lower ranges

O-rings: Available with Buna-N, Viton-A, Silicone, Ethylene Propylene or Teflon (ranges ≥ 2 psi)

Sensor Material

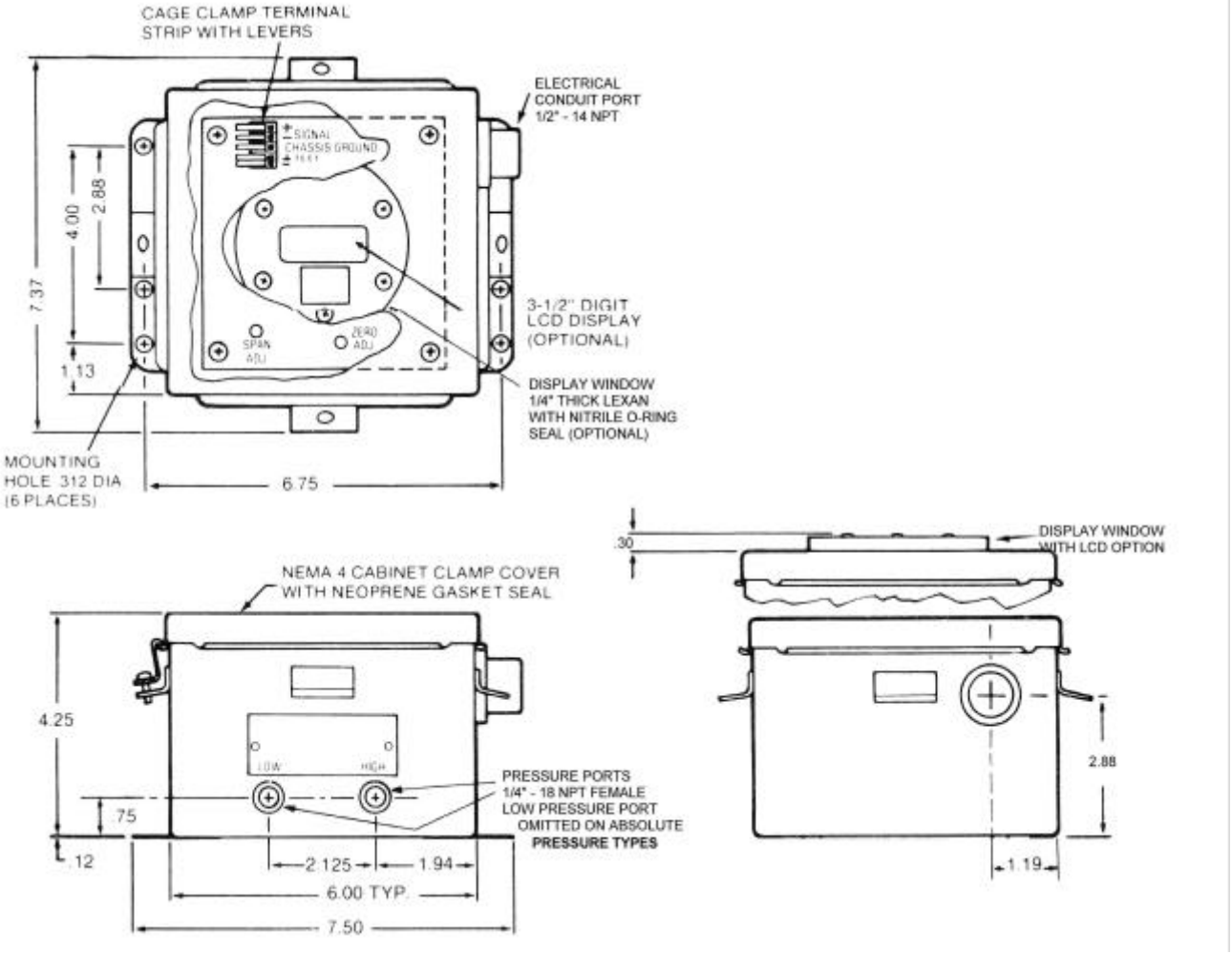
Differential & Gauge Units: Type 410 Stainless Steel (Std.); Type 410 SST Nickel Plated, Type 410 Gold Plated or Type 17-7 ph SST for ranges ≥ 8 psi (Optional)

Absolute Units: Type 410 Stainless Steel (Std.); 17-7 ph SST for ranges ≥ 8 psi (Optional)

Electrical Connections: Cage clamp terminal strip with levers. Accepts up to 12 gauge wire

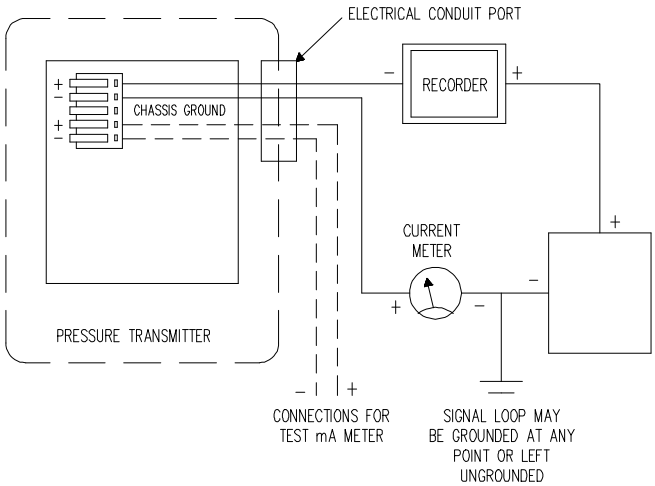
Mounting: Optional mounting brackets available; P/N 2151-2500

Dimensional Drawings

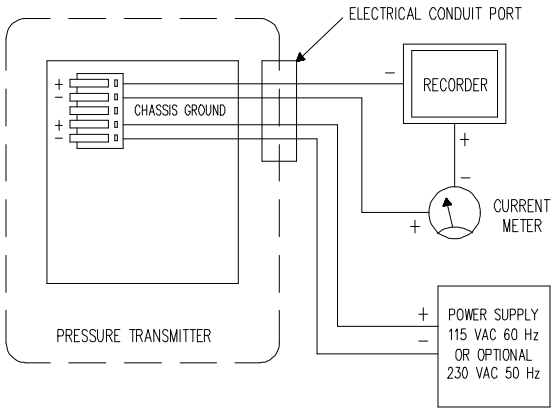


Wiring Connections

2-WIRE CONFIGURATION



4-WIRE CONFIGURATION



Ordering Information

To order the Model P532 Pressure Transmitter specify the part number as indicated.

Measurement

Option Letter	Description
D	= Differential or Gauge
A	= Absolute

Pressure Range

Specify the full scale pressure value and units;

i.e. 100mm Hg, 5 psid, 30kPa, etc.

O-Ring

Option Letter	Description
N	= BUNA-N
E	= Ethylene Propylene
V	= Viton-A
S	= Silicone
T	= Teflon (Ranges ≥ 2 psi

Input Voltage

Option No.	Description
1	= 14-40 Vdc (2-wire system)
3	= 115 Vac (4-wire system)
4	= 230 Vac (4-wire system)

P532D – XX – N – 1 – A – 1 – S - 4

Calibrated Output

Option Letter	-FS	Zero	+FS	P	Display
A	-	4mA	20mA	-	-
B	4mA	12mA	20mA	-	-
E	-	4mA	20mA	Yes	-
G	-	4mA	20mA	-	Yes
H	4mA	12mA	20mA	-	Yes
J	-	4mA	20mA	Yes	Yes
K	-	10mA	50mA	-	-
L	10mA	30mA	50mA	-	-
M	-	10mA	50mA	Yes	-
N	-	10mA	50mA	-	Yes
P	10mA	30mA	50mA	-	Yes
R	-	10mA	50mA	Yes	Yes
S	-	20mA	4mA	-	-

Enclosure

Option Number	Description
1	= NEMA 4, Enameled Steel (std.)
2	= NEMA 4, Stainless Steel

Compensated Temperature Range

Option Letter	Description
S	= 0° to 160°F

Sensor Material

Option No.	Description
4	= Type 410 Stainless Steel
5	= Type 410 SST Nickel Plated (1)
6	= Type 410 SST Gold Plated (1)
7	= 17-7 ph Stainless Steel (≥8 psi)

(1) Sensor Material options 5 and 6 available on differential and gauge pressure units only.

(2) The Validyne part number used on packing lists and invoices will be as shown above, except that a two-digit pressure range code number will be substituted for the pressure range and units. The transmitter itself will be marked with calibrated range and units specified.

(3) For Calibrated Output Options “J” or “R”, which provide both a square rooted output **and** LCD local output display, if the digital display is to be factory adjusted to read out in units other than the pressure units specified for full-scale range of the transmitter (e.g. flow units, such as cubic feet per minute, pounds per hour, etc.), a specific note should be included in the purchase order giving the full-scale value and units to be used for display scaling. (Note that the maximum value that can be displayed is 1999. If the desired full-scale value exceeds 1999, it is recommended that the display be scaled for 0-100% of full-scale.)

Specifications are subject to change without notice.

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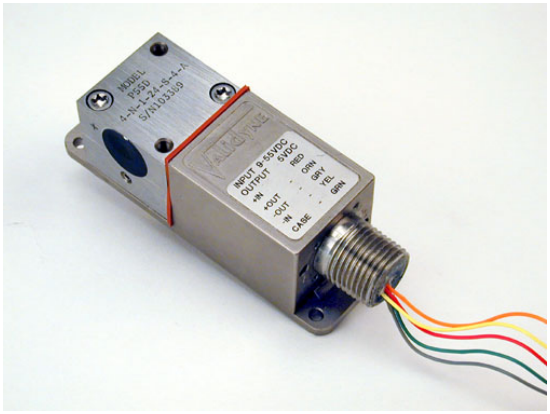
P855 Digitally Compensated Differential Pressure Transmitter



- **Digitally Compensated for High Accuracy**
- **Excellent Stability Over Wide Thermal Range**
- **0.1% FS Accuracy, 0.25% Max Temperature Error**
- **Zero, Span Set by Switches – *No Potentiometers***
- **For Liquid or Gas Service**
- **FS Ranges from 2.22 In H2O**
- **NEMA 4 Housing**

The Validyne model P855 is a digitally compensated differential pressure transmitter designed for industrial pressure measurement applications. The on-board microprocessor provides high accuracy and improved stability in changing thermal environments.

The P855 is designed for a wide variety of low pressure measurements where fast dynamic response, high resistance to vibration and superior signal stability through temperature change is required. The P855 will accept both liquids and gases directly at the sensing diaphragm.

The zero and full-scale outputs are set by switch. No potentiometer adjustments are required to calibrate. A second switch provides 2.5x gain change and this smaller range may be offset to any place within the full range.

The P855 has 1/8 inch female NPT pressure connections and measures just 1.5 x 1.5 x 5 inches overall.

The P855 is available in two output configurations: 4-20 mA current sink output and +/-5 VDC output. The 4-20 mA output version is a true two-wire system that will operate over a supply voltage of 9 to 55 Vdc.

Wiring options for the P855 include a six-pin PT02A connector and pigtail leads. A 1/2 inch male NPT conduit thread connection for mounting a junction box is included with the pigtail lead option.

The P855 is Ideal for:

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

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P855 Specifications

General Specifications -

Ranges:

P855D: +/-0.08 psid to +/-3200 psid
P855A: 0 - 0.08 psia to 0 - 3200 psia

Accuracy:

P855D: +/-0.1% FS, includes non-linearity, hysteresis and non-repeatability
P855A: +/-0.25% FS, as above

Overpressure:

P855D: 200% FS up to 4000 psi maximum with less than 0.5% FS output shift
P855A: 20 psia or 200% FS, whichever is greater, up to 4000 psia maximum, for less than 0.5% zero shift

Line Pressure:

P855D: 3200 psig maximum, with zero shift less than 1%/Kpsi

Pressure Ports:

P855D: 1/8" female NPT with 8-32 Bleed Screw & Gasket, STD
P855A: 5/16-24 UNF-2B with 1/8" male NPT adapter included

Environmental Specifications -

Operating Temp: 0 to +160 F
-40 F to +200 F Optional

Compensated Temp: 0 to +160 F
-40 F to +200 F Optional

Temperature Error: +/-0.25% FS
Including non-linearity & hysteresis (0 to 160 F)

+/-0.50% (-40 F to +200 F)

Sensor Physical Specifications -

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

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

Pressure Cavity Volume: 4 e-3 cu in, each port

Volumetric Displacement: 3 e-4 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
Isolated Version:	7 mA, typ

Signal Output -

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

Zero Balance: Auto-zero with switch closure
Span: Set by Switch
Gain: 2.5X enabled by switch

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

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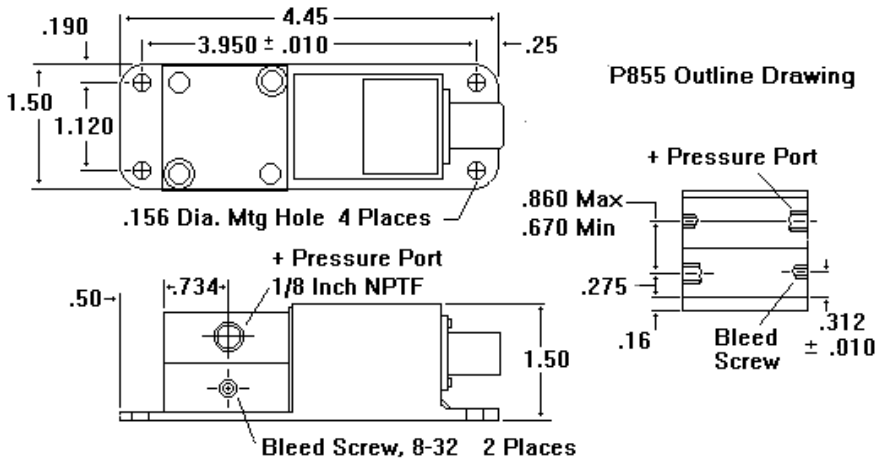

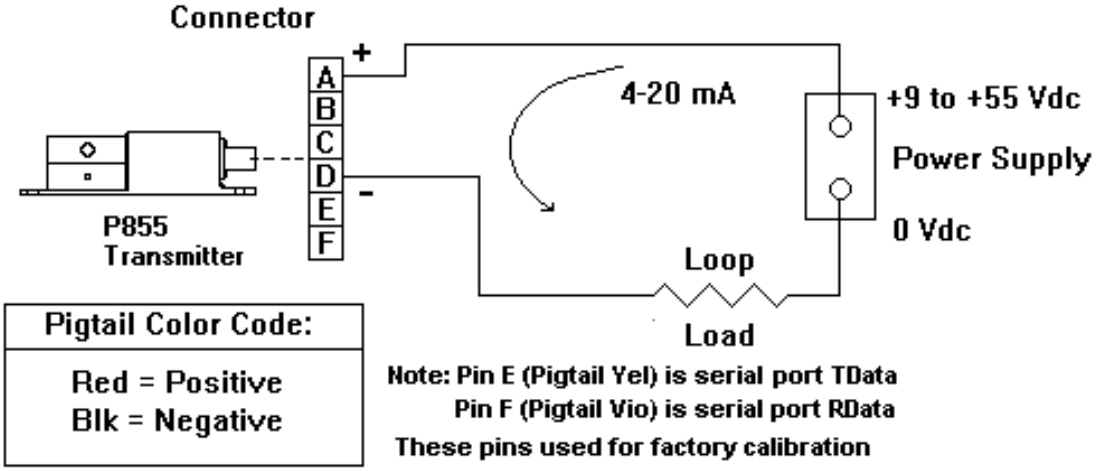

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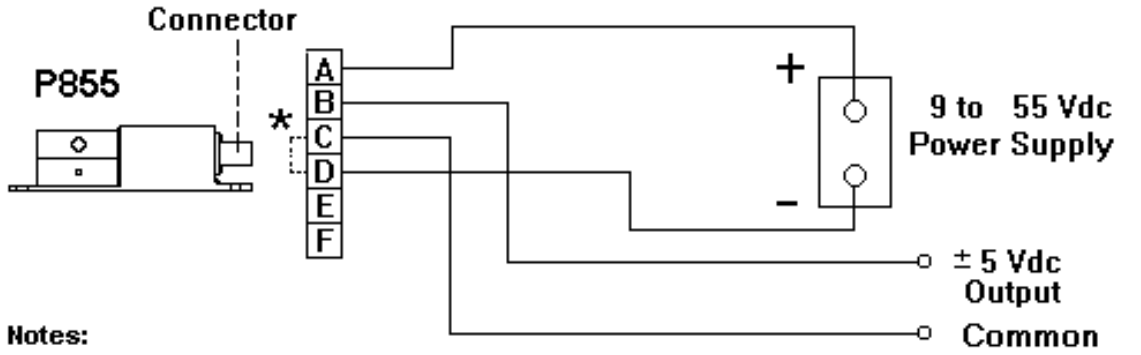

Notes:

Pin E (Pigtail Yel) is serial port TData
Pin F (Pigtail Vio) is serial port RData
Pin C (Pigtail Gry) is also the serial port common
* Pins C and D are internally connected in non-isolated units only
Pins E and F are used for factory calibration

Pigtail Color Code:
Red = + Power Orn = + Signal Gry = Output Common

P855D-4-N-4-20-S-4-A

Measurement
A = Absolute
D = Differential

Elec. Connector
1 = PT02A-10-6P
2 = PT02E-10-6P
4 = Pig Tail Leads

O-Rings
A = None
K = Kalrez
N = Buna-N
E = EPR
V = Viton A
S = Silicone
T = Teflon

Pressure Port
A = 1/8" NPT & 8-32 Bleed Ports
B = 1/8" NPT Press & Bleed
E = 5/16-24 Female No Bleed
F = 1/4" OD X 1" Lng Tube No Bleed

Sensor Material
4 = 410 SST
5 = Ni Plated 410 SST
6 = Gold Plated
7 = 17-7 ph (8 psi & above)

Temp Range
S = 0 to 160F
W = -40 to +200 F

See Press Range Chart

Output
1 = 0 to +5 Vdc
2 = -5 to +5 Vdc
3 = 0 to 2.5 to 5 Vdc
4 = 4-20 mA
5 = 4 - 12 - 20 mA

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Model P895
Test & Measurement Grade Pressure Transducer

- **0.1% FS Accuracy**
- **Gage, Differential and Absolute Versions**
- **Low Temperature Error**
- **For Liquid or Gas Service**
- **FS Ranges from 2.22 In H2O**
- **+/-5 Vdc and 4-20 mA Output Signals**

Description:

The Validyne P895 is a test and measurement grade pressure transducer for applications requiring high accuracy and outstanding performance through ambient temperature changes. The P895 is digitally compensated and corrected to provide high accuracy pressure measurement in a robust cylindrical form factor.

The P895 is designed for a wide variety of pressure measurements where high resistance to vibration and superior stability through temperature change is required. The P895 accepts both liquids and gases.

The zero and full-scale output calibrations are set by potentiometer adjustments accessible from the top cover.

The + pressure port is 1/4" NPT male pipe thread. The – port is a 5/16" straight thread port fitted with a 1/4" male NPT adapter. Both ports can be changed using the appropriate fitting adapters to provide the most convenient connections.

The P895 has 1/4 inch NPT pressure port connections and measures just 2.25" OD x 8" inches overall.

The P895 is DC powered and is available in the most popular analog output versions including +/5 Vdc and 4-20 mA. A CAN Bus version is also available

The P895 has a standard six-pin Amphenol electrical connector.

The P895 is Ideal for:

- **Laboratory Pressure Measurement**
- **Automotive Test Cells**
- **Any High Accuracy Application**

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P895 Specifications

General Specifications –

Ranges:
P895D/G: +/-0.08 psid to +/-3200 psid
P895A: 0 - 0.08 psia to 0 - 3200 psia

Accuracy:
P895: +/-0.1% FS, includes non-linearity, hysteresis and non-repeatability

Overpressure:
P895D/G: 400% FS up to 4000 psi maximum

P895A: 20 psia or 400% FS, whichever is greater, up to 4000 psia maximum

Line Pressure:
P895D/G: 3200 psig maximum, with zero shift less than 1%/Kpsi

Pressure Ports:
P895D: 1/4" male NPT, + port
1/4” fmale NPT, - port

P895A: 1/4” male NPT, single port

Environmental Specifications -

Operating Temp: 0 to +160 F

Compensated Temp: 40 to +140 F

Temperature Error: +/-0.5% FS Over Compensated Temperature Range of 40 F to +140 F

Sensor Physical Specifications -

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

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

Pressure Cavity Volume: 4 e-3 cu in, each port

Volumetric Displacement: 3 e-4 cu in at FS

Weight: 32 Oz.

Power Requirements -

Power Supply: +9 to +55 Vdc

Current Draw: 3 mA, typ

Insulation Resistance: 100 Mohms, any terminal to case.

Output Signals -

Analog Output: 0 to +5 Vdc
0 to +/-5 Vdc
4-20 mA

Zero Balance: Via External Adjustment

Span: Via External Adjustment

Output Noise: 2 mVrms

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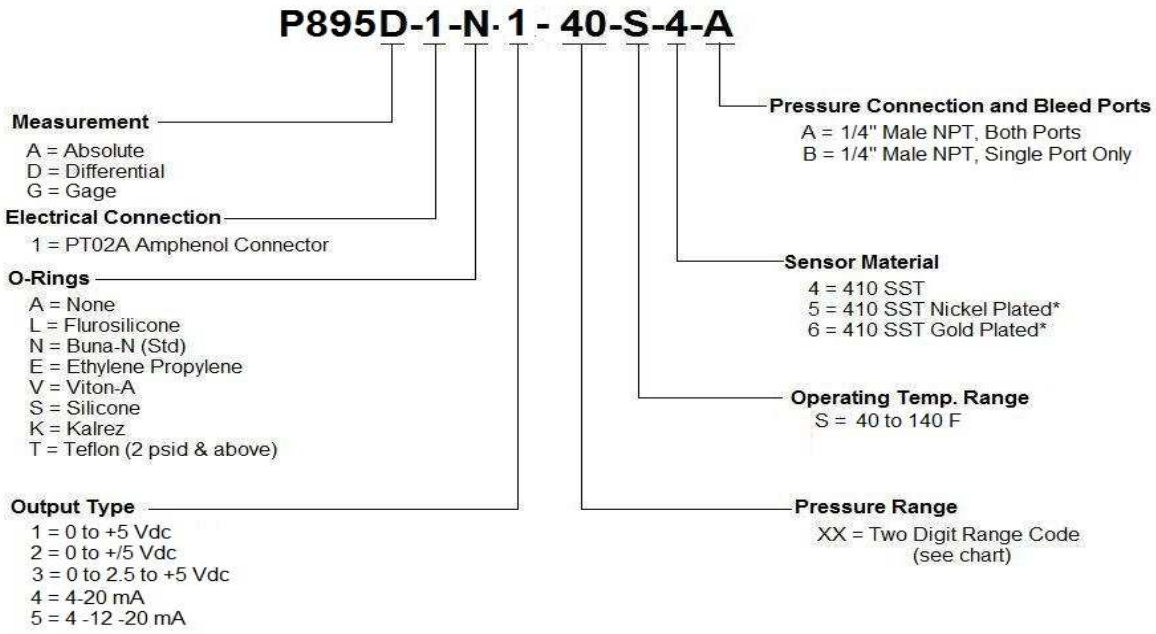
P895 Test & Measurement Pressure Transducer
Ordering Information



Output Signal Types:
Absolute and Gage pressure transducers have options 1 and 4 for signal outputs.
Differential pressure transducers will have options 2, 3 or 5 for signal outputs.

Option	- FS Pressure	Zero Pressure	+FS Pressure	Models
-1		0 Vdc	+5 Vdc	P895A, P895G
-2	-5 Vdc	0 Vdc	+5 Vdc	P895D
-3	0 Vdc	+2.5 Vdc	+5 Vdc	P895D
-4		4 mA	20 mA	P895A, P895G
-5	4 mA	12 mA	20 mA	P895D

Mating Electrical Connector:
Validyne p/n 1280-1002 – Order Separately

Pressure Ports:
Differential and gage pressure transducers will have 1/4” male NPT pressure connections for + and – pressure ports.

Absolute pressure transducers will have a single 1/4” male NPT pressure connection located at the bottom of the unit. No – pressure port is supplied.

Wetted Materials:
Absolute transducers are available only in 410 SST (option -4)

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PRESSURE RANGE CHART

Range Dash No.	PSI	IN HG.	IN H_2O	KPA	TORR	CM H_2O
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

DR800

Draft Range Pressure Transmitter

Features

- ☐ **Full Range as low as 0.25" H_2O without Turndown or Amplification**
- ☐ **Low Ambient Temperature Effects Improve Very Low Measurements**
- ☐ **Selectable Resolution on Zero and Span Adjustments Ease Critical Calibrations**
- ☐ **Integral 3½ Digit Liquid Crystal Display Available**
- ☐ **Field Repairable**

Description

The Validyne Model DR800 Draft Range Transmitter is designed exclusively for very low pressure measurement needs. It has a "true" full-scale range as low as ±0.25" H_2O, making it ideal for air flow control applications. It can be turned down to ±0.1" H_2O; higher full-scale ranges to ±100" H_2O are available. The DR800 offers 0.5% accuracy and an operating temperature range of -20°F to +185°F. The total combined temperature effects are less than 3%/100°F.

The model DR800 has many outstanding features which make it the perfect transmitter for very low pressure measurements.

Zero and Span Adjustments

Validyne has simplified the zero and span adjustments. The Model DR800 uses a programmable circuit board jumper in conjunction with a 20-turn potentiometer to achieve a smooth, accurate zero adjustment. Using the pot/jumper combination, ranges can be selected from –100% zero elevation to +85% zero suppression (see Fig. 1). Also, the span adjust has a HI and LO gain jumper to allow better full-scale setpoint resolution. This achieves more turns from the potentiometer over a smaller percentage of the span and zero adjust range making critical setpoint calibrations easier and less time consuming.

Construction

The Model DR800 conforms to typical industrial standards:

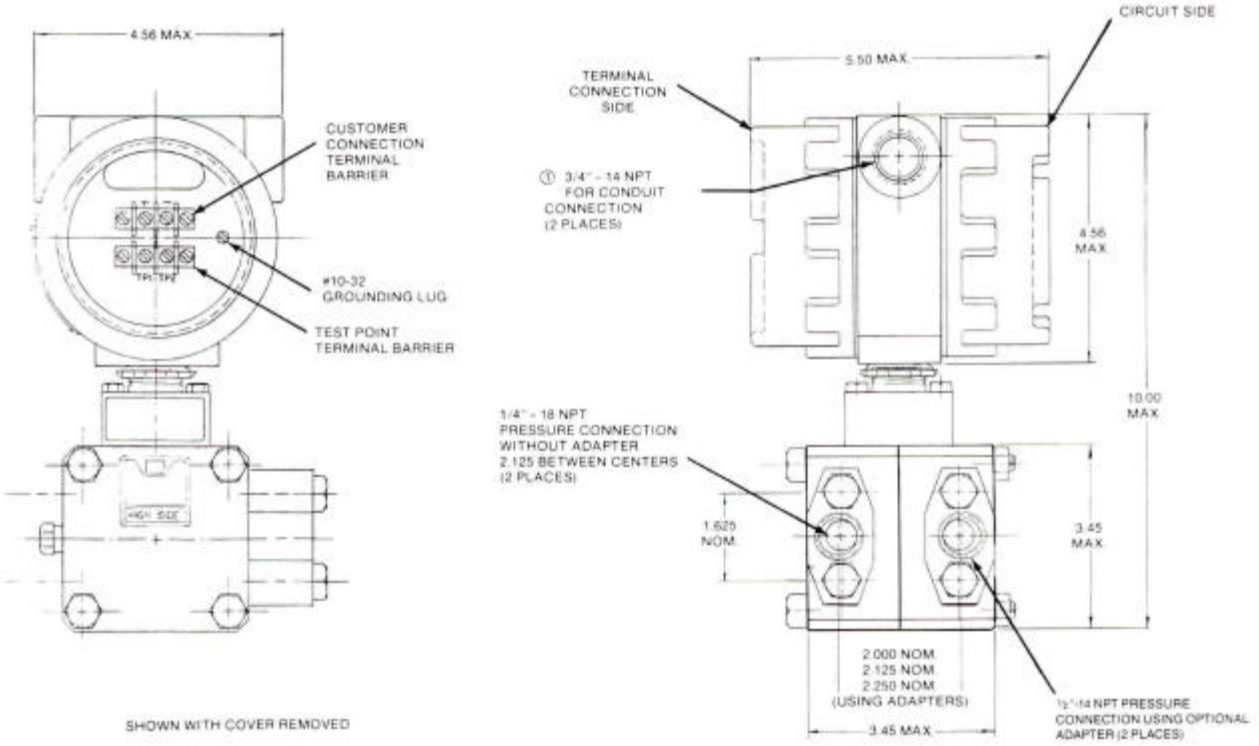
- Gasketed, threaded covers on the electrical enclosures (NEMA 4 enclosure).
- Dual electrical cavities in the electrical housing keep field wiring separate from the electrical compartment.
- ¼" NPT female pressure connections on 2.125" centers, and optional 0.5" NPT adapters, adjustable to 2", 2.125", or 2.25" centers make manifold mounting possible.
- Pressure connections on front and rear simplify field installation, allow easy access to drain plugs, and add flexibility to the installation of transducer on mounting bracket.
- Sensor body and wetted parts made from 410 SST for improved corrosion resistance over carbon steel.

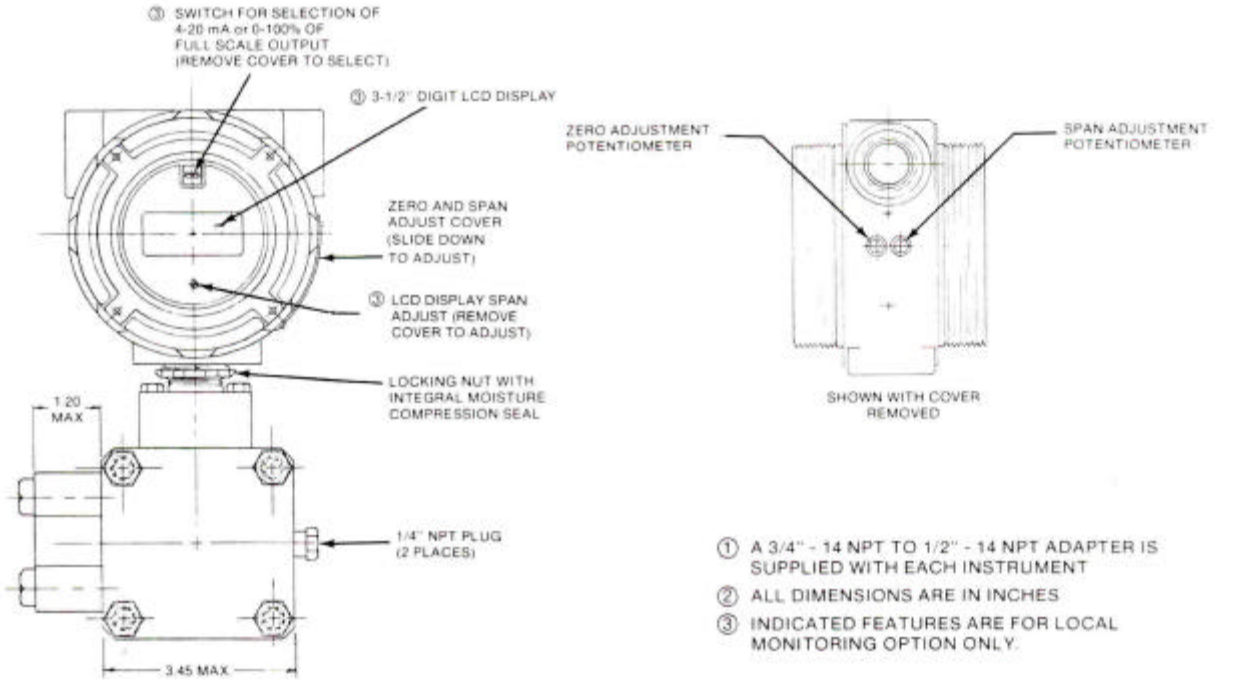
Electrical

The DR800 is a "true" two-wire system (power and signal) with a standard output of 4-20mA (see Fig. 3). Other features include:

- Wide power input range of 12 to 45Vdc (see Fig. 2, Load Chart).
- Reverse polarity and short circuit protection.
- Selectable damping smoothes noisy output: user selectable time constant from 0.25 to 8 seconds.
- Conformally coated PC board extends survival rate in harsh environments.
- Loop powered LCD meter (local indicator) is available. The meter mounting is rotatable, making installation more flexible.
- External zero and span adjustment potentiometers are tamper-proof by use of a cover plate.

Dimensional Drawings





① A 3/4" - 14 NPT TO 1/2" - 14 NPT ADAPTER IS SUPPLIED WITH EACH INSTRUMENT

② ALL DIMENSIONS ARE IN INCHES

③ INDICATED FEATURES ARE FOR LOCAL MONITORING OPTION ONLY.

Functional Specifications

Type: Differential

Pressure Media: Media compatible with 410 SS

Differential Ranges:

Turndown Range	Full Range	Max. Temp. Error
0.1" H_2O	0.25" H_2O	0.0075" H_2O100°F
0.2" H_2O	0.50" H_2O	0.015" H_2O100°F
0.4" H_2O	1.0" H_2O	0.03" H_2O100°F
1.0" H_2O	2.5" H_2O	0.075" H_2O100°F
2.0" H_2O	5.0" H_2O	0.15" H_2O100°F
4.0" H_2O	10.0" H_2O	0.30" H_2O100°F
10" H_2O	25" H_2O	0.75" H_2O100°F
20" H_2O	50" H_2O	1.5" H_2O100°F
40" H_2O	100" H_2O	3.0" H_2O100°F

Power Supply: Two-wire configuration, 12-45 Vdc; external supply required.

Load Rating: See Figure 2.

Indication: Optional 3½ digit liquid crystal display (LCD) independently selectable for readout in percent of full-scale or mA units.

Zero Adjust: Continuously adjustable 20-turn external zero pot. Works in combination with circuit board jumper to provide a zero setpoint from –100% to +85% of full-scale (See Figure 1).

Span Adjust: Continuously adjustable 20-turn external span pot provides turn-down ratios up to 2.5:1. Works in combination with circuit board jumper for bipolar applications.

Temperature Effects: 3%/100°F combined zero and span, -20°F to +185°F

Humidity: 0-100% relative humidity

Overpressure Limits: ±5 psi (with less than 5% FS Zero Shift)

Max. Line Pressure: 100 psi 10" and below; 2000 psi above 10".

Line Pressure Coefficient: 10" H_2O FS and below, 1% FS or less per 100 psi; above 10" H_2O FS, 1% FS or less per 400 psi (typical).

Performance Specifications

Accuracy: 0.5% or better, including non-linearity, hysteresis, non-repeatability, and dead band.

Stability: ±0.5% Full-Scale over 6 months.

Damping: Time constant selectable from ¼ to 8 seconds.

Signal Output: 4-20 A (true two-wire system).

Circuit Protection: Reverse polarity, short-circuit proof.

Physical Specifications

Pressure Connections: Industry standard (¼ " NPT ports on 2 " centers) machined for pressure adapters. Optional adapters provide ½ " NPT ports on adjustable centers of 2", 2 ", or 2¼ ".

Mounting: Bracket available for 2" pipe.

Electrical Connections: Terminal barrier strip for field wiring and test points.

Electrical Enclosure: NEMA 4 with Neoprene gasket and threaded covers.

Weight: 16 lbs., maximum.

O-rings: Available with BUNA-N (std.), Ethylene Propylene, Viton-A, or Silicone.

Corrosion Capability: Media compatible with 410 SST, Inconel, 316 SST and selected O-ring material.

Options and accessories: 3½ Digit LCD reading % of full-scale or mA (switch selectable). ½ second update rate.

Mounting kit for 2½ " pipe P/N 12059, ½ " NPT Adapters

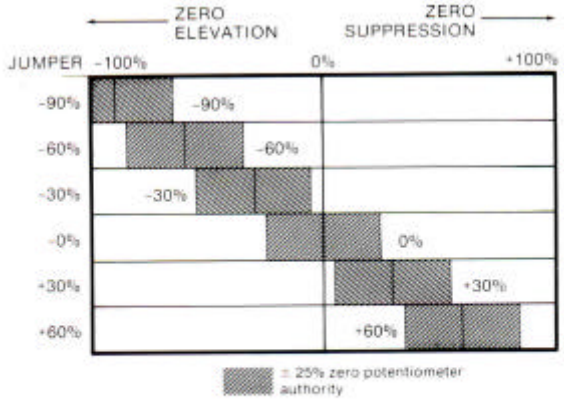
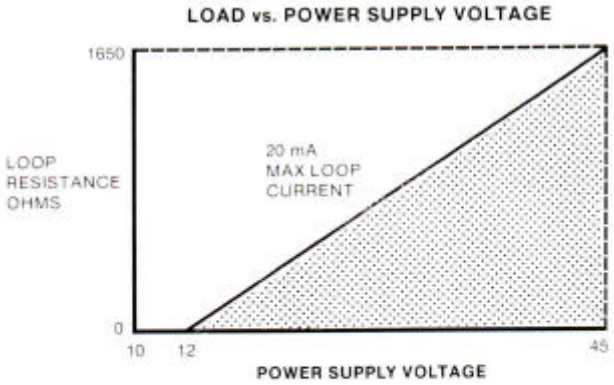


Figure 1 — Zero Adjust Range Chart



$V_{PS} = 1.02 R_T + 12$

Where: V_{PS} = Min. Req'd. Power Supply Voltage
R_T = Total Loop Resistance
.02 = Full Scale Current, Amps
12 = Min. Power Supply Required, Volts

Figure 2 — Loading Chart

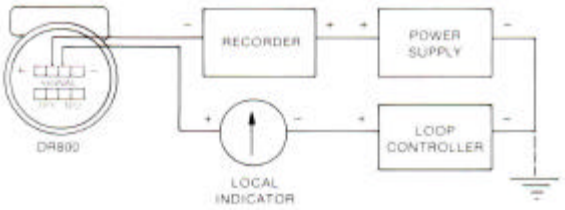


Figure 3 — Wiring Connections

Field Repair

The DR800 has been designed for easy field repair if required. All the electronics are housed in the NEMA housing on top of the transducer and joined to the transducer through a single plug in the neck of the transmitter. The entire electronics housing can be removed and replaced in a matter of minutes without removing the transducer from its mounting. The electronic circuit board is also field repairable; no special tools are required.

Ordering Information

To order the Model DR800 Draft Range Transmitter,
Specify the part number as indicated in the chart below.

DR800D – XXX – N – 1 – A – 4 - A

Differential

Full-Range

± P25, P50, 1P0, 2P5, 5P0,
10P, 25P, 50P, ICO
(in H_2O, P indicates decimal point, C is 100)

O-Rings

N =BUNA-N (std.)
E =Ethylene Propylene
V = Viton-A
S = Silicone

Output

1 = 4-20mA (std) = 0, +FS
2 = 4-12-20mA = -FS, 0, +FS
3 = Customer Specified

Display

A = None
B = 3½ digit LCD

Certification

4 = Standard Industrial

Fittings

A = No ½" NPT Adapters
B = With ½" NPT Adapters

Specifications are subject to change without notice.

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Model P61
Digital Pressure Transducer for USB

- **USB Interface for Digital Operation with PC**
- **Excellent Stability Over Wide Thermal Range**
- **0.25% FS Accuracy, 0.7% Max Temperature Error**
- **For Liquid or Gas Service**
- **FS Ranges from 2.22 In H2O**
- **NEMA 4 Housing**
- **USB Drivers and Software Included**

The Validyne model P61 is a digital differential pressure transmitter designed for industrial pressure measurement applications. The on-board microprocessor provides high accuracy and improved stability in changing thermal environments.

Communication and power via USB interface provides remote zero and span adjustment as well as digital pressure readings in engineering units. Drivers and software for the USB interface are included.

The P61 is designed for a wide variety of low pressure measurements where high resistance to vibration and superior stability through temperature change is required. The P61 will accept both liquids and gases directly at the sensing diaphragm.

The P61 provides USB digital readings directly in engineering units of psi or inches of water column.

The zero and full-scale outputs are set by USB digital command. No potentiometer adjustments are required to calibrate.

Pressure readings via USB port are available in engineering units. The temperature reading at the sensor is also available via USB.

The P61 has 1/8 inch female NPT pressure connections and measures just 1.5 x 1.5 x 5 inches overall.

The P61 is powered by the +5 Vdc USB and draws just a few mA.

The P61 has a USB micro connector that will accept standard USB cables.

The P61 is compatible with WinWedge software as well as LabView, Visual Basic and any other data acquisition program using COM serial ports.

The P61 is Ideal for:

- **Laboratory Pressure measurement**
- **Level Measurements**
- **Hydraulic Pressures**
- **Flow Measurement**

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Website: www.validyne.com - **E-Mail:** sales@validyne.com

P61 Specifications

General Specifications –

Ranges:
P61D: +/-0.08 psid to +/-3200 psid
P61A: 0 - 0.08 psia to 0 - 3200 psia

Accuracy:
P61D: +/-0.25% FS, includes non-linearity, hysteresis and non-repeatability
P61A: +/-0.5% FS, as above

Overpressure:
P61D: 200% FS up to 4000 psi maximum with less than 0.5% FS output shift
P61A: 20 psia or 200% FS, whichever is greater, up to 4000 psia maximum, for less than 0.5% zero shift

Line Pressure:
P61D: 3200 psig maximum, with zero shift less than 1%/Kpsi

Pressure Ports:
P61D: 1/8" female NPT with 8-32 Bleed Screw & Gasket, STD
P61A: 5/16-24 UNF-2B with 1/8" male NPT adapter included

Environmental Specifications -

Operating Temp: 0 to +160 F

Compensated Temp: 0 to +160 F

Temperature Error: +/-0.7% FS Over Operating Temperature Range of 0 F to +160 F

Sensor Physical Specifications -

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

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

Pressure Cavity Volume: 4 e-3 cu in, each port

Volumetric Displacement: 3 e-4 cu in at FS

Weight: 16 Oz.

Power Requirements -

Power Supply: +5 Vdc supplied by PC USB

Current Draw: 10 mA, typ

Output: Digital Readings via USB

Zero Balance: Auto-zero via USB

Span: Set by USB command

Output Noise: 2 mVrms

Insulation Resistance: 100 MOhms, any terminal to case

USB Interface:

USB drivers supplied. Device appears as a COM port to Windows applications. Commands and readings via serial strings.

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Website: www.validyne.com - **E-Mail:** sales@validyne.com

The P66

Digitally-Compensated Pressure Transducer for CAN Bus

The Validyne model P66 is a digital differential pressure transmitter designed for industrial pressure measurement applications. The on-board microprocessor provides high accuracy and improved stability in changing thermal environments.

Communication via CAN Bus provides remote zero and span adjustment as well as digital pressure readings in engineering units.

The P66 is designed for a wide variety of low pressure measurements where high resistance to vibration and superior stability through temperature change is required. The P66 will accept both liquids and gases directly at the sensing diaphragm.

It provides digital readings directly in engineering units of the calibrated pressure. The zero and full-scale outputs are set by CAN Bus digital command. No potentiometer adjustments are required to calibrate.

Pressure readings via CAN Bus are available in engineering units. The temperature reading at the sensor is also available via Can Bus.

The P66 has 1/8 inch female NPT pressure connections and measures just 1.5 x 1.5 x 5 inches overall. It is powered by +5 to +55 Vdc and draws just a few mA.

- **CAN Bus Interface for Digital Operation with PC**
- **Excellent Stability over Wide Thermal Range**
- **0.25% FS Accuracy, 0.7% Max Temperature Error**
- **For Liquid and Gas Service**
- **FS Ranges from 2.22 In H2O**
- **Compatible with CAN Bus Software**

P66 Utility Program Screenshot

The P66 is ideal for:

- **Automotive Pressure Measurement**
- **Level Measurements**
- **Engine Test Cells**
- **Test Track Pressure Measurements**

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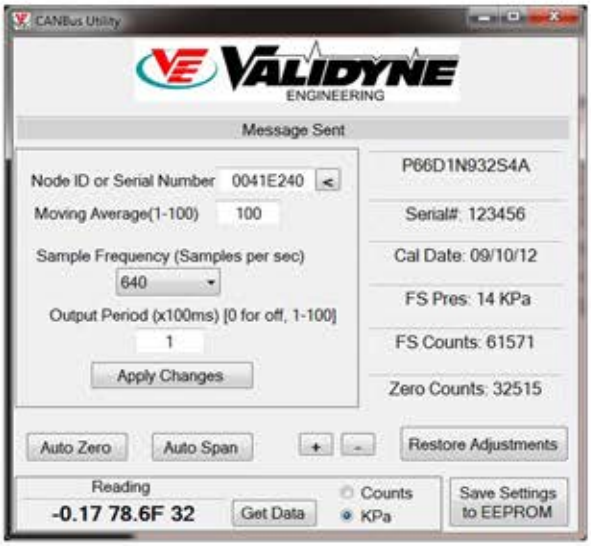
P66 SPECIFICATIONS



P66 Utility Program Included

GENERAL SPECIFICATIONS

Ranges:
P66D: .....± 0.08 psid to ± 3200 psid
P66A: .....0 to 0.08 psia to 0 to 3200 psia

Accuracy:
P66D: .....± 0.25% FS,includes non-linearity, hysteresis and non-repeatability
P66A: .....± 0.50% FS as above

Overpressure:
P66D: 200% FS up to 4000 psi maximum with less than 0.5% FS output shift
P66A: 20 psia or 200% FS whichever is greater, up to 4000 osia maximum, for less than 0.5% zero shift

Line Pressure:
P66D: 3200 psig maximum with zero shift less than 1%/Kpsi

Pressure Ports:
P66D: 1/8” female NPT with 8-32 bleed screw & gasket, STD
P66A: 5/16-24 UNF-2B with 1/8” male NPT adapter included.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature: 0 to +160 F

Compensated Temperature: 0 to +160 F

Temperature Error: ±0.7% FS over operating temperature range of 0F to +160F

SENSOR PHYSICAL SPECIFICATIONS

Pressure Media: Liquids & gases compatilbe with 410 SST and Inconel

O-RIngs: Buna-N Standard, other compunds available

Pressure Cavity Volume: 4 e-3 cu in, each port

Volumetric Displacement: 3 e-4 cu in at FS

Weight: 16 Oz.

POWER REQUIREMENTS

Power Supply: +5 to +55Vdc

Current Draw: 5 mA, typ

Output: Digital readings via CAN Bus
0 to ±5 Vdc analog

Zero Balance: Auto-zero via CAN bus

Span: Set via CAN bus

Output Noise: 2 mv RMS

Insulation Resistance: 100 MOhms, any terminal to case

CAN Bus: CAN Standard 2.0 Parts A & B

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P24

Differential or Absolute Pressure Transducer

DC Output

LOW RANGE, WET-WET Differential Capability

Features

- ☐ Ranges from as low as ± 0.08 psi FS to ± 3200 psi FS
- ☐ Differential or absolute versions
- ☐ Extremely rugged construction
- ☐ Fully potted

Description

The P24 Differential Pressure Transducer is the combination of a variable reluctance pressure transducer and a miniature carrier demodulator integrated into a single package to provide for operation from mobile dc power and deliver a standardized dc output suitable for recording or telemetry.

P24 Absolute Pressure Transducer provides a sealed absolute reference cavity in the variable reluctance pressure transducer integrated into a single package with the miniature carrier demodulator.

Electrically the P24 is a true four terminal device, the two output terminals being completely isolated from the two power input terminals. In addition, neither input common or output common are connected to case ground.

Notes:

1. Mating electrical connectors are not furnished. They may be ordered by specifying the following part no.:

Validyne P/N	Conn. P/N (Ref.)	Mates with (Ref.)
1280-1002	PT06A-10-6S (SR)	PT02A-10-6P
1281-1002	PT06E-10-6S (SR)	PT02E-10-6P
1311-0632	WK-6-21C-¼	WK-6-32S

1. O-rings are used on Gauge and Differential Units as pressure cavity seals, and for the pressure fitting adapters. On Absolute units, they are used for pressure fitting adapters only.

1. Any full-scale pressure value between the limits shown in **Specifications** may be called out, and in any popular engineering or scientific units. This value will be used to calibrate the unit(s) and will be marked on each unit. The Validyne part number used on Packing List and Invoices will be as shown above, *except* that a two-digit pressure range code will be substituted for the pressure range and units.

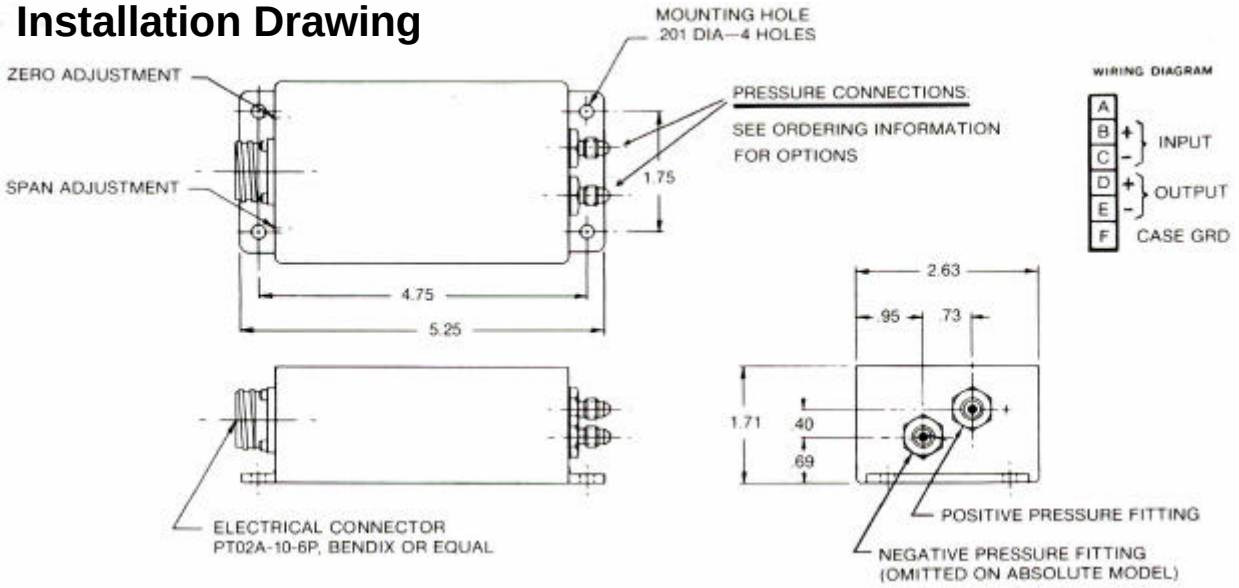
1. Gauge and Differential units are provided with two (2) fitting adapters and O-rings of the type specified: Absolute units with one each. To order spare fittings and/or O-rings, see the Model P24 Price List for part numbers and prices.

* *See ordering Information for available options*.

Specifications

Standard Ranges:	±0.08 to ±3200 psid F S 0.-0.08 to 0-3200 psia F S
Accuracy:	±0.25% FS, including linearity, hysteresis, and repeatability. ±0.5% for absolute version.
Overpressure:	P24D: 200% F S up to 4000 psi maximum with less than 0.5% zero shift P24A: 20 psia or 200% F S whichever is greater up to 4000 psi maximum, with less than 0.5% zero shift
Line Pressure:	3200 psig maximum (P24D)
Line Pressure Effect:	Less than 1% F S zero shift/1000 psig
Pressure Media:	Corrosive liquids and gases both sides, compatible with 410SS and inconel.
Output:	±5 Vdc for ±F S, for differential; 0-5 Vdc for 0 to +F S for absolute (see ordering information for options)
Zero Adj.:	±20% (nom.)
Span Adj.:	0-100% FS
Load Impedance:	10k ohms or greater
Output Impedance:	100 ohms, maximum
Output Ripple:	10 millivolts peak to peak
Frequency Response:	Flat to 1000Hz
Power Requirements:	22 to 35 Vdc, 15mA *****
Regulation:	Full scale output will change less than ±0.1% for input voltage change from 22 to 35 Vdc
Temperature:	Operating: -65°F to 250°F Compensated: 0°F to 160°F
Temperature Effects:	Within 2% F S/100°F
Electrical Connection:	PTO2A-10-6P, Bendix or equivalent. Mating connector PT06A-10-6S (SR) not furnished.
Weight:	24 ounces (680 grams)

Installation Drawing



Ordering Information: *for transducers,* specify *part number as follows*:

Type of Measurement

Option Letter	Description
D =	= Differential or Gauge Pressure
A =	= Absolute Pressure

O-Rings (See Note 2)

Option Letter	Description
N	= BUNA-N (STD.)
E	= Ethylene Propylene
V	= Viton-A
S	= Silicone
T	= Teflon (Ranges 2 PSI & above only)

Pressure Range (See Note 3)
Specify full-scale pressure value and units, i.e., 5 psid, 10 mm Hg, etc.

Compensated Temperature Range

Option Letter	Description
S	= 0° to 160°F (STD.)
W	= -65° to +250°F

P24D - 1 - N - 1 - A - XX - S - 4 - 1

Electrical Connector (See Note 1)

Option No.	Description
1	= PT02A-10-6P, Bendix or equal (STD)
2	= PT02E-10-6P, Bendix or equal
3	= WK-6-32S, Cannon

Input Voltage

Option No.	Description
1	= 22-35 Vdc
2	= 10.5-16 Vdc

Calibrated Output-Volts DC

Option Letter	Pressure -FS	Zero	+FS
A	—	0	+5V
B	-5V	0	+5V
C	0	+2.5V	+5V
D	-2.5V	0	+2.5 V

Pressure Fittings (See Note 4)

Option No.	Fitting Type
1	= 1/8" Flared Tube, per MS33656-2E (STD.)
2	= 1/4" Flared Tube, per MS33656-4E
3	= 1/8" – 27 NPT (Female Port)
4	= 1/8" – 27 NPT (Male Port)

Sensor Material

Option No.	Description
4	= Type 410 Stainless Steel (STD.)
5	= Type 410 Nickel Plated*
6	= Type 410 Gold Plated*
7	= Type 17-7 ph Stainless Steel – Ranges 8 psi and above, only

** Options 5 & 6 available on gauge and differential units only.*

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