

Differential Pressure & Flow

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DIFFERENTIAL PRESSURE

- Gauges • Switches • Transmitters



- Filtration
- Level
- Flow

LIQUID & GAS FLOW

- Meters • Switches • Transmitters



- Heat Exchangers
- Chillers
- Coolers

DIFFERENTIAL PRESSURE

DP FEATURES

- Measure from 5" H₂O up to 1000 psid
- High line pressure applications (up to 10,000 psig)
- Available in aluminum, stainless steel or brass
- Select from 2.5" to 6" dials and dozens of options

Piston DP Sensor for Liquids: High-Pressure

A spring loaded piston/magnet sensor is magnetically coupled to a pointer to indicate a pressure difference. Sensing is completely separate from the indicator, switches, relay, or transmitter. A metal housing is machined from a single block making them a natural for high-pressure applications. Select from the widest variety of materials and configurations in the industry.



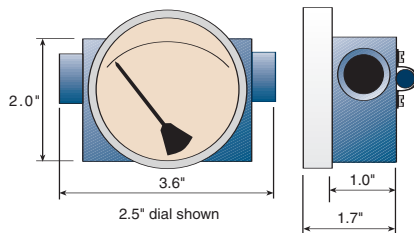
- 1201** 0-5 to 0-150 psid, lowest cost unit
- 1203** Nema-4X enclosure for switches or transmitter
- 1303** Measure up to 1000 psi differential

Diaphragm DP Sensor for Gases & Liquids

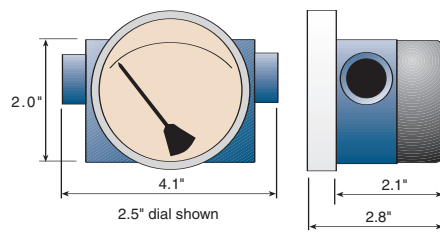
For gas or liquid applications, consider the diaphragm sensor design. Built on a design similar to the piston units, a diaphragm replaces the piston and separates the high- and low-pressure ports. A variety of diaphragm designs are available; small for more common DP measurements, large for more sensitive applications, and a rolling diaphragm for high DP measurements. The gauges can be accompanied by a switch, relay, or transmitter.



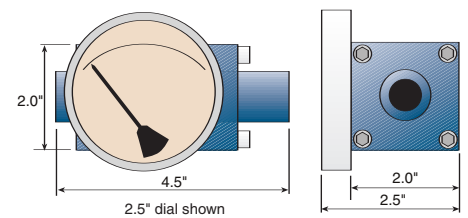
- 1502** Rolling diaphragm measures up to 300 psid
- 1516** For low DP measurements down to (0-1 psid) at high line pressure (1500 psig)
- 1518** Compound DP measurements
- 1831** For the most sensitive DP measurements—down to 0-5" H₂O



1201PGS



1203PGS



1516DG

Complete details at www.orangeresearch.com

SERIES NUMBER	SENSOR TYPE	MINIMUM RANGE	MAXIMUM RANGE	ACCURACY (%) **	MAX. TEMP. (°F) ***	MAX. LINE PRESS. (PSIG)
1201	piston	0-5 psid	0-150 psid	±2	200	3000
1203	piston	0-5 psid	0-150 psid	±2	200	5000
1303	piston	0-100 psid	0-1000 psid	±2	200	5000
1502	diaphragm	0-10 psid	0-300 psid	±2	200	3000
1516	diaphragm	0-1 psid	0-50 psid	±2	200	1500
1518	diaphragm	8-0-8 psid	50-0-50 psid	±2	200	1500
1831	diaphragm	0-5" H ₂ O	0-8 psid	±2	200	150

** Full scale, ascending mode

*** Gauges & meters - Switches to 150°F

- Class 1, Div 1 for hazardous environments
- Miniature models for OEM applications

DP Models for Hazardous Locations

Switches, relay, and transmitters are enclosed in UL, CSA, FM, and CENELEC approved enclosures that have a gauge option for local indication. Choose one or two switches, SPST or SPDT, or a DPDT relay available in a variety of voltages. Transmitters allow for continuous remote location monitoring. These enclosures meet Class I, Div. I specifications along with Nema-3, 4X, 7, 9, and 12. Both piston and diaphragm sensor models are available to make this the most comprehensive offering in the industry.

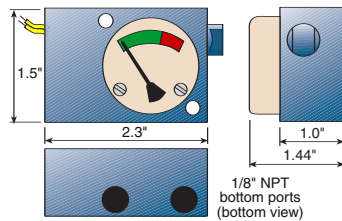
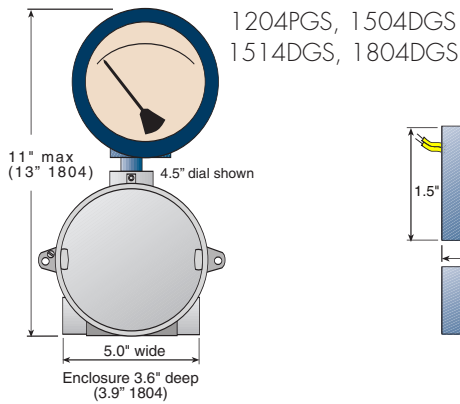
- 1204** Piston sensor for DP up to 150 psid at 5000 psig
- 1504** Diaphragm sensor for high DP to 300 psid
- 1514** Measure down to 1 psid at pressures to 1500 psig



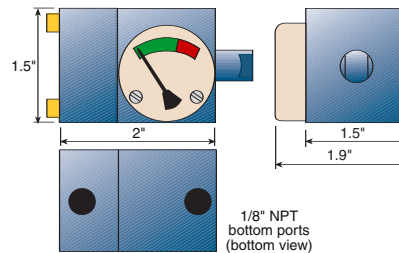
Low-Cost Miniature DP

A small profile saves you space and money. A natural for OEM applications, these “minis” offer the user a simple indicator where a full-scale gauge is not required. Our red/green dial informs the user of an alarm condition. Add a switch to be automatically alerted of important process conditions. You can choose from our familiar piston or diaphragm models while custom design ideas are welcome.

- 1002** Piston model measures from 1 to 100 psid
- 1020** Diaphragm sensor measures down to 25” H₂O



1002PIS-15A



1020DI-5A

Complete details at www.orangeresearch.com

SERIES NUMBER	SENSOR TYPE	MINIMUM RANGE	MAXIMUM RANGE	ACCURACY (%) **	MAX. TEMP. (°F) ***	MAX. LINE PRESS. (PSIG)
1204	piston	0-5 psid	0-150 psid	±2	200	5000
1504	diaphragm	0-5 psid	0-300 psid	±2	200	3000
1514	diaphragm	0-1 psid	0-50 psid	±2	200	1500
1002	piston	0-1 psid	0-100 psid	±5	200	3000
1020	diaphragm	0-25" H ₂ O	0-30 psid	±5	200	1000

** Full scale, ascending mode

*** Gauges & meters - Switches to 150°F

FLOW FEATURES

- 2 GPH - 30 GPM (liquids) and 1.5 - 100 SCFM (gases)
- Easy-to-read 2.5" to 6" diameter dial faces
- High line pressure applications (up to 5000 psig)
- Can be mounted in any orientation

Low Flow: Gases & Liquids

Measure from below 2 GPH to 40 GPH for liquids and 1.5 to 5 SCFM for gases with our fixed-orifice sensors. This design places a Delrin® orifice/magnet assembly on a diaphragm that deflects with the flow rate. This assembly is magnetically coupled to the dial face to give an indication of the flow rate on a square root dial. Meter, meter-switch, and switch models are available.



2020 Low-cost flowmeter with high sensitivity

Medium Flow: Gases & Liquids

A wide range of flow rates can be measured with our variable area flowmeters. The sensor, a magnet/Delrin® cone, rests in a precision orifice and is deflected by fluid flow. As flow increases, the dial, which is magnetically coupled to the sensor, indicates the position of the sensor reflecting the flow rate on an easy-to-read face. Measure from 1-10 GPM on liquids or 1.5 to 100 SCFM on gases. Choose from meters, switches, or transmitter options.



2220 Easy-to-read linear scale dial; high pressures (to 5000 psig)

2320 1/2" ports allow for higher flow measurements (to 10 GPM)

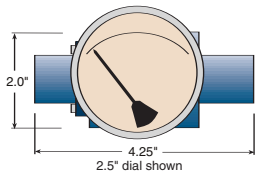
® Delrin is a registered trademark of E.I. DuPont Company

High Flow: Liquids

For higher flow rates, choose our 2400 series flowmeter. These variable area flowmeters utilize a magnetically coupled cone/indicator design and have one inch ports, allowing for up to 30 GPM flow rates with a low pressure drop. Combine the meters with one or two switches or choose our switch only models.



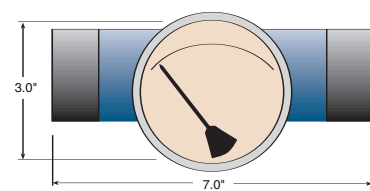
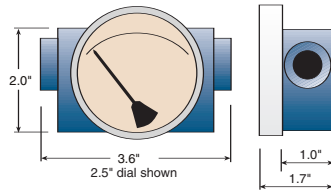
2420 0-10 up to 0-30 GPM at pressures up to 1500 psig (1" ports)



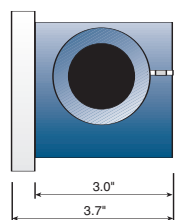
2021FG



2221FG



2421FG



SERIES NUMBER	SENSOR TYPE	MINIMUM RANGE	MAXIMUM RANGE	ACCURACY (%) **	MAX. TEMP (°F) ***	MAX. LINE PRESS. (PSIG)
2020	fixed orifice	0-2 GPH*	0-40 GPH	±2/±5	200	3000
2220	variable area	0-1 GPM / 1.5-10 SCFM	0-5 GPM / 3-25 SCFM	±2/±5	200	3000/5000
2320	variable area	0-1 GPM / 4-30 SCFM	0-10 GPM / 10-100 SCFM	±2/±5	200	3000/5000
2420	variable area	0-10 GPM	0-30 GPM	±2	200	1500

* 1.5-5 SCFM (one range available as standard)

** Full scale, ascending mode

*** Gauges & meters - Switches to 150°F



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