Orange Research

Differential Pressure & Flow

Made In The U.S.A.

For our complete online catalog visit our website:
www.orangeresearch.com

DIFFERENTIAL PRESSURE

- Gauges, Switches & Transmitters
- Filtration, Level & Flow
- Rugged, Reliable & Proven

New – Barton Replacement Gauges

LIQUID & GAS FLOW

- Meters, Switches & Transmitters
- Heat Exchangers, Chillers, Coolers
- Afforable, Accurate & Durable

DP FLOW

- Meters & Switches
- 0-5 to 0-200 GPM
- Half the Price, Half the Size

MINI TRANSMITTERS

- Voltage or Current Output
- 5% Accuracy
- Popular in Telemetry

DIFFERENTIAL PRESSURE

DP FEATURES

- Measure from 5" H20 up to 1000 psid
- High line pressure applications (up to 10,000 psig)
- Class 1, Div 1, or Div 2 for hazardous environments
- Available in aluminum, stainless steel or brass
- Select from 2.5" to 6" dials and dozens of options
- Miniature models for OEM applications

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

See our website for our PVC models – New

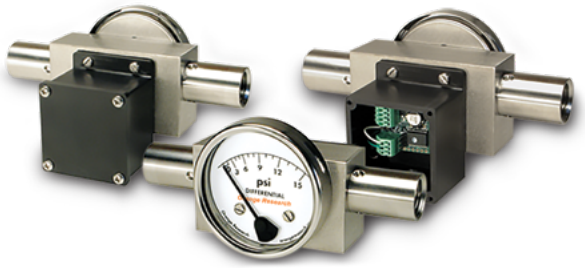
Diaphragm DP Sensor for Gases & Liquids

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
1536 – Barton Replacement Gauge – New
1831 – For the most sensitive DP measurements -down to 0-5" H20

DP Transmitters

Capable of handling up to 5,000 psi, DP transmitters allow remote monitoring of filtration, level, and flow via magnetic sensors that relay minute changes in pressure to the electronics for transmission. DP transmitters come in current (4-20 mA) or voltage (0-5v) output configurations. They are machined from solid metal and feature weatherproof housings for the electronics. Available with or without dials, and compatible with telemetry systems, DP transmitters are accurate, rugged and reliable.



Product Specifications

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" H20	0-8 psid	±2	200	150

Complete details at www.orangeresearch.com

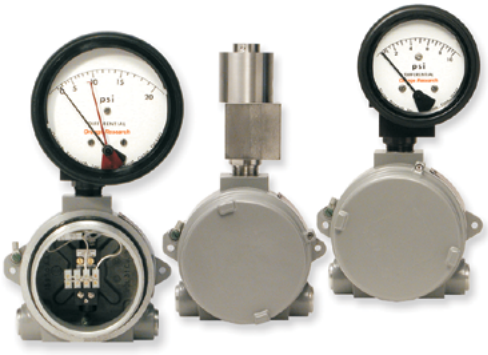
** Full scale, ascending mode

*** Gauges & meters - switches to 176ºF

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.

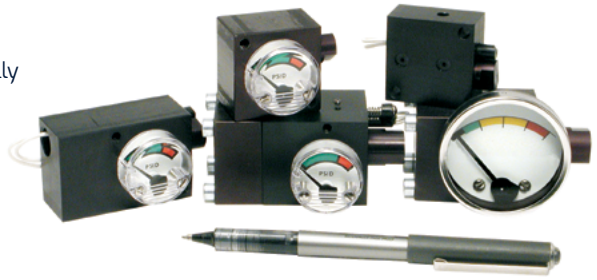
1204 – Piston sensor for DP up to 150 psid at 5000 psig
1504 – Diaphragm sensor for high DP to 300 psid
1514 – Measure down to 1 psid at pressures to 1500 psig



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" H20



Mini Differential Pressure Transmitters

Mini DP transmitters offer the same rugged reliability and remote monitoring performance as our full-size models, at a lower cost. 1002 piston sensor units are designed for liquids, with line pressures to 3000 psi. The 1020 diaphragm sensor models can handle liquids or gases with line pressures up to 1000 psi. Mini transmitters are available in current or voltage output configurations. All units are calibrated to NIST standards, with no field adjustments required, and are installation-ready.

1002PT – Transmitter no indicator for liquids
1002PIT – Transmitter with indicator for liquids
1020DT – Transmitter no indicator for gases
1020DIT – Transmitter with indicator for gases

Product Specifications

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" H20	0-30 psid	±5	200	1000

Complete details at www.orangeresearch.com

** Full scale, ascending mode

*** Gauges & meters - switches to 176ºF

LIQUID & GAS FLOW

Meters · Switches · Transmitters

FLOW FEATURES

- 4 GPH - 200 GPM (liquids) and 1.5 - 100 SCFM (gases)
- High line pressure applications (up to 5000 psig)
- Easy-to-read 2.5" to 6" diameter dial faces
- Can be mounted in any orientation

Low Flow: Gases & Liquids

Measure from below 4 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.

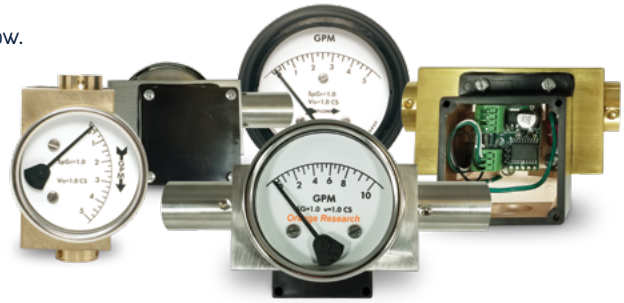
2020 – Low-cost flowmeter with high sensitivity

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

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



Differential Pressure Flow Meters

DP flow meters are compact, rugged and reliable; featuring directly connected, large-throated, non-clogging flow nozzles for a leak-free, low-pressure-drop design. Bright, 3.5" dials make them easy to read. Choose brass, stainless steel, or aluminum bodies. Flow meters are available with ½", 1" and 2" NPT ports and optional SPST or SPDT reed switches.

2500 – 0-5 to 0-200 GPM

Product Specifications

Series Number	Sensor Type	Minimum Range	Maximum Range	Accuracy (%) **	Max. Temp. (°F) ***	Max. Line Press. (PSIG)
2020	fixed orifice	0-4 GPH*	0-40 GPH	±2	200	3000
2220	variable area	0-1 GPM / 1.5-10 SCFM	0-5 GPM / 3-25 SCFM	±2	200	3000/5000
2320	variable area	0-1 GPM / 4-30 SCFM	0-10 GPM / 10-100 SCFM	±2	200	3000/5000
2420	variable area	0-10 GPM	0-30 GPM	±2	200	1500
2500	dp flow	0-5 GPM	0-200 GPM	±2	200	500

* 1.5-5 SCFM (one range available as standard) ** Full scale, ascending mode *** Gauges & meters - switches to 176ºF

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