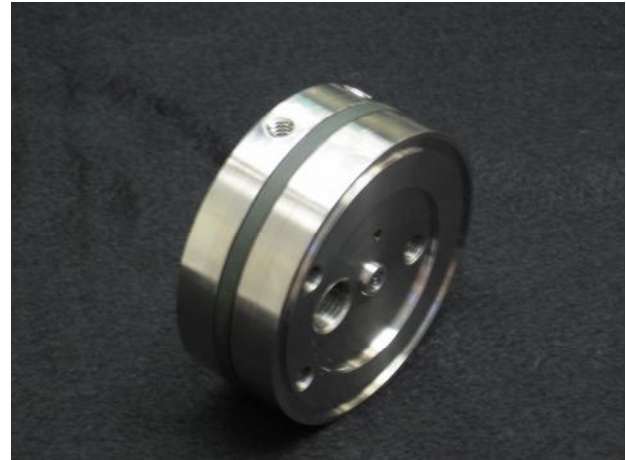


## Model dP1200 Fiber Optic Differential Pressure Transducer

DavidsonSensors™ provide the safest, most reliable and cost-effective instrumentation for harsh industrial environments.

This product data sheet describes Model dP1200 differential pressure transducer. The transducer may be configured for measurement of gage pressure and temperature in addition to differential pressure for applications that require high accuracy differential pressure, flow, or level measurements.

Davidson differential pressure transducers do not have isolation diaphragms and do not contain any fill-fluid making them insensitive to hydrogen migration and drift associated with leaking pressure seals.



**100 inches of water  
Differential Pressure Transducer**

### Operating Differential Pressure Ranges

100 inches of water
400 inches of water

### Operating Line Pressure Ranges

100 psig
500 psig
1000 psig
2000 psig
3000 psig

### Operating Temperature Limit

125° F

### Overpressure Limits

110% of rated gage pressure

### Proof Pressure Limits

150% of rated gage pressure

### Physical Specifications

#### Process Connections

Flanged

#### Size

3" Diameter x 1.5" Thick

#### Wetted Materials

Inconel-718

### Performance Specifications

#### Accuracy (with temperature correction)

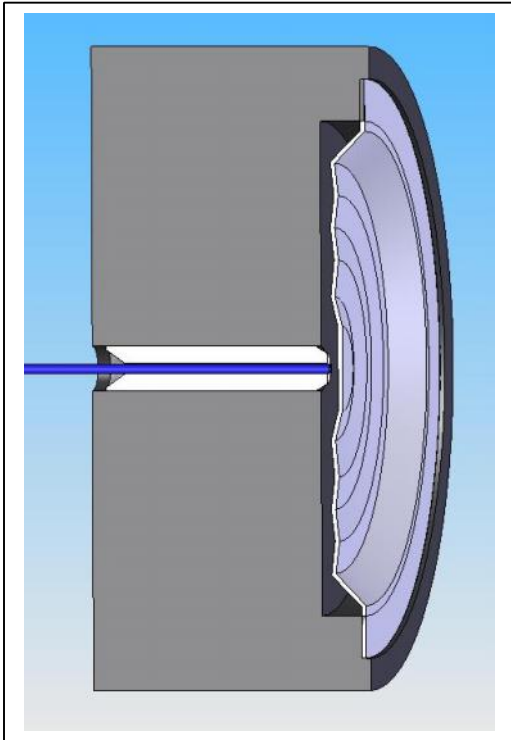
±0.2% Full Scale at 50°F to 150°F

±0.5% Full Scale over the Rated Temperature and Line Pressure Range.

## Theory of Operation

Process pressure deflects the pressure sensing diaphragm approximately 0.0005 inch at full scale operating pressure. The diaphragm is integrated with a fiber optic sensor. The deflection of the diaphragm is measured remotely by the fiber optic signal conditioner where the optical signal is converted into an electronic output signal in the appropriate engineering units.

A temperature sensor may be integrated with the pressure transducer and used for thermal correction of the pressure output to improve the accuracy when making measurements at elevated temperatures.



**Fiber Optic Pressure Sensing Diaphragm**

## Fiber Optic Sensing Advantages

Fiber optic sensing offers a number of advantages for measurement in harsh industrial environments. DavidsonSensors™ are intrinsically-safe, immune to electromagnetic interference, and suitable for continuous use at temperatures up to 1000°F.

Although fiber optic sensing systems can be used effectively even in benign environments, Davidson fiber optic sensing systems offer significant

technical advantages when used in the following environments:

- Hot, Corrosive Environments
- Explosion Hazardous Areas
- High EMI Areas

Fiber optic sensing systems eliminate or mitigate many of the following common problems:

- Failure and Drift due to Hydrogen Permeation
- Drift due to Fill-Fluid Leaks
- Failure due to Lightning
- Problems due to Ground Potential
- Noise due to EMI/RFI
- Costs of Nitrogen Purge Systems

## Testing and Calibration

Standard test and calibration includes the following:

Hydrostatic test is performed at 110% of rated pressure with de-ionized water at ambient room temperature.

Calibration is performed over the full range of operating pressure and temperature.

## Documentation

Calibration data sheets will be provided for each transducer upon request.

## Tagging

Stainless steel tags will be permanently attached to each transducer upon request.

## Safety (Transducer with Cable)

Intrinsically-safe and suitable for use in:

- Class I, Division 1, Groups B, C, and D
- Class II, Division 1, Groups E, F, and G
- Class III, Division 1

## Other Applications

For information about other Davidson products, see [www.davidson-instruments.com](http://www.davidson-instruments.com)

## Guide to Configuring a Fiber Optic Sensing System

For information to assist you in planning a fiber optic sensing system, see [www.davidson-instruments.com](http://www.davidson-instruments.com)

**Ordering Data**

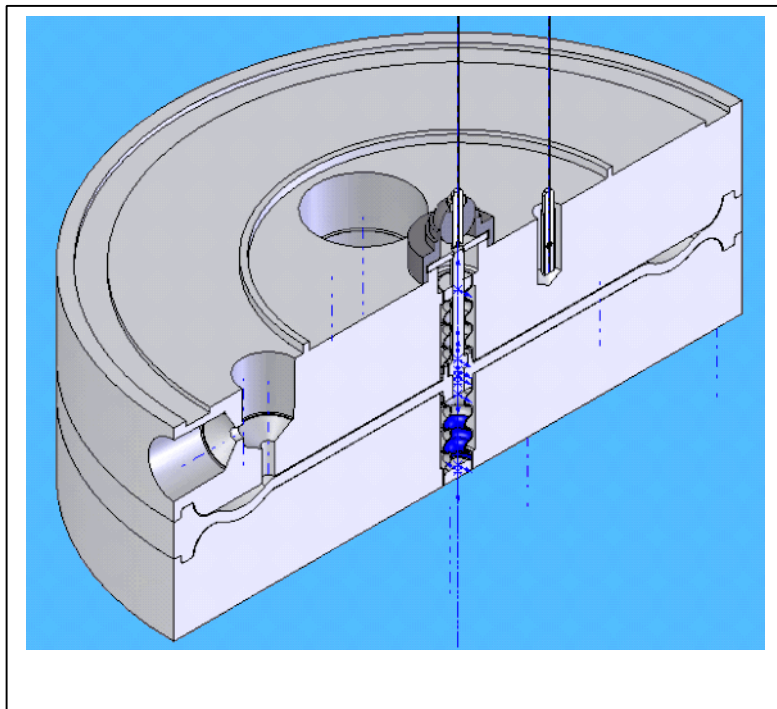
Model Number	dP1200		
differential Pressure Range	A	100	inches of water
	B	400	inches of water
Line Pressure Range	F	100	psig
	H	500	psig
	I	1,000	psig
	J	2,000	psig
	K	3,000	psig
Line Sensor	N	No	
	Y	Yes	
Temperature Range	5	550° F	
	7	750° F	
Temperature Sensor	N	No	
	Y	Yes	
Cable Jacket/Length (X is the length in feet)	N - 0 / 0	None	
	A - X / 0	SS Armor	
	B - X / 0	SS Braid	
	C - X / 0	DX	
	D - X <sub>1</sub> / X <sub>2</sub>	SS Armor / DX	
	E - X <sub>1</sub> / X <sub>2</sub>	SS Braid / DX	
Cable Temperature Rating	1	125° F	
	6	550° F	
	X	Other (Specify)	
Cable Termination	P	None (pigtail)	
	S	ST Connector	
	R	Rugged	
	X	Other Connector	
Other Specifications*	0	No	
	1	Yes	

\* Tagging, documentation, other instructions etc.

Ordering Data Worksheet

Unit Number	Model Number	Differential Pressure Range	Gage Pressure Range	Gage Sensor	Temperature Range	Temperature Sensor	Cable Jacket / Length	Cable Temperature Rating	Cable Termination	Other Specifications
1	dP1200									
2	dP1200									
3	dP1200									
4	dP1200									
5	dP1200									
6	dP1200									

Section View



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U.S. Patent 7,134,346  
 U.S. Patent Pending