

D5100 Industrial Differential Pressure Transducer



- 316L Stainless Steel Wetted Surface
- Voltage, Current, and mV Outputs
- True Wet/Wet Differential
- CE Certified (amplified version only)



DESCRIPTION

The D5100 series from Measurement Specialties sets the price and performance standard for differential pressure transducers used in demanding environments.

The amplified model of the D5100 series exceeds the latest heavy industrial CE requirements including surge protection and reverse polarity protection. The amplified and mV output pressure transducers both have two pressure ports for high and low pressures and all wetted parts are made of 316L stainless steel. They come in a variety of electrical configurations and ranges from 1 to 500 psi (up to 35 Bar).

FEATURES

- Heavy Industrial CE Approval (amplified only)
- As Low As $\pm 0.1\%$ Pressure Non Linearity
- Rugged Construction: Can Withstand 50g Shock/20g Vibration
- Up to -40°C to $+125^{\circ}\text{C}$ Operating Temperature Range
- Excellent Stability
- Various Output, Pressure Ports and Electrical Connections

APPLICATIONS

- Process Controls
- Tank Level Measurement
- Filter Performance Monitoring
- Corrosive Fluids and Gas Measurement Systems
- Flow Measurements

STANDARD RANGES

Range	psiD	Range	BarD
0 to 1	•	0 to 0.07	•
0 to 5	•	0 to 0.35	•
0 to 15	•	0 to 1	•
0 to 30	•	0 to 2	•
0 to 50	•	0 to 3.5	•
0 to 100	•	0 to 7	•
0 to 300	•	0 to 20	•
0 to 500	•	0 to 35	•

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PERFORMANCE SPECIFICATIONS (AMPLIFIED OUTPUT)

Typical Drive: See Output Options Table

Ambient Temperature: 25°C (unless otherwise specified)

PARAMETERS	1 PSI			≥5 PSI			UNITS	NOTES
	MIN	TYP	MAX	MIN	TYP	MAX		
Accuracy	-0.3		0.3	5psi: -0.25 ≥15psi: -0.1		0.25 0.1	%Span	1
Isolation, Body To Any Lead	1			1			MΩ @25VDC	
Pressure Cycles	1.00E+6			1.00E+6			0-FS Cycles	
Proof Pressure (High Side)			10X			3X	Rated	2
Proof Pressure (Low Side)			10X			3X	Rated	3
Burst Pressure (High Side)			12X			4X	Rated	2
Burst Pressure (Low Side)			12X			4X	Rated	3
Line (common) Pressure			1000			1000	psi	
Line Pressure Effect on Zero		0.004		5psi: 0.0008 TYP ≥15psi: 0.0005 TYP			%Span/psi	
Long Term Stability		±0.25			±0.1		%Span/year	
Total Error Band	-1.5		1.5	-1		1	%Span	
Compensated Temperature	-20		+85	-20		+85	°C	
Operating Temperature	-40		+85	-40		+125	°C	4
Storage Temperature	-40		+125	-40		+125	°C	4
Sensor Type	Differential Pressure Sensor with Unidirectional Calibration							
Pressure Port Material	316L Stainless Steel							
Bandwidth	DC to 1KHz (typical)							
Shock	50g, 11 msec Half sine shock per MIL-STD-202F, Method 213B, Condition A							
Vibration	±20g, MIL-STD-810C, Procedure 514.2, Fig 514.2-2, Curve L							

Notes

- TEB (Total Error Band) of linearity, hysteresis and repeatability using Best fit straight line.
- 1000psi, whichever is less.
- 150psi, whichever is less.
- Except cable 105°C Max.

CE Compliance

EN55022 Emissions Class A & B
 IEC61000-4-2 Electrostatic Discharge Immunity (6kV contact/8kV air)
 IEC61000-4-3 EM Field Immunity (30V/m)
 IEC61000-4-4 Electrical Fast Transient Immunity (1kV)
 IEC61000-4-5 Surge (1kV)
 IEC61000-4-6 Conducted Immunity (10V)
 IEC61000-4-9 Pulsed Magnetic Field Immunity (100A/m)

Pressure Port Options

Dim C (inches) [mm]

2 = 1/4-19 BSP Male 2.94 [74.73]
 5 = 1/4-18 NPT Male 3.04 [77.24]
 F = 1/4-19 BSP Female 2.18 [55.42]
 G = 1/4-18 NPT Female 2.18 [55.42]

Electrical Connection Options

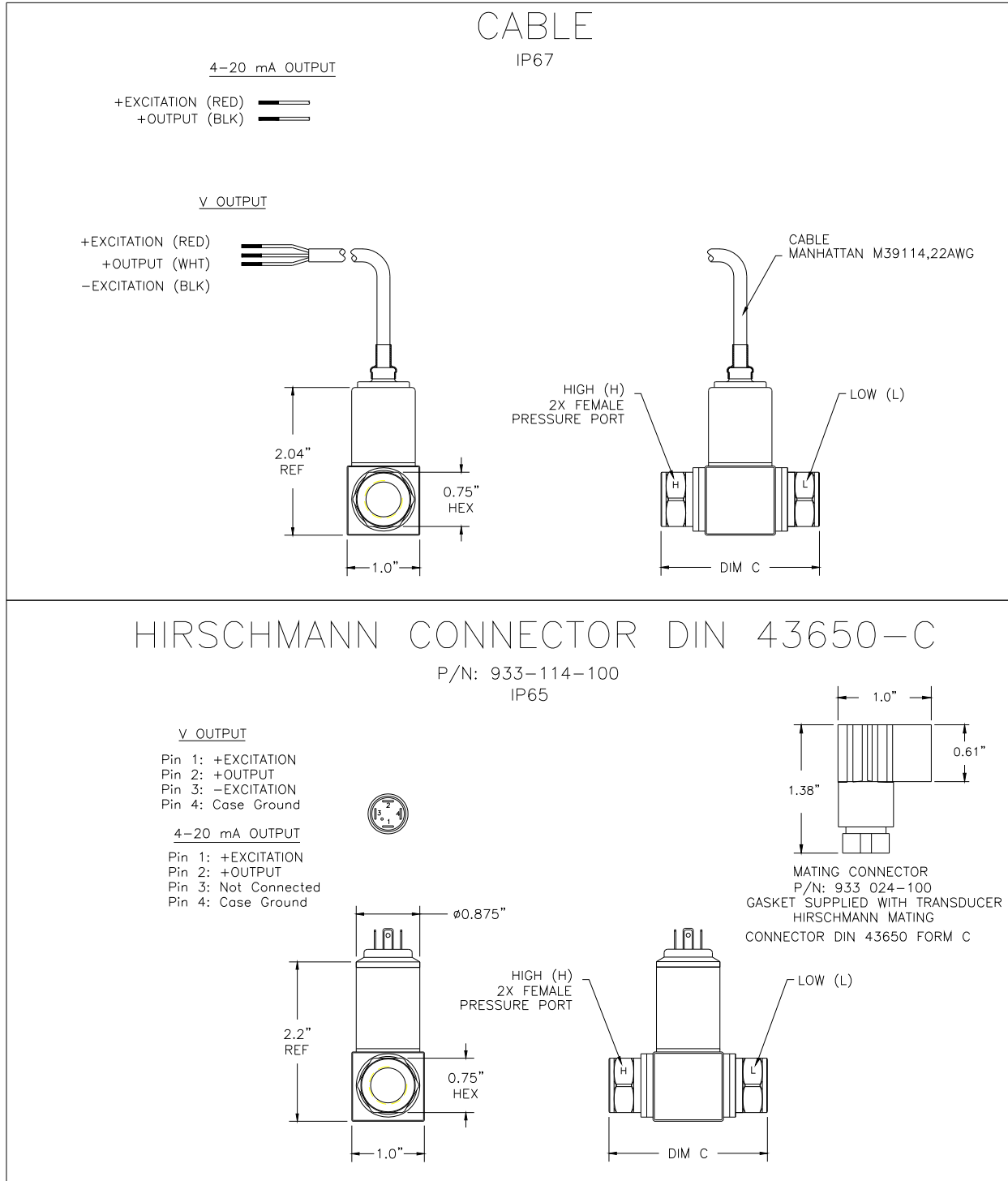
1 = 2 ft cable
 4 = Packard Connector
 5 = Bendix Connector
 6 = Hirschmann Connector

Others available upon request

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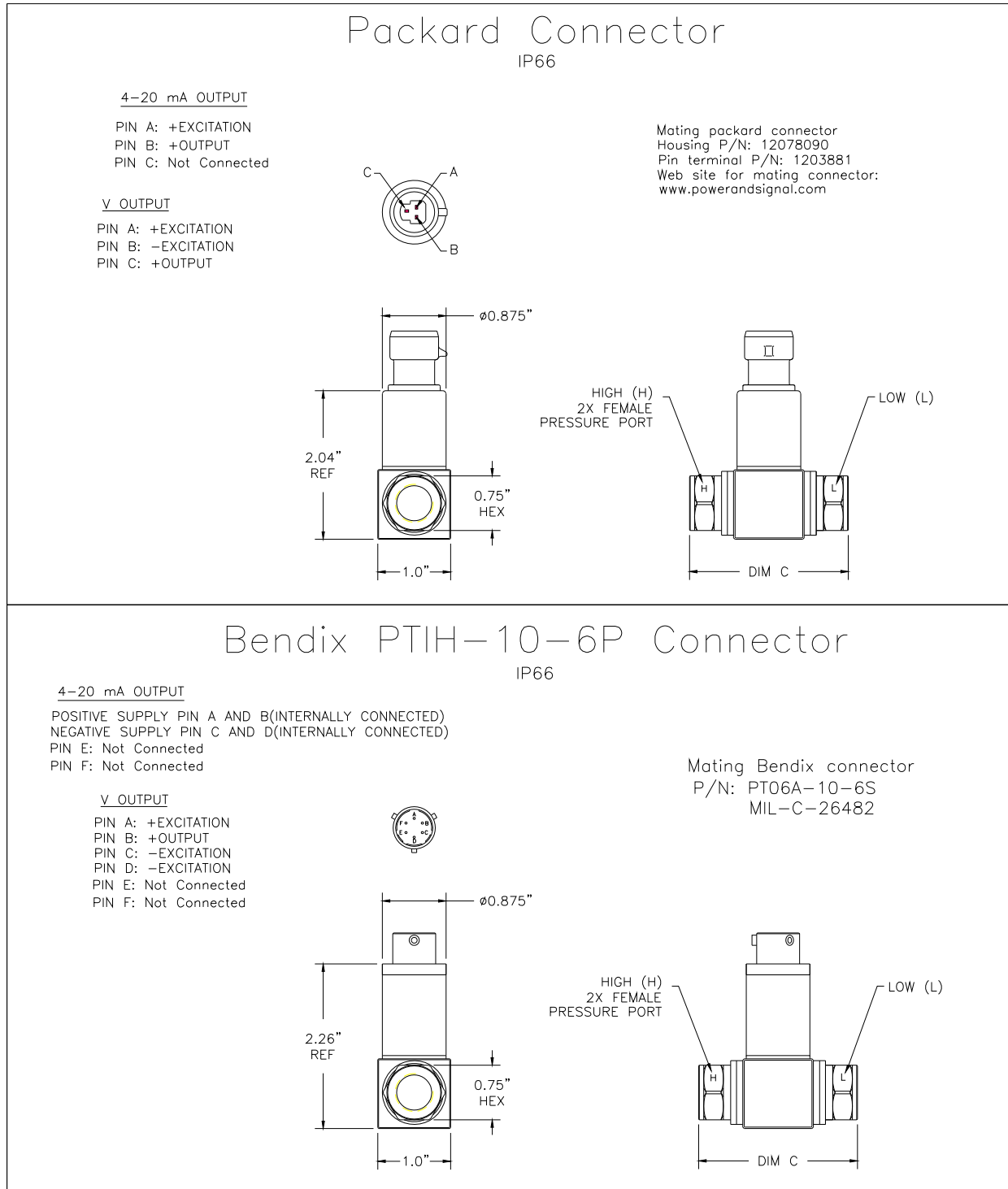
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DIMENSIONS (AMPLIFIED OUTPUT)



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OUTPUT OPTIONS (AMPLIFIED OUTPUT)

Code	Output	Supply(V)		
		MIN	TYP	MAX
3	0.5 – 4.5V (ratiometric)	4.75	5.00	5.25
4	1 – 5V	8	15	30
5	4 – 20mA	9	15	30

PERFORMANCE SPECIFICATIONS (mV OUTPUT)

Supply Voltage: 10Vdc

Ambient Temperature: 25°C (unless otherwise specified)

PARAMETERS	1 PSI			≥5 PSI			UNITS	NOTES
	MIN	TYP	MAX	MIN	TYP	MAX		
Supply Voltage		10	14		10	14	VDC	
Zero Pressure Output	-2.0	0	2.0	5psi: -2.0 ≥15psi: -1.0	0 0	2.0 1.0	mV	
Span	77	80	83	5psi: 98 ≥15psi: 99	100 100	102 101	mV	
Accuracy	-0.3		0.3	5psi: -0.25 ≥15psi: -0.1		0.25 0.1	%Span	1
Input Resistance	5.5	9.0	12.5	5.5	9.0	12.5	KΩ	
Output Resistance	4.0		30.0	5psi: 4.0 ≥15psi: 4.0		30.0 25.0	KΩ	
Isolation, Body To Any Lead	50			50			MΩ @50VDC	
Pressure Cycles	1.00E+6			1.00E+6			0-FS Cycles	
Proof Pressure (High Side)			10X			3X	Rated	2
Proof Pressure (Low Side)			10X			3X	Rated	3
Burst Pressure (High Side)			12X			4X	Rated	2
Burst Pressure (Low Side)			12X			4X	Rated	3
Line (common) Pressure			1000			1000	psi	
Line Pressure Effect on Zero		0.004		5psi: 0.0008 TYP ≥15psi: 0.0005 TYP			%Span/psi	
Long Term Stability		±0.25			±0.1		%Span/year	
Temperature Coefficient – Span	-1.5		1.5	5psi: -1.5 ≥15psi: -1.0		1.5 1.0	%Span	
Temperature Coefficient – Offset	-2.5		2.5	5psi: -1.5 ≥15psi: -1.0		1.5 1.0	%Span	
Output Load Resistance	5			5			MΩ	
Output Noise (10Hz to 1KHz)		1.0			1.0		uV p-p	
Response Time (10% to 90%)		0.1			0.1		ms	
Compensated Temperature	0		50	5psi: 0 ≥15psi: -20		70 85	°C	
Operating Temperature	-40		+85	-40		+125	°C	
Storage Temperature	-40		+125	-40		+125	°C	4
Voltage Breakdown	500V rms@50Hz, Leakage Current <1mA							
Sensor Type	Differential Pressure Sensor with Unidirectional Calibration							
Pressure Port Material	316L Stainless Steel							
Shock	50g, 11 msec Half sine shock per MIL-STD-202F, Method 213B, Condition A							

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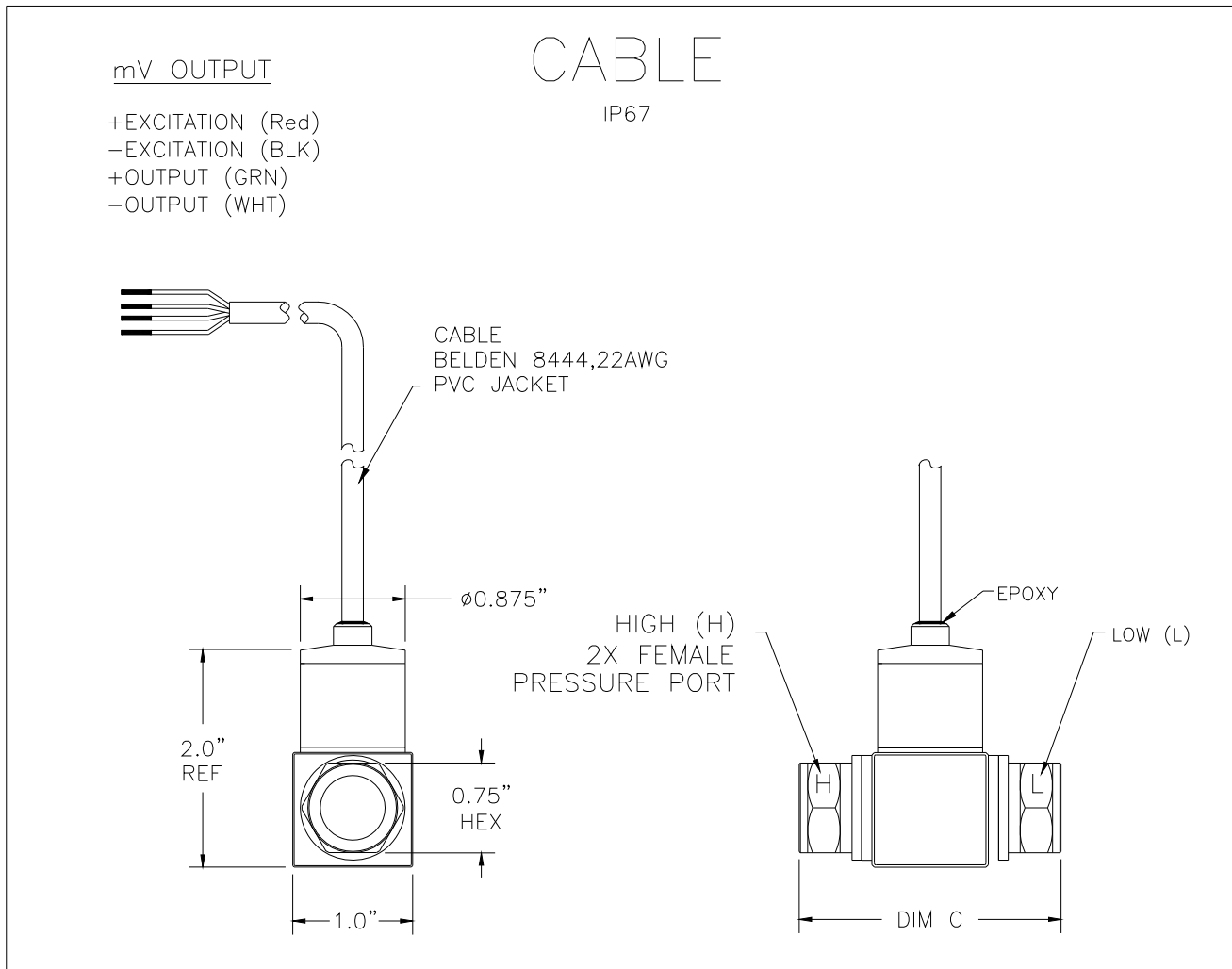
Notes

1. RSS of linearity, hysteresis, and repeatability using Best fit straight line.
2. 1000psi, whichever is less.
3. 150psi, whichever is less.
4. Except cable 105°C Max.

Pressure Port Options	Dim C (inches) [mm]	Electrical Connection Options
2 = 1/4-19 BSP Male	2.94 [74.73]	1 = 2 ft cable
5 = 1/4-18 NPT Male	3.04 [77.24]	
F = 1/4-19 BSP Female	2.18 [55.42]	
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Others available upon request

DIMENSIONS (mV OUTPUT)



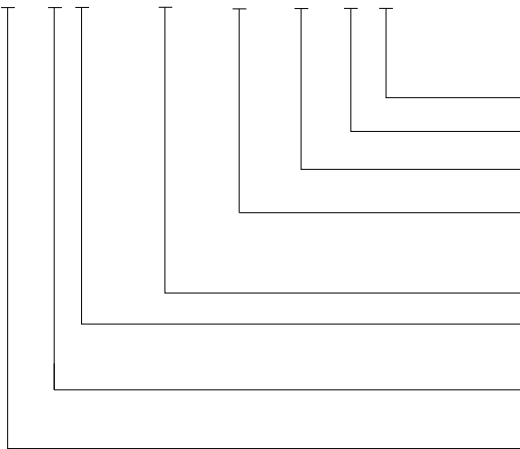
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OUTPUT OPTIONS (mV OUTPUT)

Code	Output	MIN	Supply(V)	
			TYP	MAX
2	80mV (1psi), 100mV (≥5psi) [ratiometric]		10	14

ORDERING INFORMATION

D5131-000005-300PD



Type (D = Differential)
 Units (P = psi, B = Bar)
 Pressure Range (001 - 500psi, 0.07 - 035Bar)
 Pressure Port (2 = 1/4-19BSP Male, 5 = 1/4-18NPT Male
 F = 1/4-19BSP Female, G = 1/4-18NPT Female)
 Specials (nnnnn = Custom Drawing)
 Connection (1 = 2ft Cable, 4 = Packard Connector,
 5 = Bendix Connetor, 6 = Hirschmann Connetor)
 Output (2 = mV Output, 3 = 0.5 to 4.5V, 4 = 1 - 5V, 5 = 4 - 20mA)
 Model

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