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D5100

Industrial Differential Pressure Transducer

SPECIFICATIONS

- **316L Stainless Steel Wetted Surface**
- **Voltage, Current, and mV Outputs**
- **True Wet/Wet Differential**
- **CE Certified (amplified version only)**
- **Variety of Pressure Ports and Electrical Connections**

FEATURES

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

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).

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	•

PERFORMANCE SPECIFICATIONS (AMPLIFIED OUTPUT)

Typical Drive: See Output Options Table
Ambient Temperature: 25°C (unless otherwise specified)

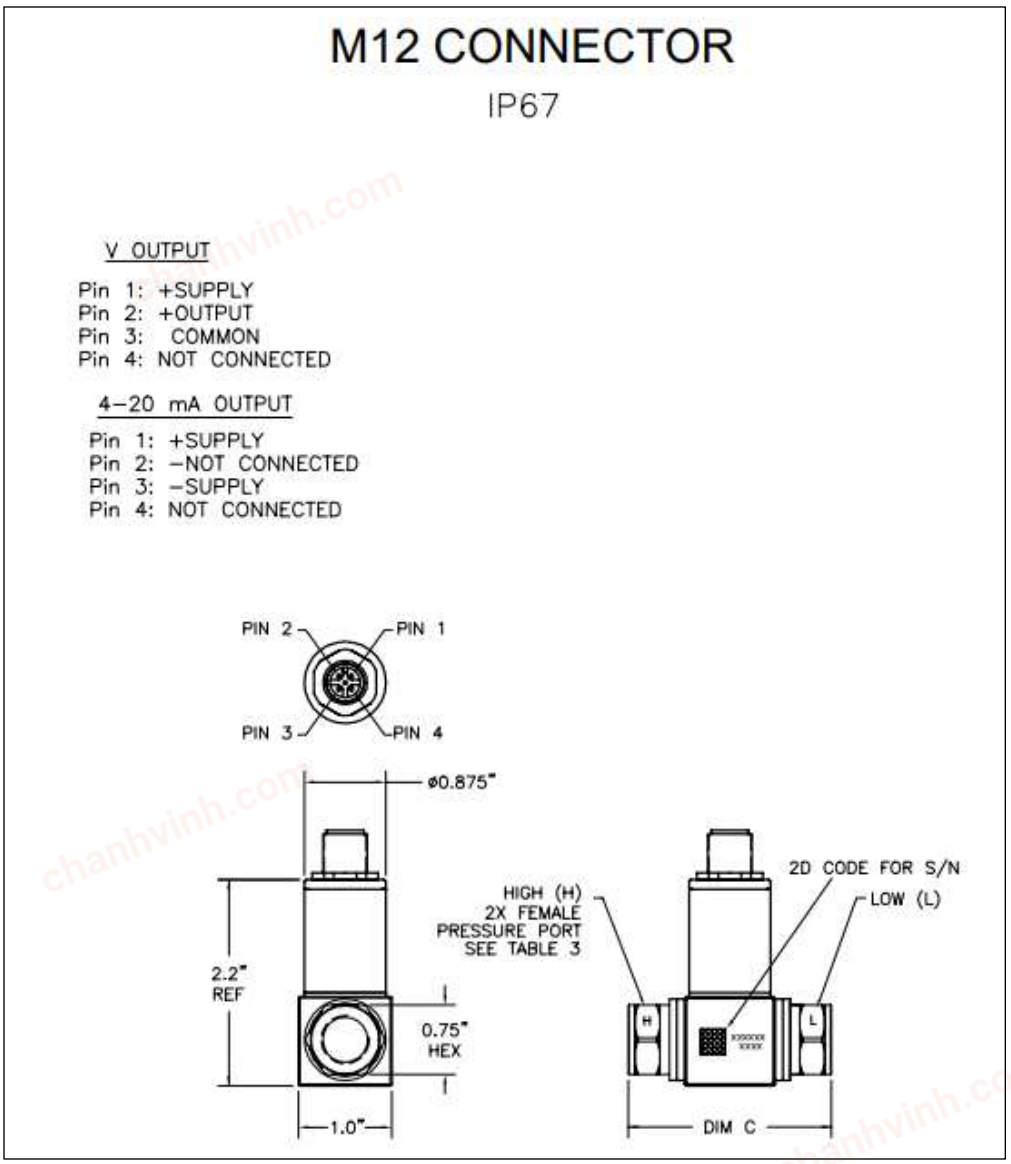
PARAMETERS	1 PSI			≥5 PSI			UNITS	NOTES
	MIN	TYP	MAX	MIN	TYP	MAX		
Accuracy	-0.3		0.3	5psi: -0.25 ≥15psi: -0.1		0.25 0.1	%Span	1
Isolation, Body To Any Lead	1			1			MΩ @25V_{DC}	
Pressure Cycles	1.00E+6			1.00E+6			0-FS Cycles	
Proof Pressure (High Side)			10X			3X	Rated	2
Proof Pressure (Low Side)			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	0		50	5psi: 0 ≥15psi: -20		70 +85	°C	
Operating Temperature	-40		+85	-40		+125	°C	4
Storage Temperature	-40		+125	-40		+125	ºC	4
Load Resistance (R_L)	R_L > 100k Ω							5
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
1. Combined 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.
5. Voltage output.

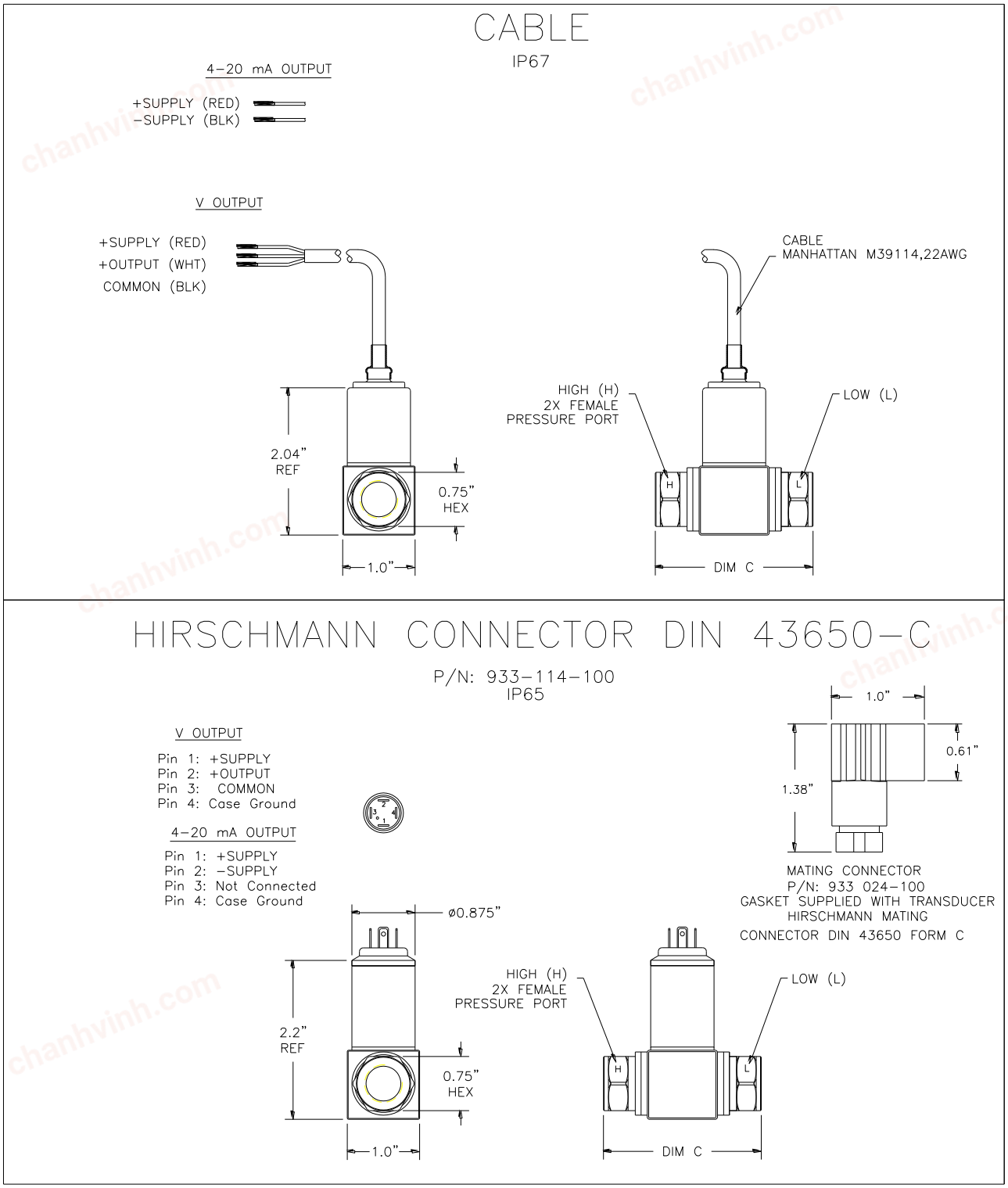
CE Compliance
IEC 55022 Emissions Class A & B
IEC 61000-4-2 Electrostatic Discharge Immunity (6kV contact/8kV air)
IEC 61000-4-3 EM Field Immunity (30V/m)
IEC 61000-4-4 Electrical Fast Transient Immunity (1kV)
IEC 61000-4-5 Surge (1kV)
IEC 61000-4-6 Conducted Immunity (10V)
IEC 61000-4-9 Pulsed Magnetic Field Immunity (100A/m)

Pressure Port Options	Dim C (inches) [mm]	Electrical Connection Options
2 = 1/4-19 BSPP Male	3.08 [78.3]	1 = 2 ft cable
5 = 1/4-18 NPT Male	3.18 [80.8]	4 = Packard Connector
F = 1/4-19 BSPP Female	2.18 [55.42]	5 = Bendix Connector
G = 1/4-18 NPT Female	2.18 [55.42]	6 = Hirschmann Connector
Others available upon request		Others available upon request

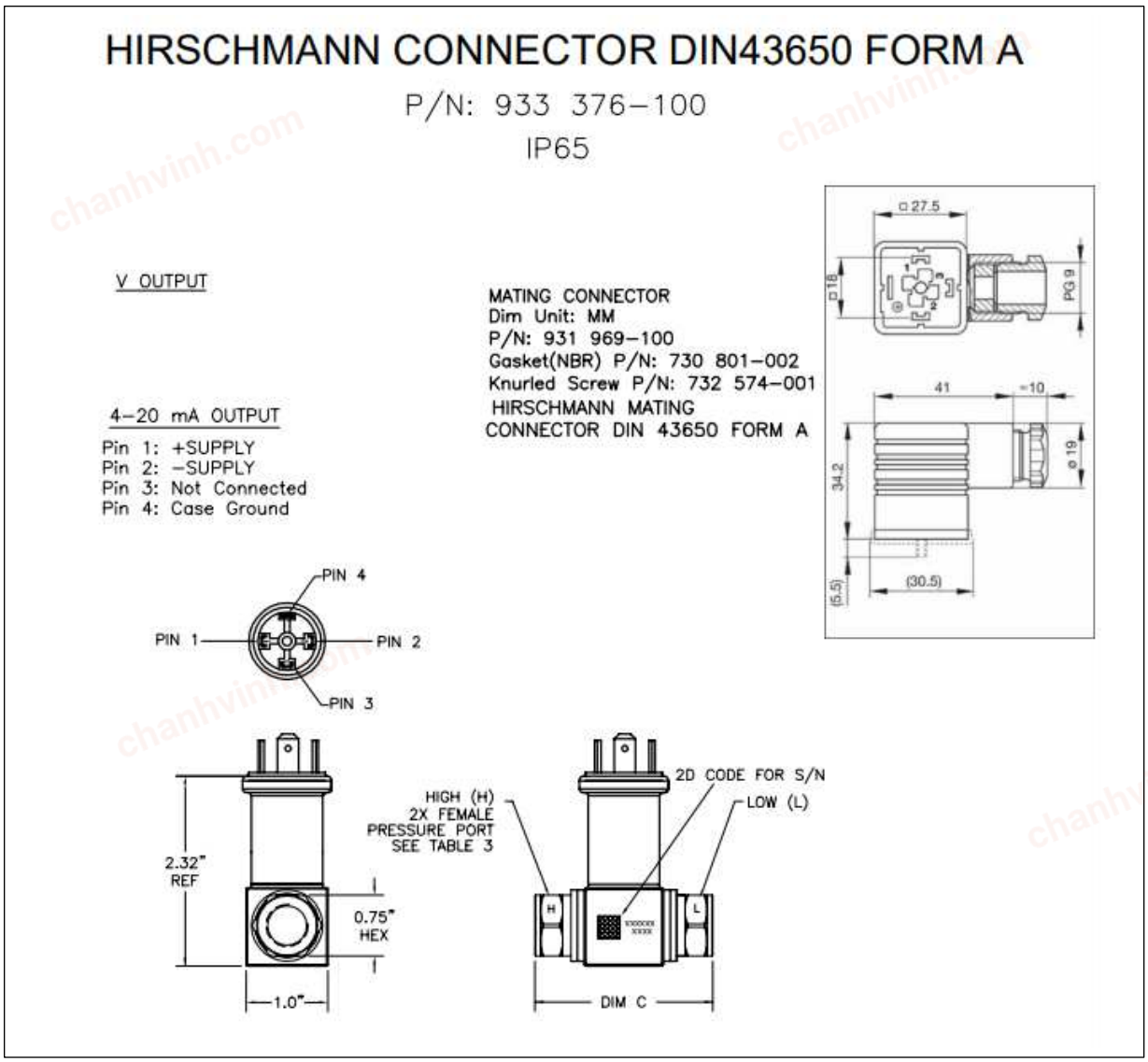
DIMENSIONS (AMPLIFIED OUTPUT)



DIMENSIONS (AMPLIFIED OUTPUT)



DIMENSIONS (AMPLIFIED OUTPUT)



DIMENSIONS (AMPLIFIED OUTPUT)

Packard Connector

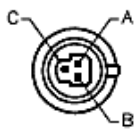
IP66

4–20 mA OUTPUT

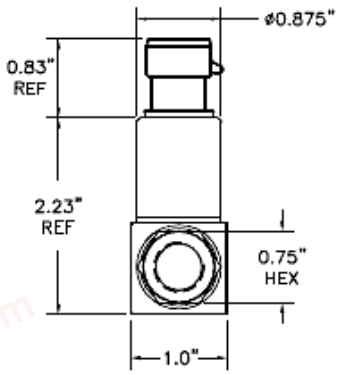
PIN A: +SUPPLY
PIN B: –SUPPLY
PIN C: Not Connected

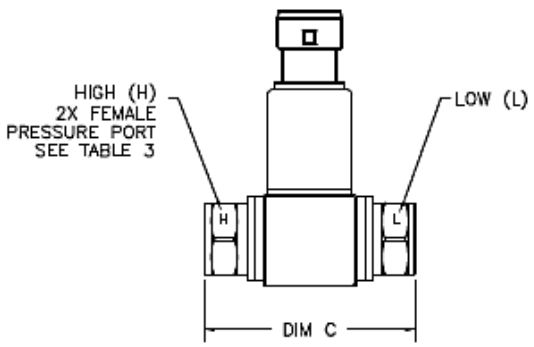
V OUTPUT

PIN A: +SUPPLY
PIN B: COMMON
PIN C: +OUTPUT



Mating packard connector
Housing P/N: 12078090
Socket P/N: 12103881
Web site for mating connector:
www.powerandsignal.com





Bayonet PTIH–10–6P Connector

IP66

4–20 mA OUTPUT

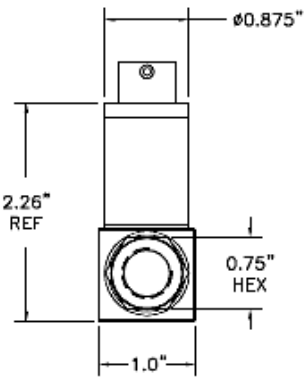
POSITIVE SUPPLY PIN A AND B(INTERNALLY CONNECTED)
NEGATIVE SUPPLY PIN C AND D(INTERNALLY CONNECTED)
PIN E: Not Connected
PIN F: Not Connected

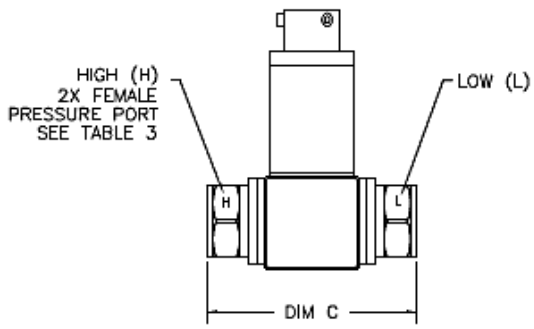
V OUTPUT

PIN A: +SUPPLY
PIN B: +OUTPUT
PIN C: COMMON
PIN D: COMMON
PIN E: Not Connected
PIN F: Not Connected



Mating Bendix connector
P/N: PT06A–10–6S
MIL–C–26482





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)

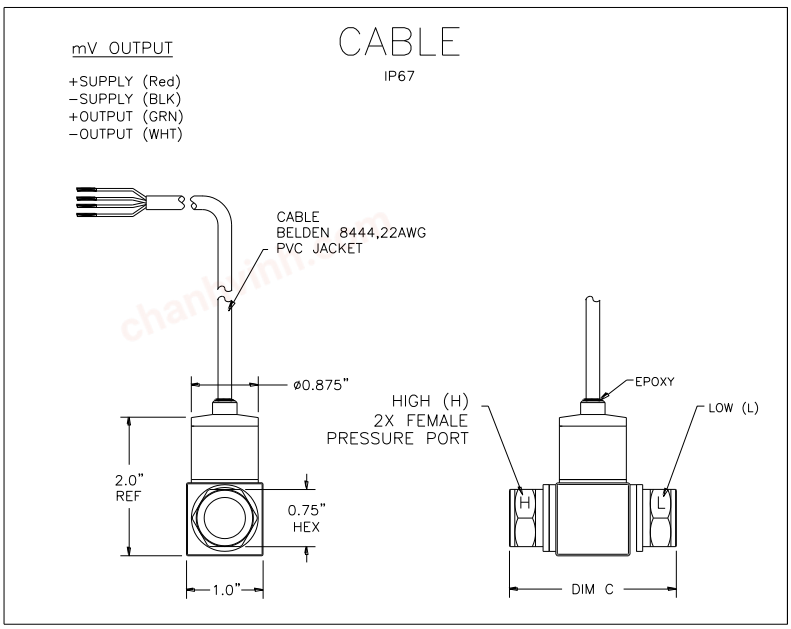
Unless Otherwise Specified: Ambient Temperature: 25°C, Supply Voltage: 10V_{DC}

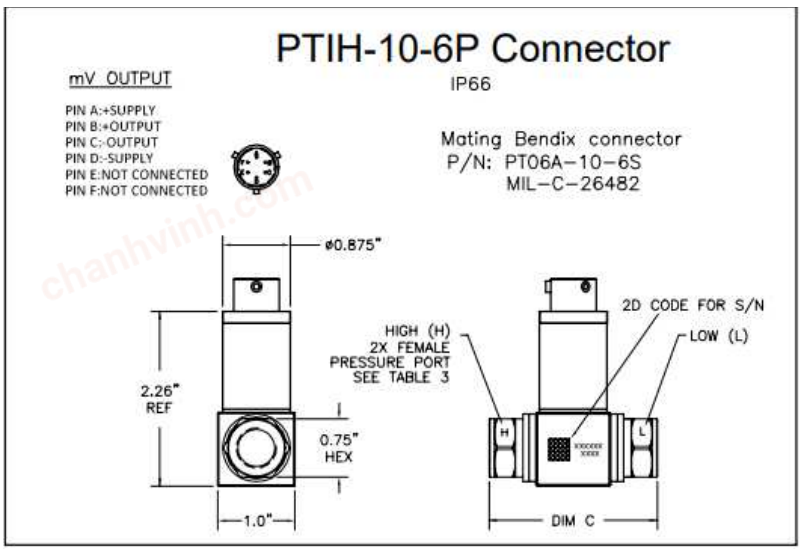
PARAMETERS	1 PSI MIN	TYP	MAX	≥5 PSI MIN	TYP	MAX	UNITS	NOTES
Supply Voltage		10	14		10	14	V_{DC}	
Zero Pressure Output	-2.0	0	2.0	5psi: -2.0 ≥15psi: -1.0	0 0	2.0 1.0	mV	
Span	77	80	83	5psi: 98 ≥15psi: 99	100 100	102 101	mV	
Accuracy	-0.3		0.3	5psi: -0.25 ≥15psi: -0.1		0.25 0.1	%Span	1
Input Resistance	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 @50V_{DC}	
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		µV 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	ºC	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							

Notes
1. Combined 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 BSPP Male	3.08 [78.3]	1 = 2 ft cable
5 = 1/4-18 NPT Male	3.18 [80.8]	
F = 1/4-19 BSPP Female	2.18 [55.42]	
G = 1/4-18 NPT Female	2.18 [55.42]	
Others available upon request		Others available upon request

DIMENSIONS (mV OUTPUT)





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OUTPUT OPTIONS (mV OUTPUT)

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

ORDERING INFORMATION

D51 2 3 – 00000 R – 030X D

Output		
Code	**Output**	**Supply Voltage**
2	mV Output, see specifications	
3	0.5 – 4.5 V Ratiometric	5±0.25 V
4	1 – 5V	8 – 30 V
5	4 – 20mA	9 – 30 V

Connection	
Code	**Connection**
1	Cable 2ft, Manhattan #39114.22AWG
2	Cable 4 feet Manhattan #39114.22AWG
3	Cable 10 feet Manhattan #39114.22AWG
4	Packard Connector
5	Bayonet Connector
6	Hirschmann Connector DIN 43650-C
7	Hirschmann Connector DIN43650-A
D	M12 Connector
M	Cable 1 meter Manhattan #39114.22AWG
N	Cable 2 meter Manhattan #39114.22AWG
P	Cable 5 meter Manhattan #39114.22AWG
R	Cable 10 meter Manhattan #39114.22AWG

Pressure Range	
001P	0.07B
005P	0.35B
015P	001B
030P	002B
050P	3.5B
100P	007B
300P	020B
500P	035B

All Intermediate Ranges with Amplified Output are Standard

Pressure Port		
Code	**Port**	**Dim C**
2	1/4-19 BSPP Male	3.08[78.23]
4	7/16-20 UNF-2A Male SAE J514 Straight Thread O-ring BUNA-N 70SH-904 ID8.92mm xW1.83mm	2.84[72.14]
5	1/4-18 NPT Male	3.19[81.03]
6	1/8-27 NPT Male	3.13[79.50]
H	7/16-20 UNF-3A AS4395 Male	3.23[82.04]
F	1/4-19 BSPP Female	2.18[55.37]
G	1/4 -18 NPT Female	2.18[55.37]
P	7/16-20 UNF SAE J514 Female	2.18[55.37]
R	1/8-27 NPT Female	2.18[55.37]

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