

## U5100 High Accuracy Pressure Sensor



- EMI Protected per CE Compliance
- Wide Temperature Range
- High Accuracy
- CE Compliance

### DESCRIPTION

The U5100 series pressure transducers from the UltraStable™ line of MEAS, set a new price performance standard for demanding commercial and heavy industrial applications where high accuracy is required. This series is suitable for measurement of liquid or gas pressure, even for difficult media such as contaminated water, steam, and mildly corrosive fluids.

The U5100 uses MEAS' UltraStable™ technology that provides stability over a wide temperature range, performance previously available only in much higher priced sensors. The UltraStable™ technology employs a silicon-based strain gage isolated by an oil-filled capsule and a stainless steel diaphragm. The high stability rating is provided through MEMS-based technology and obtains excellent repeatability and minimal hysteresis. The U5100 exceeds the latest heavy industrial CE requirements including surge protection, and is over voltage protected in both positive and reverse polarity. The 100% 316L media isolation covers all but the most corrosive environments. Custom OEM designs available including exotic metals and various ports and output options. The durability is excellent. The U5100 exceeds the latest heavy industrial CE requirements including surge protection, and is over voltage protected to 16Vdc in both positive and reverse polarity.

This product is geared to the OEM customer who uses medium to high volumes. The standard version is suitable for many applications, but the dedicated design team at our Transducer Engineering Center stands ready to provide a semi-custom design where the volume and application warrants.

### FEATURES

- Heavy Industrial CE Approval
- 100 V/m EMI Protection
- 0.75% Total Error Band
- Compact Outline
- -40°C to +125°C Operating Temperature Range

### APPLICATIONS

- Advanced HVAC Controllers
- Refrigeration Systems
- Automotive Test Stands
- Industrial Process Control
- Pumps and Compressors
- Hydraulic/Pneumatic Systems
- Agriculture Equipment
- Energy and Water Management

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## STANDARD RANGES

Range	psig	psia	Range	Barg	Bara
*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	•	•
0 to 1k	•	•	0 to 70	•	•
0 to 1.5k	•	•	0 to 100	•	•
0 to 3k	•	•	0 to 200	•	•
0 to 5k	•	•	0 to 350	•	•

DIN Range	Barg	Bara
0 to 1	•	•
0 to 1.6	•	•
0 to 2.5	•	•
0 to 4	•	•
0 to 6	•	•
0 to 10	•	•
0 to 16	•	•
0 to 25	•	•
0 to 40	•	•
0 to 60	•	•
0 to 100	•	•
0 to 160	•	•
0 to 250	•	•

\*Gage only for 1psi

Intermediate ranges available upon request.

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## PERFORMANCE SPECIFICATIONS

Ambient Temperature: 25°C (unless otherwise specified)

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Accuracy	-0.5		0.5	%F.S. BFSL	001psiG @ 25°C
(combined non linearity, hysteresis, and repeatability)	-0.25		0.25	%F.S. BFSL	005psi @ 25°C
	-0.1		0.1	%F.S. BFSL	>005psi, <01Kpsi @ 25°C
	-0.25		0.25	%F.S. BFSL	≥01Kpsi, ≤05Kpsi @ 25°C
Isolation, Body to any Lead	1			MΩ	@ 25Vdc
Pressure Cycles	1.00E+6			FS Cycles	
Proof Pressure			3X	Rated	
Burst Pressure			4X	Rated	
Long Term Stability (1 year)	-0.25		0.25	%F.S.	001psiG
	-0.1		0.1	%F.S.	≥005psi, ≤05Kpsi
Total Error Band (over compensated range)	-1.25		1.25	%F.S.	001psiG
	-1		1	%F.S.	005psi
	-0.75		0.75	%F.S.	>005psi, ≤05Kpsi
Compensated Temperature	0		50	°C	001psiG
	0		70	°C	005psi
	-20		+85	°C	≥005psi, ≤05Kpsi
Operating Temperature	-40		+125	°C	001psi
	-40		+125	°C	≥005psi, ≤05Kpsi, Cable 105°C
Storage Temperature	-40		+125	°C	Cable 105°C
Load Resistance (R <sub>L</sub> )	R <sub>L</sub> > 100k			Ω	Voltage Output
Bandwidth	DC to 1KHz (Typical)				
Shock (11ms)	50g, 11msec Half Sine Shock per MIL-STD-202G, Method 213B, Condition A				
Vibration (20 to 200kHz)	±20g, MIL-STD-810C, Procedure 514.2, Fig 514.2-2, Curve L				

For custom configurations, consult factory.

### 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)

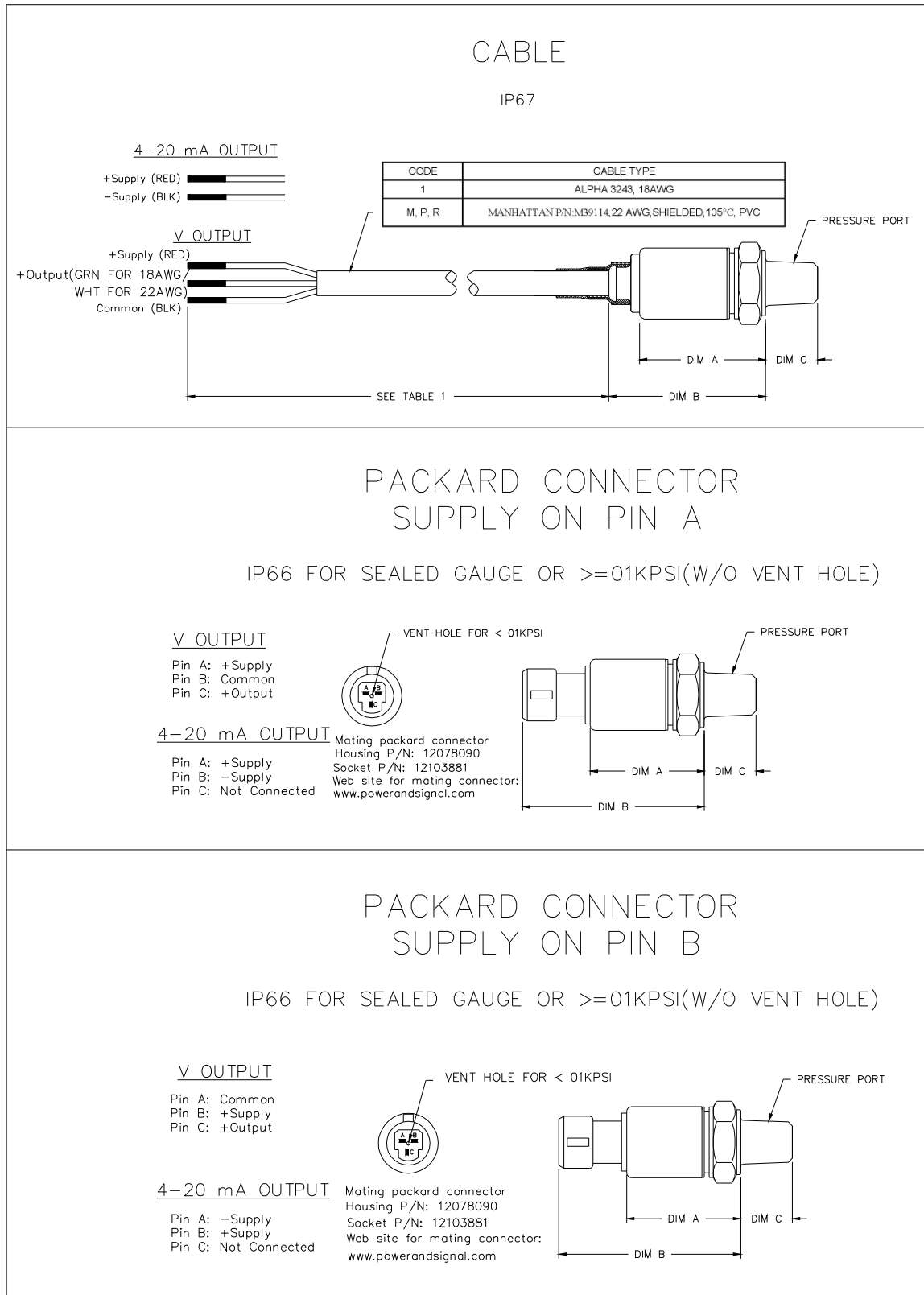
# U5100 High Accuracy Pressure Sensor

CONNECTION/ PRESSURE REF			
1	CABLE 2 FEET ALPHA#3243,18AWG	DIM A	2.02 [ 51.3 ]
		DIM B	2.48 [ 63.0 ]
4	PACKARD CONNECTOR SUPPLY ON PIN A	DIM A	2.01 [ 51.1 ]
		DIM B	2.83 [ 71.9 ]
5	BENDIX PTIH-10-6P CONNECTOR	DIM A	2.05 [ 52.1 ]
		DIM B	2.48 [ 63.0 ]
6	HIRSCHMANN CONNECTOR DIN 43650 FORM C	DIM A	1.87 [ 47.5 ]
		DIM B	2.35 [ 59.7 ]
7	HIRSCHMANN CONNECTOR DIN 43650 FORM A	DIM A	2.08 [ 52.8 ]
		DIM B	2.55 [ 64.8 ]
9	PACKARD CONNECTOR SUPPLY ON PIN B	DIM A	2.01 [ 51.1 ]
		DIM B	2.83 [ 71.9 ]
D	M12 CONNECTOR	DIM A	1.98 [ 50.2 ]
		DIM B	2.53 [ 64.2 ]
M	CABLE 1 METER MANHATTAN#M39114,22AWG	DIM A	2.02 [ 51.3 ]
		DIM B	2.48 [ 63.0 ]
R	CABLE 10 METER MANHATTAN#M39114,22AWG	DIM A	2.02 [ 51.3 ]
		DIM B	2.48 [ 63.0 ]

PRESSURE PORT		
CODE	PORT	DIM C
2	1/4-19 BSPP	0.46 [11.56]
4	7/16-20 UNF MALE SAE J514 STRAIGHT THREAD O-RING BUNA-N 70SH -904 ID 8.92mm X W 1.83mm	0.33 [8.38]
5	1/4-18 NPT	0.50 [12.57]
F	1/4-19 BSPP FEMALE	0.70 [17.78]
P	7/16-20 UNF FEMALE SAE J514 STRAIGHT HREAD	0.36 [9.14]
Q	M10 X 1.0 mm	0.39 [10.01]
S	M12 X 1.5 mm	TBD
U	G1/4 DIN3852 FORM E GASKET DIN3869-14 NBR	0.47 [12.01]

# U5100 High Accuracy Pressure Sensor

## DIMENSIONS



# U5100 High Accuracy Pressure Sensor

## BENDIX PTIH-10-6P CONNECTOR

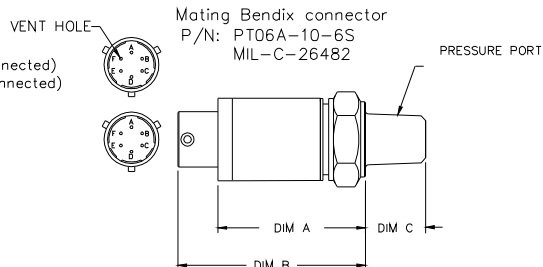
IP66 FOR SEALED GAUGE OR  $\geq 01\text{KPSI}$ (W/O VENT HOLE)

### 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: Vent (Pulled out for  $< 01\text{KPSI}$ )

### V OUTPUT

Pin A: +Supply  
Pin B: +Output  
Pin C: Common  
Pin D: Common  
Pin E: Not Connected  
Pin F: Vent (Pulled out for  $< 01\text{KPSI}$ )



## HIRSCHMANN CONNECTOR DIN 43650 FORM C

IP65 FOR SEALED GAUGE OR  $\geq 01\text{KPSI}$ (W/O VENT HOLE)

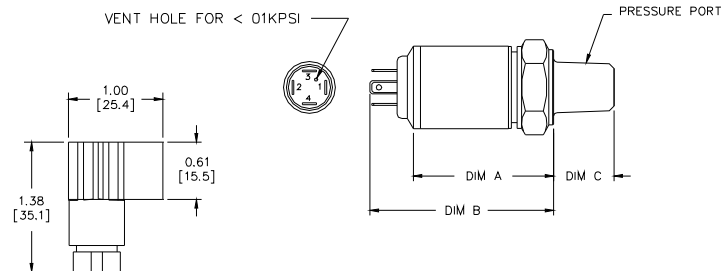
P/N 933-114-100

### V OUTPUT

Pin 1: +Supply  
Pin 2: +Output  
Pin 3: Common  
Pin 4: Case Ground

### 4-20 mA OUTPUT

Pin 1: +Supply  
Pin 2: -Supply  
Pin 3: Not Connected  
Pin 4: Case Ground



MATING CONNECTOR

P/N: 933 024-100

(Mating Connector Supplied)

GASKET SUPPLIED WITH TRANSDUCER

HIRSCHMANN MATING  
CONNECTOR DIN 43650 FORM C

## HIRSCHMANN CONNECTOR

DIN 43650 FORM A

P/N: 933 376-100

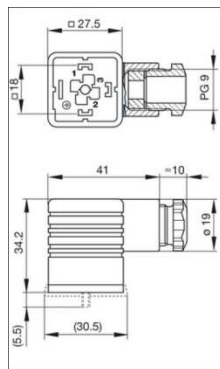
IP65 FOR SEALED GAUGE OR  $\geq 01\text{KPSI}$ (W/O VENT HOLE)

### V OUTPUT

Pin 1: +Supply  
Pin 2: Common  
Pin 3: +Output  
Pin 4: Case Ground

### 4-20 mA OUTPUT

Pin 1: +Supply  
Pin 2: -Supply  
Pin 3: Not Connected  
Pin 4: Case Ground



MATING CONNECTOR

Dim Unit: MM

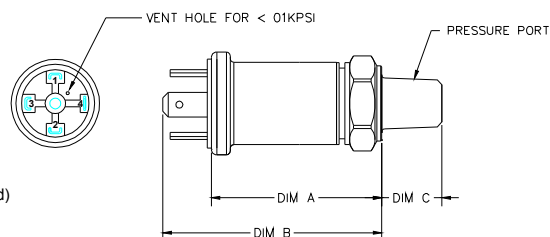
P/N: 931 969-100

Gasket(NBR) P/N: 730 801-002

Knurled Screw P/N: 732 574-001

HIRSCHMANN MATING

CONNECTOR DIN 43650 FORM A



# U5100 High Accuracy Pressure Sensor

## M12 CONNECTOR

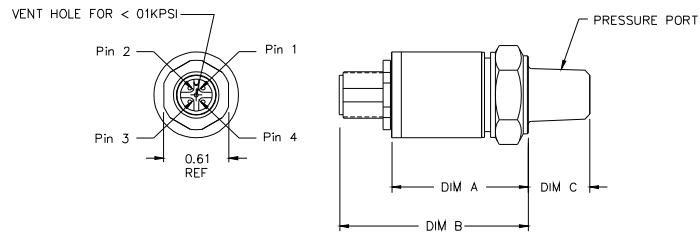
IP67 FOR SEALED GAUGE OR  $\geq 01\text{KPSI}$  (W/O VENT HOLE)

### V OUTPUT

Pin 1: +Supply  
Pin 2: +Output  
Pin 3: Common  
Pin 4: Not Connected

### 4-20 mA OUTPUT

Pin 1: +Supply  
Pin 2: Not Connected  
Pin 3: -Supply  
Pin 4: Not Connected



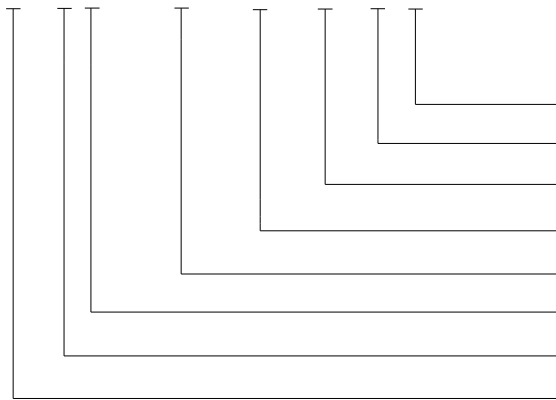
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## OUTPUT OPTIONS

Code	Output	Supply (V)
3	0.5 – 4.5V (ratiometric)	5 ± 0.25 Ratiometric
4	1 – 5V	8 – 30
5	4 – 20mA	9 – 30
6	0 – 5V	8 – 30
7	0 – 10V	15 – 30
8	1 – 6V	8 – 30

## ORDERING INFORMATION

U5131-000005-300PG



Type (G = Gage, A = Absolute, S = Sealed)  
Units (P = psi, B = Bar)  
Pressure Range (See Pressure Range Table)  
Pressure Port (See Pressure Port Options Table)  
Specials (nnnnn = Custom Drawing)  
Connection (See Electrical Connection Options Table)  
Output (See Output Options Table)  
Model

### NORTH AMERICA

Measurement Specialties  
45738 Northport Loop West  
Fremont, CA 94538  
Tel: 1-800-767-1888  
Fax: 1-510-498-1578  
Sales: [pfg.cs.amer@meas-spec.com](mailto:pfg.cs.amer@meas-spec.com)

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Tel: +33 (0) 130 79 33 00  
Fax: +33 (0) 134 81 03 59  
Sales: [pfg.cs.emea@meas-spec.com](mailto:pfg.cs.emea@meas-spec.com)

### ASIA

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Fax: +86 755 3330 5099  
Sales: [pfg.cs.asia@meas-spec.com](mailto:pfg.cs.asia@meas-spec.com)

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TE Connectivity:

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<a href="#"><u>U5131-000005-015PG</u></a>	<a href="#"><u>U5181-000005-015PG</u></a>	<a href="#"><u>U5131-000005-050PG</u></a>	<a href="#"><u>U5131-000005-030PA</u></a>	<a href="#"><u>U5181-000005-100PA</u></a>
<a href="#"><u>U5181-000005-030PG</u></a>	<a href="#"><u>U5181-000005-030PA</u></a>	<a href="#"><u>U5181-000005-015PA</u></a>	<a href="#"><u>U5181-000005-100PG</u></a>	