

## M5100 Heavy Industrial Pressure Transducer



- CE Compliance
- Wide Temperature Range
- Compact
- Variety of Pressure Ports and Electrical Configurations

### DESCRIPTION

The M5100 series pressure transducers from the Microfused™ line of MEAS, set a new price performance standard for demanding commercial and heavy industrial applications. 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 transducer pressure cavity is machined from a solid piece of 17-4 PH stainless steel. The standard version includes a 1/4 NPT pipe thread allowing a leak-proof, all metal sealed system. There are no O-rings, welds or organics exposed to the pressure media. The durability is excellent. The M5100 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
- Reverse Polarity Protection
- Extended Temperature Range
- 1% Total Error Band
- Compact Outline
- -40°C to +125°C Operating Temperature Range

### APPLICATIONS

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

# M5100 Heavy Industrial Pressure Transducer

## STANDARD RANGES

| Range    | psig | Range    | Barg |
|----------|------|----------|------|
| 0 to 50  | •    | 0 to 3.5 | •    |
| 0 to 100 | •    | 0 to 7   | •    |
| 0 to 200 | •    | 0 to 14  | •    |
| 0 to 300 | •    | 0 to 20  | •    |
| 0 to 500 | •    | 0 to 35  | •    |
| 0 to 1k  | •    | 0 to 70  | •    |
| 0 to 3k  | •    | 0 to 200 | •    |
| 0 to 5k  | •    | 0 to 350 | •    |
| 0 to 10k | •    | 0 to 700 | •    |

| DIN Range | Barg |
|-----------|------|
| 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  | •    |
| 0 to 400  | •    |
| 0 to 600  | •    |
| 0 to 1000 | •    |

\*Intermediate ranges available upon request.

| CONNECTION/ PRESSURE RANGE/ PRESSURE REF |                                             |      |                 |               |
|------------------------------------------|---------------------------------------------|------|-----------------|---------------|
|                                          |                                             |      | PRESSURE RANGE  |               |
|                                          |                                             |      | PG/BG PRESS REF |               |
|                                          |                                             |      | <500 PSI        | >500 PSI      |
| CODE                                     | CONNECTION                                  |      | <040BAR         | > 040BAR      |
| 1                                        | CABLE 2 FEET<br>ALPHA#3243,18AWG            | DIMA | 1.71 [ 43.5 ]   | 1.92 [ 48.6 ] |
|                                          |                                             | DIMB | 2.17 [ 55.2 ]   | 2.38 [ 60.5 ] |
| 4                                        | PACKARD CONNECTOR<br>SUPPLY ON PIN A        | DIMA | 1.71 [ 43.4 ]   | 1.92 [ 48.6 ] |
|                                          |                                             | DIMB | 2.53 [ 64.3 ]   | 2.72 [ 69.1 ] |
| 5                                        | BENDIX PTIH-10-6P<br>CONNECTOR              | DIMA | 1.74 [ 44.2 ]   | 1.93 [ 49.0 ] |
|                                          |                                             | DIMB | 2.17 [ 55.0 ]   | 2.36 [ 59.8 ] |
| 6                                        | HIRSCHMANN<br>CONNECTOR<br>DIN 43650 FORM C | DIMA | 1.67 [ 42.3 ]   | 1.86 [ 47.1 ] |
|                                          |                                             | DIMB | 2.12 [ 53.8 ]   | 2.31 [ 58.6 ] |
| 7                                        | HIRSCHMANN<br>CONNECTOR<br>DIN 43650 FORM A | DIMA | 2.12 [ 53.8 ]   | 2.12 [ 53.8 ] |
|                                          |                                             | DIMB | 2.64 [ 67.1 ]   | 2.64 [ 67.1 ] |
| 9                                        | PACKARD CONNECTOR<br>SUPPLY ON PIN B        | DIMA | 1.71 [ 43.5 ]   | 1.92 [ 48.8 ] |
|                                          |                                             | DIMB | 2.53 [ 64.3 ]   | 2.72 [ 69.1 ] |
| D                                        | M12 CONNECTOR                               | DIMA | 1.69 [ 42.9 ]   | 1.90 [ 48.3 ] |
|                                          |                                             | DIMB | 2.21 [ 56.1 ]   | 2.41 [ 61.2 ] |
| M                                        | CABLE 1 METER<br>MANHATTAN#M39114,22AWG     | DIMA | 1.71 [ 43.5 ]   | 1.92 [ 48.6 ] |
|                                          |                                             | DIMB | 2.17 [ 55.2 ]   | 2.38 [ 60.5 ] |
| P                                        | CABLE 5 METER<br>MANHATTAN#M39114,22AWG     | DIMA | 1.71 [ 43.5 ]   | 1.92 [ 48.6 ] |
|                                          |                                             | DIMB | 2.17 [ 55.2 ]   | 2.38 [ 60.5 ] |
| R                                        | CABLE 10 METER<br>MANHATTAN#M39114,22AWG    | DIMA | 1.71 [ 43.5 ]   | 1.92 [ 48.6 ] |
|                                          |                                             | DIMB | 2.17 [ 55.2 ]   | 2.38 [ 60.5 ] |

| PRESSURE PORT |                                                                                                       |                     |
|---------------|-------------------------------------------------------------------------------------------------------|---------------------|
| CODE          | PORT                                                                                                  | DIM C               |
| 2             | 1/4-19 BSPP                                                                                           | 0.47<br>[11.94]     |
| 4             | 7/16-20UNF MALE<br>SAE J514 STRAIGHT<br>THREAD BOSSE<br>O-RING BUNA-N 70SH -904<br>ID8.92mm X W1.83mm | 0.45 MAX<br>[11.43] |
| 5             | 1/4-18 NPT                                                                                            | 0.65 MAX<br>[16.51] |
| F             | 1/4-19 BSPP FEMALE                                                                                    | 0.70<br>[17.78]     |
| P             | 7/16-20UNF FEMALE<br>SAE J514 STRAIGHT<br>THREAD BOSS<br>WITH INTEGRAL<br>VALVE DEPRESSOR             | 0.43<br>[10.92]     |
| Q             | M10 X 1.0 mm                                                                                          | 0.42<br>[10.67]     |
| S             | M12 X 1.5 mm                                                                                          | 0.53<br>[13.46]     |
| U             | G1/4 DIN 3852<br>FORM E GASKET<br>DIN3869-14 NBR                                                      | 0.47<br>[12.00]     |

# M5100 Heavy Industrial Pressure Transducer

## PERFORMANCE SPECIFICATIONS

Ambient Temperature: 25°C (unless otherwise specified)

| PARAMETERS                                                       | MIN                                                                    | TYP | MAX  | UNITS      | NOTES |
|------------------------------------------------------------------|------------------------------------------------------------------------|-----|------|------------|-------|
| Accuracy (combined non linearity, hysteresis, and repeatability) | -0.25                                                                  |     | 0.25 | %F.S.      | 1     |
| Isolation, Body to any Lead                                      | 1                                                                      |     |      | MΩ @ 25Vdc |       |
| Pressure Cycles (Zero to Full Scale)                             | 1.00E+7                                                                |     |      | FS Cycles  |       |
| Proof Pressure                                                   | 2X                                                                     |     |      | Rated      |       |
| Burst Pressure                                                   | 5X                                                                     |     |      | Rated      |       |
| Long Term Stability (1 year)                                     | -0.25                                                                  |     | 0.25 | %Span      |       |
| Total Error Band                                                 | -1.0                                                                   |     | 1.0  | %F.S.      | 2     |
| Compensated Temperature                                          | -20                                                                    |     | +85  | °C         |       |
| Operating Temperature                                            | -40                                                                    |     | +125 | °C         | 3     |
| Storage Temperature                                              | -40                                                                    |     | +125 | °C         | 3     |
| Load Resistance (R <sub>L</sub> )                                | R <sub>L</sub> > 100k                                                  |     |      |            | 4     |
| Bandwidth                                                        | DC to 1KHz (Typical)                                                   |     |      |            |       |
| Shock                                                            | 50g, 11msec Half Sine Shock per MIL-STD-202G, Method 213B, Condition A |     |      |            |       |
| Vibration                                                        | ±20g, MIL-STD-810C, Procedure 514.2, Fig 514.2-2, Curve L              |     |      |            |       |

For custom configurations, consult factory.

### Notes

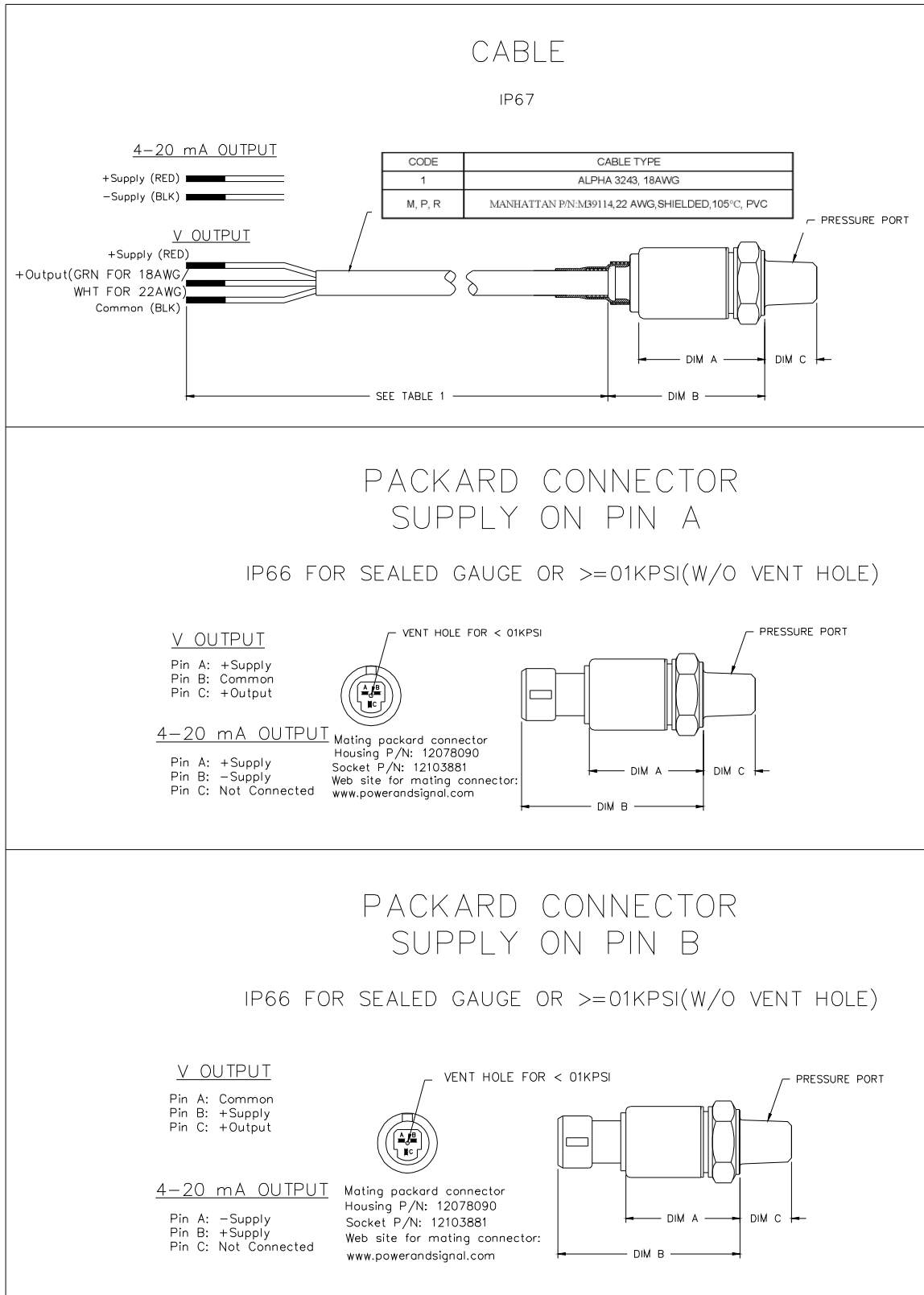
1. Best fit straight line at 25°C.
2. TEB includes all accuracy errors, thermal errors, span and zero tolerances.
3. Cable 105°C max.
4. Voltage output.

### CE Compliance

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

# M5100 Heavy Industrial Pressure Transducer

## DIMENSIONS



# M5100 Heavy Industrial Pressure Transducer

## BENDIX PTIH-10-6P CONNECTOR

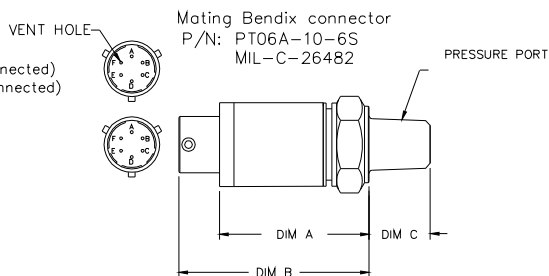
IP66 FOR SEALED GAUGE OR  $\geq 01$ KPSI(W/O VENT HOLE)

### 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  $< 01$ 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  $< 01$ KPSI)



## HIRSCHMANN CONNECTOR DIN 43650 FORM C

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

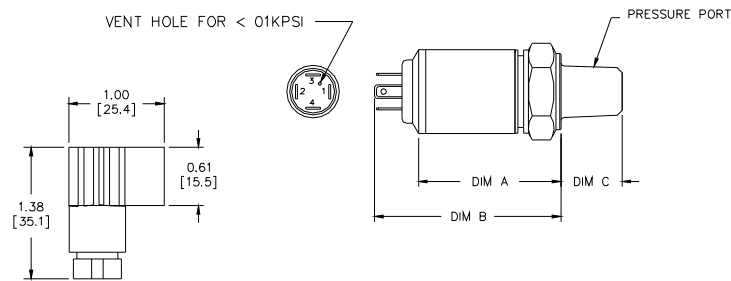
P/N 933-114-100

### V OUTPUT

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

### 4-20 mA OUTPUT

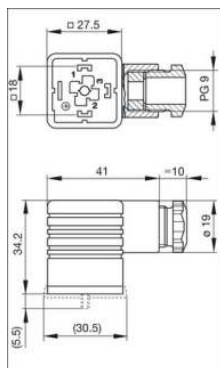
Pin 1: +Supply  
Pin 2: -Supply  
Pin 3: Not Connected  
Pin 4: Case Ground



MATING CONNECTOR  
P/N: 933 024-100

GASKET SUPPLIED WITH TRANSDUCER

HIRSCHMANN MATING  
CONNECTOR DIN 43650 FORM C



## HIRSCHMANN CONNECTOR

DIN 43650 FORM A

P/N: 933 376-100

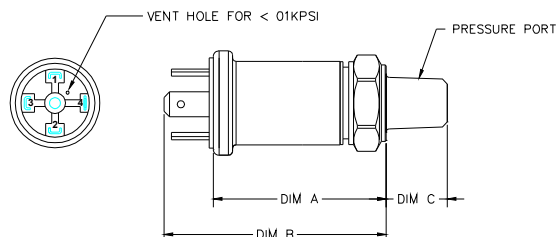
IP65 FOR SEALED GAUGE OR  $\geq 01$ KPSI(W/O VENT HOLE)

### 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

# M5100 Heavy Industrial Pressure Transducer

## M12 CONNECTOR

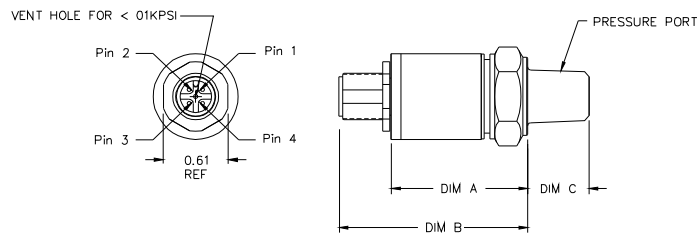
IP67 FOR SEALED GAUGE OR  $\geq 01\text{KPSI}$  (W/O VENT HOLE)

### 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



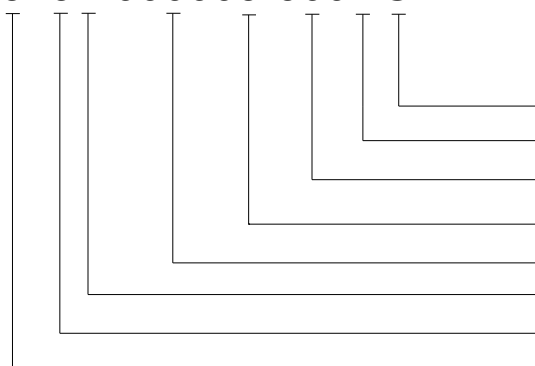
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## OUTPUT OPTIONS

| 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

M5131-000005-300PG



Type (G = Gage)  
 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 Connections 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)

### EUROPE

Measurement Specialties  
 (Europe), Ltd.  
 26 Rue des Dames  
 78340 Les Clayes-sous-Bois, France  
 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

Measurement Specialties  
 (China), Ltd.  
 No. 26 Langshan Road  
 Shenzhen High-Tech Park (North)  
 Nanshan District, Shenzhen 518057  
 China  
 Tel: +86 755 3330 5088  
 Fax: +86 755 3330 5099  
 Sales: [pfg.cs.asia@meas-spec.com](mailto:pfg.cs.asia@meas-spec.com)

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