



M5200

Industrial Pressure Transducer

SPECIFICATIONS

- Wide Temperature Range
- Compact
- Variety of Pressure Ports and Electrical Configurations
- Optional Stainless-Steel Snubber
- CE Compliant and Weatherproof
- UL Certified
- Gage, Sealed, Compound

FEATURES

- Heavy Industrial CE Approval
- 10 V/m EMI Protection
- Reverse Polarity Protection on Input
- Short Circuit Protection on Output
- $\pm 0.25\%$ Accuracy
- $\pm 1.0\%$ Total Error Band
- Compact Outline
- -40°C to $+125^{\circ}\text{C}$ Operating Temperature
- Weatherproof

APPLICATIONS

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

The M5200 pressure transducers from the Microfused line of MEAS, with their modular design, offer maximum flexibility for different configurations. This latest series sets 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 wetted material is made of either 17-4 PH or 316L stainless steel and the transducer's durability is excellent with no welds or organics exposed to the pressure media. The M5200 is weatherproof and exceeds the latest heavy industrial CE requirements including surge protection. The circuit is protected from reverse wiring at input and short circuit at output.

This product is geared to the OEM customer for low to mid volumes. MEAS stands ready to provide a custom design of the M5200 where the volume and application warrants. Additional configurations not listed are either available or possible. Please inquire for further information.

STANDARD RANGES

| Range (psi) | Range (Bar) | Gage | Sealed | Compound |
|-------------|-------------|------|--------|----------|
| 0 to 050 | 0 to 3.5 | • | | • |
| 0 to 100 | 0 to 007 | • | | • |
| | 0 to 010 | • | | • |
| 0 to 200 | | • | | • |
| 0 to 300 | 0 to 020 | • | | • |
| 0 to 500 | 0 to 035 | • | | • |
| 0 to 01k | 0 to 070 | • | • | • |
| 0 to 03k | 0 to 200 | • | • | • |
| 0 to 05k | 0 to 350 | • | • | • |
| 0 to 07k | 0 to 500 | • | • | • |
| 0 to 10k | 0 to 700 | • | • | • |
| 0 to 15k | 0 to 01k | • | • | • |

Intermediate ranges available upon request

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. | BFSL |
| Isolation, Body to any Lead | 100 | | | MΩ | @500V _{DC} |
| Dielectric Strength | | | 2 | mA | @500V _{AC} , 1min |
| Pressure Cycles | 1.00E+6 | | | 0~FS Cycles | |
| Proof Pressure | 2X | | | Rated | |
| Burst Pressure | 5X | | 20k psi | Rated | |
| Long Term Stability (1 year) | -0.25 | | 0.25 | %F.S. | |
| Total Error Band (17-4PH) | -1.0 | | 1.0 | %F.S. | Over compensated temperature range |
| Total Error Band (316L, ≤3k psi) | -1.5 | | 1.5 | %F.S. | Over compensated temperature range |
| KTotal Error Band (316L, >3k psi) | -2.0 | | 2.0 | %F.S. | Over compensated temperature range |
| Compensated Temperature | -20 | | +85 | °C | |
| Operating Temperature | -40 | | +125 | °C | Except cable 105°C max |
| Storage Temperature | -40 | | +125 | °C | Except cable 105°C max |
| Load Resistance (R _L) | R _L > 100k | | | Ω | Voltage Output |
| Load Resistance (R _L) | < (Supply Voltage -9V) / 0.02A | | | Ω | Current Output |
| Current Consumption | | | 5 | mA | Voltage Output |
| Rise Time (10% to 90%) | <2ms (Voltage Output); <3ms (Current Output); Without Snubber | | | | |
| Wetted Material | 17-4PH or 316L Stainless Steel Port, 316L Stainless Steel Snubber | | | | |
| Gage Pressure Reference Vent | Under 1k psi, customer to ensure venting through mating connector | | | | |
| 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

Compensated Temperature: The temperature range over which the product will produce an output proportional to pressure within the specified performance limits.

Operating Temperature: The temperature range over which the product will produce an output proportional to pressure but may not remain within the specified performance limits.

Storage Temperature: The temperature range over which the product can be stored safely in occasions without pressure applied or power input and remains rated performance. Beyond this temperature range may cause permanent damage to the product.

All configurations are built with supply voltage reverse and output short-circuit protections.

CE Compliance

EN 55022 Emissions Class A & B

IEC 61000-4-2 Electrostatic Discharge Immunity (8kV contact/15kV air)

IEC 61000-4-3 Radiated, Radio-Frequency Electromagnetic Field Immunity (10V/m, 80M-1GHz)

IEC 61000-4-4 Electrical Fast Transient Immunity (1kV)

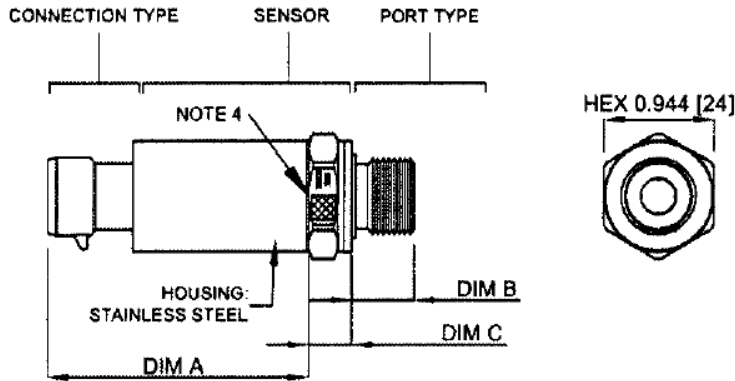
IEC 61000-4-5 Surge Immunity (V+ to V-: ±2KV/42Ω; L to Case: ±1KV/12Ω; V- to V₀: ±1KV/42Ω)

IEC 61000-4-6 Immunity to Conducted Disturbances Induced by Radio Frequency Fields (150K~80MHz, 10V level for voltage output models, 3V level for current output model)

IEC 61000-4-9 Pulse Magnetic Field Immunity (100A/m peak)

For all CE compliance tests, max allowed output deviation ±1.5 %F.S.

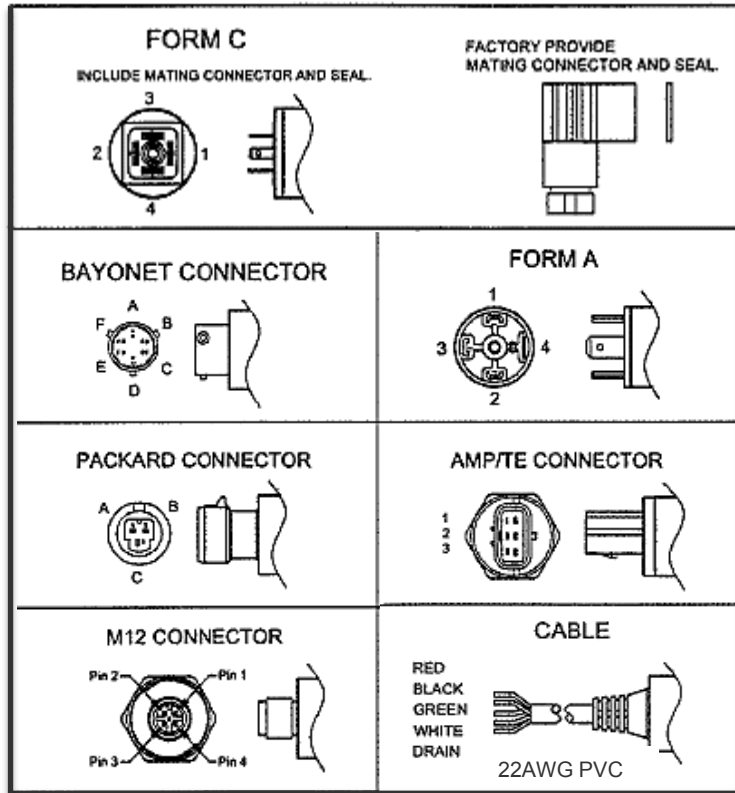
DIMENSIONS



Refer to installation instructions for recommended torque.

Note:

| CODE | CONNECTION TYPE | DIM A |
|------|---------------------|-------------|
| 1 | CABLE 2 FT | 2.19 [55.6] |
| E | CABLE 3 FT | 2.19 [55.6] |
| 2 | CABLE 4 FT | 2.19 [55.6] |
| 3 | CABLE 10 FT | 2.19 [55.6] |
| 4 | PACKARD CONNECTOR A | 2.25 [57.2] |
| 5 | BAYONET CONNECTOR | 1.94 [49.5] |
| 6 | FORM C | 1.95 [49.5] |
| 7 | FORM A1 | 2.10 [53.3] |
| 8 | FORM A2 | 2.10 [53.3] |
| B | FORM A3 | 2.10 [53.3] |
| 9 | PACKARD CONNECTOR B | 2.25 [57.2] |
| D | M12 CONNECTOR | 1.95 [49.5] |
| M | CABLE 1 M | 2.19 [55.6] |
| N | CABLE 2 M | 2.19 [55.6] |
| P | CABLE 5 M | 2.19 [55.6] |
| R | CABLE 10 M | 2.19 [55.6] |
| A | AMP CONNECTOR | 2.24 [56.9] |



PRESSURE PORT TYPE

| CODE | PORT | DIM B | DIM C REF. |
|------|---|--------------|--------------|
| 2 | 1/4-19 BSPP | 0.547 [13.9] | 0.366 [9.3] |
| 3 | G3/8 JIS B2351 | 0.615 [15.6] | 0.366 [9.3] |
| 4 | 7/16-20UNF MALE SAE J1926-2 STRAIGHT THREAD, O-RING BUNA-N 90SH-904 (O-RING not provided by TE) | 0.508 [12.9] | 0.366 [9.3] |
| 5 | 1/4-18 NPT | 0.600 [15.2] | 0.366 [9.3] |
| 6 | 1/8-27 NPT | 0.390 [9.91] | 0.366 [9.3] |
| B | G1/4 JIS B2351 | 0.547 [13.9] | 0.366 [9.3] |
| E | 1/4-19 BSPT | 0.500 [12.7] | 0.366 [9.3] |
| F | 1/4-19 BSPP FEMALE (without snubber) | 0.621 [15.8] | 0.366 [9.3] |
| P | 7/16-20UNF FEMALE SAE J513 STRAIGHT THREAD WITH INTEGRAL VALVE DEPRESSOR | 0.430 [10.9] | 0.444 [11.3] |
| N | 7/16-20UNF FEMALE SAE J513 STRAIGHT THREAD | 0.430 [10.9] | 0.444 [11.3] |
| Q | M10 x 1.0 mm ISO 6149-2 | 0.449 [11.4] | 0.366 [9.3] |
| S | M12 x 1.5 mm ISO 6149-2 | 0.531 [13.5] | 0.366 [9.3] |
| U | G1/4 DIN 3852 FORM E, GASKET DIN3869-14 NBR (Gasket not provided by TE) | 0.519 [13.2] | 0.366 [9.3] |
| W | M20 x 1.5 mm ISO 6149-2 | 0.551 [14.0] | 0.441 [11.2] |
| G | M14 x 1.5 mm ISO 6149-2 | 0.531 [13.5] | 0.366 [9.3] |

WIRING

| Current Output Wiring | | | | |
|-----------------------|---------|---------|----------|---------------------------|
| CONNECTION | +SUPPLY | -SUPPLY | NC. PINS | P REF VENT |
| Bayonet | A | B | C,D,E | F |
| Packard, A | A | B | C | Hole Through Connector |
| Packard, B | B | A | C | Hole Through Connector |
| Cable | RED | BLK | | In Cable |
| M12 | 1 | 3 | 2,4 | Hole Through Connector |
| AMP/TE | 1 | 2 | 3 | Hole Through Connector |
| FORM C | 1 | 2 | 3,4 | Threads Through Connector |
| FORM A1 | 1 | 2 | 3,4 | Threads Through Connector |

| Voltage Output Wiring | | | | | |
|-----------------------|---------|---------|--------|----------|---------------------------|
| CONNECTION | +SUPPLY | +OUTPUT | COMMON | NC. PINS | P REF VENT |
| Bayonet | A | B | C | D,E | F |
| Packard, A | A | C | B | | Hole Through Connector |
| Packard, B | B | C | A | | Hole Through Connector |
| Cable | RED | WHT | BLK | | In Cable |
| M12 | 1 | 2 | 3 | 4 | Hole Through Connector |
| AMP/TE | 1 | 3 | 2 | | Hole Through Connector |
| FORM C | 1 | 2 | 3 | 4 | Threads Through Connector |
| FORM A1 | 1 | 3 | 2 | 4 | Threads Through Connector |
| FORM A2 | 3 | 1 | 2 | 4 | Threads Through Connector |
| FORM A3 | 1 | 2 | 3 | 4 | Threads Through Connector |

Notes:

1. NC pins are reserved for factory use only. **Customers should not use these connections.**
2. For cable connection, the drain wire is internally terminated to pressure port.

CONNECTION TYPES

| CONNECTION | DESCRIPTION | MATING HOUSING P/N | MATING TERMINAL P/N | RUBBER SEAL P/N |
|-----------------|--|--|---|---|
| Bayonet | BAYONET PTIH-10-6P OR EQUIV | PT06A-10-6S MIL-C-26482 | - | - |
| Packard | 3-PIN METRI-PACK 150 | 12078090 | 12103881, QTY 3 | - |
| M12 | BINDER SERIES 713, 09 3431 77 04 OR EQUIV | 4-POS FEMALE CONNECTOR | - | - |
| AMP/TE | AMP / TE 3-PIN ECONOSEAL J SERIES | 174357-2 & 174358-7 | 171630-1 (AWG 20~24) 171662-1 (AWG 16~20) QTY 3 | 172746-1 (AWG 20~24) 172888-2 (AWG 16~20) QTY 3 |
| FORM C | INDUSTRIAL STANDARD 9.4MM FORM C | HIRSCHMANN 933 024-100,OR, ATAM KD046000B7 (SEAL INCL.) | - | HIRSCHMANN 730 185-002 |
| FORM A1, A2, A3 | DIN EN 175 301-803-A 18MM | HIRSCHMANN 931 969-100,OR, ATAM KA245000B4 (SEAL INCL.) | - | HIRSCHMANN 730 801-002 |

Note: Transmitter of gage pressure type requires vent to atmosphere on the pressure reference side. This is accomplished via cable from the transmitter (the end of the cable should be terminated to clean and dry area) or through the customer mating connector/cable assembly which has internal vent path.

Suggested vented M12 mating connector P/N MB12FWAFF04ST-4 and MB12FWAFF04ST-3 at www.finecables.com for 0.157"~0.236" and 0.236"~0.315" diameter cable respectively.

WEATHERPROOF

| WEATHER-PROOF RATING | |
|----------------------|---------|
| CONNECTION | IP CODE |
| Bayonet | IP67 |
| Packard | IP66 |
| Cable | IP67 |
| M12 | IP67 |
| AMP/TE | IP67 |
| FORM C | IP65 |
| FORM A | IP65 |

Note: Weatherproof ratings are met when the mating connectors are installed properly, and the cable termination is to dry and clean area.

OUTPUTS

| Code | Supply Voltage | Max Input Current | Output Signal | Pressure Rating | |
|------|-----------------------------|-------------------|-----------------------|-----------------|------------|
| | | | | psi | bar |
| 3 | 5 ± 0.25V, PROTECTED TO 30V | 10mA | 0.5V-4.5V RATIOMETRIC | 50 – 15,000 | 3.5 – 1000 |
| 4 | 8 – 30V | 10mA | 1 – 5V | | |
| 5 | 9 – 30V | 25mA | 4 – 20mA | | |
| 6 | 8 – 30V | 10mA | 0 – 5V | | |
| 7 | 12 – 30V | 10mA | 0 – 10V | | |
| 8 | 8 – 30V | 10mA | 1 – 6V | | |
| 9 | 5 – 30V | 10mA | 0.5 – 4.5V | | |

ORDERING INFORMATION

M52 6 1 - 1 0 00 1 2 - 100P G

| Output | |
|--------|----------------------------|
| Code | Output |
| 3 | 0.5 to 4.5V Ratiometric |
| 4 | 1 to 5V |
| 5 | 4 to 20mA |
| 6 | 0 to 5V |
| 7 | 0 to 10V |
| 8 | 1 to 6V |
| 9 | 0.5 to 4.5V |

| Connectors | |
|------------|---------------------|
| Code | Connection |
| 1 | Cable 2ft |
| E | Cable 3ft |
| 2 | Cable 4ft |
| 3 | Cable 10ft |
| 4 | Packard Connector A |
| 5 | Bayonet Connector |
| 6 | Form C |
| 7 | Form A1 |
| 8 | Form A2 * |
| B | Form A3 * |
| 9 | Packard Connector B |
| D | M12 Connector |
| M | Cable 1m |
| N | Cable 2m |
| P | Cable 5m |
| R | Cable 10m |
| A | Amp Connector |

*Only available for voltage output

| Port Material | |
|---------------|------------------------|
| Code | Description |
| 0 | 17-4PH Stainless Steel |
| 1 | 316L Stainless Steel |

| Cleaning | |
|----------|-----------------------------|
| Code | Description |
| 0 | No Selection |
| 1 | Oxygen Clean B40.1 Level IV |
| 2 | With Snubber |

| Label | |
|-------|----------------|
| Code | Label Type |
| 0 | Adhesive Label |
| 1 | Laser Marking |

| Pressure Reference | |
|--------------------|------------------|
| Code | Description |
| G | Gauge |
| S | Sealed (≥1k psi) |
| C | Compound |

| Pressure Ranges | |
|-----------------|------------|
| PSI STD | BAR STD |
| 050P | 3.5B |
| 100P | 007B |
| 200P | 010B |
| 300P | 020B |
| 500P | 035B |
| 01KP | 070B |
| 03KP | 200B |
| 05KP | 350B |
| 07KP | 500B |
| 10KP | 700B |
| 15KP | 01KB |

Note: Compound pressure range is -14.7 to xxxpsig or -1 to xxxbarg. (e.g. 200PC: -14.7 to 200psig, 020BC: -1 to 20barg)
Pressure Ranges between 50-15000psi (3.5-1000bar) are all available. Change Pressure Number Accordingly

| Pressure Port | |
|---------------|--|
| Code | Port |
| 2 | 1/4-19 BSPP |
| 3 | G3/8 JIS B2351 |
| 4 | 7/16-20 UNF Male SAE J1926-2 Straight Thread O-Ring Buna 90SH ID8.92xW1.83mm (O-ring not provided by TE) |
| 5 | 1/4-18 NPT |
| 6 | 1/8-27 NPT |
| B | G1/4 JIS B2351 |
| E | 1/4-19 BSPT |
| F | 1/4-19 BSPP Female |
| P | 7/16-20UNF Female SAE J513 Straight Thread w/ Integral Valve Depressor |
| N | 7/16-20UNF Female SAE J513 Straight Thread |
| Q | M10X1.0mm ISO 6149-2 |
| S | M12X1.5mm ISO 6149-2 |
| U | G1/4 DIN 3852 Form E Gasket DIN3869-14 NBR (Gasket not provided by TE) |
| W | M20X1.5mm ISO 6149-2 |
| G | M14X1.5mm ISO 6149-2 |

Note: Refer to online installation instruction for recommended torque.
Installation instructions are available on our website in [English](#) and [Chinese](#).

TE.com/sensorsolutions

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