



U5300

Industrial Pressure Transducer

SPECIFICATIONS

- Superior Accuracy and Total Error Band
- Instrument Grade and Compact
- Variety of Pressure Ports and Electrical Configurations
- Optional Stainless Steel Snubber
- CE Compliant and Weatherproof
- Gage, Sealed, Absolute, Compound
- Expedite Configurations Available (10 Days)

The instrument grade U5300 pressure transducers from the UltraStable line of MEAS, with their modular design, offer maximum flexibility for different configurations. This latest series features superior accuracy and total error band 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 316L stainless steel and the transducer's durability is excellent with no o-rings or organics exposed to the pressure media. The U5300 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 U5300 where the volume and application warrants. Additional configurations not listed are either available or possible. Please inquire for further information.

FEATURES

- Heavy Industrial CE Approval
- 10 V/m EMI Protection
- Reverse Polarity Protection on Input
- Short Circuit Protection on Output
- $\pm 0.1\%$ Accuracy
- $\pm 0.5\%$ Total Error Band
- Compact Outline
- -40°C to $+125^{\circ}\text{C}$ Operating Temperature
- Weatherproof

APPLICATIONS

- Military/Aerospace Test Stands
- Automotive Test Stands
- Calibration Equipment
- High Accuracy Applications
- Stationary Motor Fuel Control
- High End Industrial Machinery

STANDARD RANGES

| Range (psi) | Range (Bar) | Gage | Sealed | Absolute | Compound |
|-------------|-------------|------|--------|----------|----------|
| 0 to 015 | 0 to 001 | • | • | • | • |
| 0 to 030 | 0 to 002 | • | • | • | • |
| 0 to 050 | 0 to 3.5 | • | • | • | • |
| 0 to 100 | 0 to 007 | • | • | • | • |
| 0 to 150 | 0 to 010 | • | • | • | • |
| 0 to 200 | 0 to 014 | • | • | • | • |
| 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 10k | 0 to 700 | • | • | • | • |

Intermediate ranges available upon request.

PERFORMANCE SPECIFICATIONS

Ambient Temperature: 25°C (unless otherwise specified)

| PARAMETERS | MIN | TYP | MAX | UNITS | NOTES |
|---|--|-----|---------|-------------|------------------------------|
| Accuracy (RSS of linearity, hysteresis, and repeatability) | -0.1 | | 0.1 | %F.S. BFSL | |
| Isolation, Body to any Lead | 100 | | | MΩ | @500VDC |
| Dielectric Strength | | | 2 | mA | @500VAC, 1min |
| Pressure Cycles | 1.00E+6 | | | 0~FS Cycles | |
| Proof Pressure | 3X | | 20k psi | Rated | |
| Burst Pressure | 4X | | 20k psi | Rated | |
| Long Term Stability (1 year) | -0.1 | | 0.1 | %F.S. | |
| Offset | -0.25 | | 0.25 | %F.S. | @25°C |
| Span | -0.25 | | 0.25 | %F.S. | @25°C |
| Total Error Band | -0.5 | | 0.5 | %F.S. | Over compensated temperature |
| 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 | | | | |
| Pressure Port Material | 316L Stainless Steel; 316L Stainless Steel Snubber | | | | |
| 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)

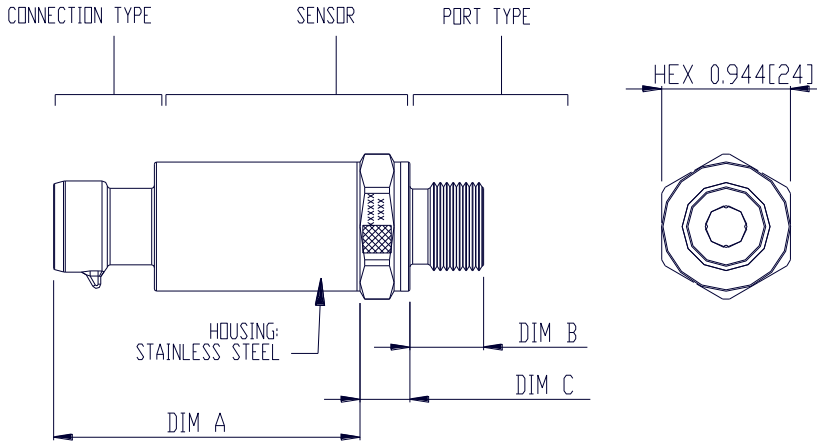
IEC 61000-4-6 Immunity to Conducted Disturbances Induced by Radio Frequency

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 [mm]



| 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 | 2.11 [53.6] |
| 6 | FORM C | 1.95 [49.5] |
| 7 | FORM A | 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 | 2.10 [53.3] |
| S | SUMITOMO CONNECTOR | 1.95 [49.5] |
| C | 1/2" NPT CONDUIT | 2.10 [53.3] |

| | |
|---|----------------------------------|
| <p>FORM C INCLUDE MATING CONNECTOR AND SEAL. MATING CONNECTOR AND SEAL.</p> | |
| <p>CABLE</p> | <p>FORM A</p> |
| <p>BAYONET CONNECTOR</p> | <p>1/2" NPT CONDUIT</p> |
| <p>PACKARD CONNECTOR</p> | <p>SUMITOMO CONNECTOR</p> |
| <p>M12 CONNECTOR</p> | <p>AMP/TE CONNECTOR</p> |

| PRESSURE PORT TYPE | | | |
|--------------------|--|---------------|--------------|
| CODE | PORT | DIM B | DIM C REF. |
| 2 | 1/4-19 BSPP | 0.472 [11.94] | 0.366 [9.3] |
| 3 | G3/8 JIS B2351 | 0.540 [13.72] | 0.366 [9.3] |
| 4 | 7/16-20UNF MALE SAE J1926-2 STRAIGHT THREAD O-RING BUNA-N 90SH-904 | 0.433 [11.0] | 0.366 [9.3] |
| 5 | 1/4-18 NPT | 0.600 [15.24] | 0.366 [9.3] |
| 6 | 1/8-27 NPT | 0.390 [9.91] | 0.366 [9.3] |
| B | G1/4 JIS B2351 | 0.472 [11.94] | 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) | 0.771 [19.58] | 0.366 [9.3] |
| P | 7/16-20UNF FEMALE SAE J513 STRAIGHT THREAD WITH INTEGRAL VALVE DEPRESSOR | 0.687 [17.5] | 0.366 [9.3] |
| N | 7/16-20UNF FEMALE SAE J513 STRAIGHT THREAD | 0.687 [17.5] | 0.366 [9.3] |
| Q | M10 x 1.0 mm ISO 6149-2 | 0.374 [9.5] | 0.366 [9.3] |
| S | M12 x 1.5 mm ISO 6149-2 | 0.433 [11.0] | 0.366 [9.3] |
| U | G/14 DIN 3852 FORM E GASKET DIN3869-14 NBR | 0.472 [11.94] | 0.445 [11.3] |
| W | M20 x 1.5 mm ISO 6149-2 | 0.551 [14.0] | 0.366 [9.3] |
| G | M14 x 1.5 mm ISO 6149-2 | 0.433 [11.0] | 0.366 [9.3] |

Note: Refer to installation instructions for recommended torque

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 |
| 1/2NPT CONDUIT | 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 A | 1 | 2 | 3,4 | Threads Through Connector |
| Sumitomo | 1 | 2 | 3 | Hole 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 |
| 1/2NPT CONDUIT | 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 A | 1 | 3 | 2 | 4 | Threads Through Connector |
| Sumitomo | 1 | 3 | 2 | | Hole 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 TYPES | | | | |
|-----------------------------------|--|--|---|---|
| CONNECTION | DESCRIPTION | MATING HOUSING P/N | MATING TERMINAL P/N | RUBBER SEAL P/N |
| Bayonet | BAYONET PTH-10-6P OR EQUIV | PT06A-10-6S MIL-C-26482 | - | - |
| Packard | 3-PIN METRI-PACK 150 | 12078090 | 12103881, QTY 3 | - |
| Cable & 1/2NPT Conduit | 4-WIRE, 22 AWG, SHIELDED, PVC JACKET, 105 DEGC | - | - | - |
| 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 A | DIN EN 175 301-803-A 18MM | HIRSCHMANN 931 969-100, OR, ATAM KA245000B4 (SEAL INCL.) | - | HIRSCHMANN 730 801-002 |
| Sumitomo | SUMITOMO 3-PIN HV040 | 6189-6907 | 8100-3067 (AWG 20~22) 8100-3068 (AWG 16~18) QTY 3 | 7165-1075 (INS. DIA 1.1~1.6MM) 7176-0621 (INS. DIA 1.6~1.9MM) 7165-0622 (INS. DIA 1.8~2.2MM) QTY 3 |

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 |
| 1/2NPT CONDUIT | IP67 |
| M12 | IP67 |
| AMP/TE | IP67 |
| FORM C | IP65 |
| FORM A | IP65 |
| Sumitomo | IP67 |

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

OUTPUTS

| CODE | OUTPUT SIGNAL | SUPPLY VOLTAGE |
|----------|---------------------------|-------------------------------|
| 3 | 0.5 - 4.5V RATIOMETRIC | 5 ± 0.25V PROTECTED to 30V |
| 4 | 1 - 5V | 8 - 30V |
| 5 | 4 - 20mA | 9 - 30V |
| 6 | 0 - 5V | 8 - 30V |
| 7 | 0 - 10V | 12 - 30V |
| 8 | 1 - 6V | 8 - 30V |
| 9 | 0.5 - 4.5V | 5 - 30V |

ORDERING INFORMATION

| U53 | 3 | 1 | - | 0 | 0 | 00 | 0 | 5 | - | 100P | G | |
|------------|---|---|---|------------------------------|------------------------------------|----|---|---|---|--|--|--|
| Model | Output Signal | Connection Type | - | Shipping | Snubber | 00 | Label | Pressure Port | - | Pressure Range | Pressure Type | |
| U53 | 3 = 0.5 – 4.5V Ratiometric 4 = 1 – 5V 5 = 4 – 20mA 6 = 0 – 5V 7 = 0 – 10V 8 = 1 – 6V 9 = 0.5 – 4.5V | 1 = Cable 2 ft E = Cable 3 ft 2 = Cable 4 ft 3 = Cable 10 ft 4 = Packard Connector A 5 = Bayonet Connector 6 = Form C 7 = Form A 9 = Packard Connector B D = M12 Connector M = Cable 1 m N = Cable 2 m P = Cable 5 m R = Cable 10 m A = Amp Connector S = Sumitomo Connector C = 1/2" NPT Conduit | - | 0 = Standard H = Expedite | 0 = No Snubber 1 = With Snubber | 00 | 0 = Adhesive Label 1 = Laser Marking | 2 = 1/4-19 BSPP 3 = G3/8 JIS B2351 4 = 7/16-20UNF Male SAE J1926-2 Straight Thread O-Ring BUNA-N 90SH-904 5 = 1/4-18 NPT 6 = 1/8-27NPT 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 with Integral Valve Depressor Q = M10 x 1.0 mm ISO 6149-2 N = 7/16-20UNF Female SAE J513 Straight Thread S = M12 x 1.5 mm ISO 6149-2 U = G1/4 DIN 3852 Form E Gasket DIN3869-14 NBR W = M20 x 1.5 mm ISO 6149-2 G = M14 x 1.5 mm ISO 6149-2 | - | 015P 030P 050P 100P 150P 200P 300P 500P 01KP 03KP 05KP 10KP | 001B 002B 3.5B 007B 010B 014B 020B 035B 070B 200B 350B 700B | G = Gage S = Sealed A = Absolute C = Compound G = Gage S = Sealed (Port 2, 5 only) A = Absolute (Port 2, 5 only) C = Compound |

Note: Selections in blue (expedite) have a 10 business day lead time with a 19 piece maximum order.
Compound pressure range is -14.7 to xxxpsig or -1 to xxxbarg. (e.g. 200PC: -14.7 to 200psig, 020BC: -1 to 20barg)
Refer to online installation instruction for recommended torque.

Installation instructions will no longer be shipped with unit delivery.
This document is available on our website in English and Chinese.

Factory calibration certificate is provided.

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