# U5700

## Submersible Liquid Level Pressure Transducer

## SPECIFICATIONS

- **High Accuracy**
- **CE Compliant and Waterproof**
- **UL Certified**
- **Variety of Pressure Port Configurations**
- **Waterproof**
- **Optional Stainless Steel Snubber**
- **IP68 Rated Connection and Submersible Polyurethane Jacketed Cable**
- **Gage, Sealed, Absolute, Compound**
- **Expedite Configurations Available (10 Days)**

The U5700 submersible pressure transducers from the UltraStable line of MEAS, with their modular design, include an IP68 rated connection and submersible polyurethane jacketed cable along with a variety of pressure port options. This latest series features high accuracy and a quick turnaround for demanding commercial and heavy industrial applications, as well as liquid level 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's durability is excellent with no O-rings or organics exposed to the pressure media. The transducer can be fully submerged since the wetted materials for the back end consist of FKM Fluoroelastomers, 316 stainless steel and polyurethane. A POM protective cap port option is also available for liquid level applications. The U5700 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 U5700 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
- Up to ±0.1% Accuracy
- Up to ±0.75% Total Error Band
- Compact Outline
- IP68 Waterproof Grade
- Custom Cable Lengths
- POM Protective Cap for Liquid Level Applications

## APPLICATIONS

- Tank Pressure and Level
- Cryogenic Tanks
- Pump and Compressor Controls
- Marine and Water Systems
- Agricultural Sprayers (Water, Fertilizer, Pesticide)
- Fire Suppression Systems
- Liquid Level Applications
- Refrigeration Systems (Chillers)
- Tractors (Hydraulic)
- Outdoor Pressure Applications

## STANDARD RANGES

| Range (psi) | Range (Bar) | Gage | Sealed | Absolute | Compound |
|---|---|---|---|---|---|
| 0 to 002 | 0 to .14 | • | • | • | • |
| 0 to 005 | 0 to .35 | • | • | • | • |
| 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) | -0.5 | | 0.5 | %F.S. BFSL | ≤ 2psi @ 25°C |
| | -0.25 | | 0.25 | %F.S. BFSL | > 2psi and ≤ 5psi @ 25°C |
| | -0.1 | | 0.1 | %F.S. BFSL | > 5psi and ≤ 500psi @ 25°C |
| | -0.25 | | 0.25 | %F.S. BFSL | > 500psi and ≤ 5000psi @ 25°C |
| | -0.75 | | 0.75 | %F.S. BFSL | > 5000psi @ 25°C |
| 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. | |
| Total Error Band | -1.25 | | 1.25 | %F.S. | ≤ 2psi |
| | -1.0 | | 1.0 | %F.S. | > 2psi and ≤ 5psi |
| | -0.75 | | 0.75 | %F.S. | > 5psi and ≤ 5000psi |
| | -1.25 | | 1.25 | %F.S. | > 5000psi |
| Compensated Temperature | -10 | | +60 | °C | |
| Usage Temperature | -10 | | +60 | °C | |
| Storage Temperature | -10 | | +60 | °C | |
| Gland Seal Pressure Rating | | | 300 | psi | |
| Wetted Materials | Polyoxymethylene, FKM Fluoroelastomers, Stainless Steel 316, Submersible Polyurethane Jacketed Cable | | | | |
| Load Resistance ($R_L$) | < (Supply Voltage -9V) / 0.02A | | | Ω | Current Output |
| Load Resistance ($R_L$) | $R_L$ > 100k | | | Ω | Voltage Output |
| Current Consumption | | | 5 | mA | Voltage Output |
| Response Time (10% to 90%) | <2ms (Voltage Output); Without Snubber | | | | |
| Pressure Port Material | 316L Stainless Steel (port & housing); 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.

Usage Temperature: The temperature range over which the product will maintain the IP68 rating.

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.

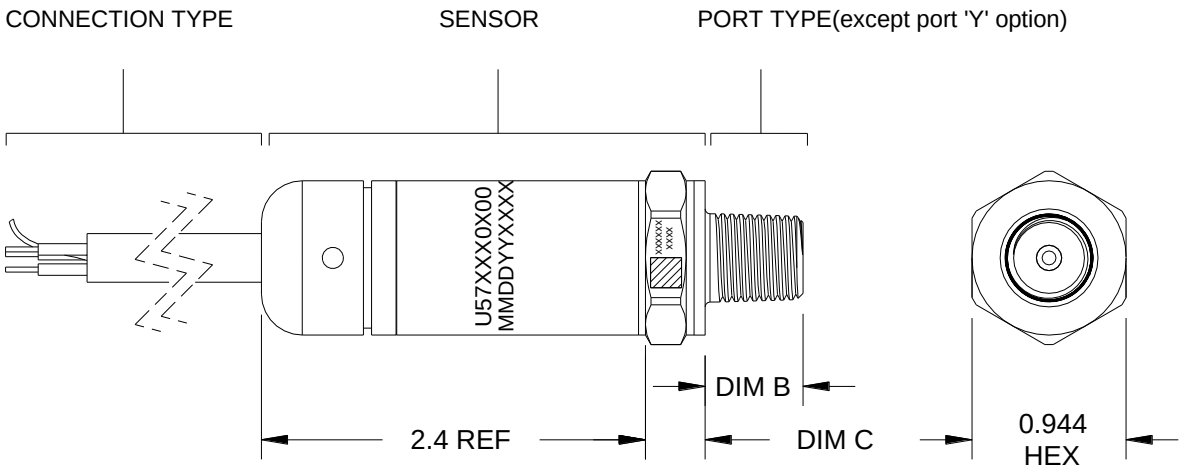
All configurations are built with voltage reverse and output short-circuit protections.

**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 $V_0$: ±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.

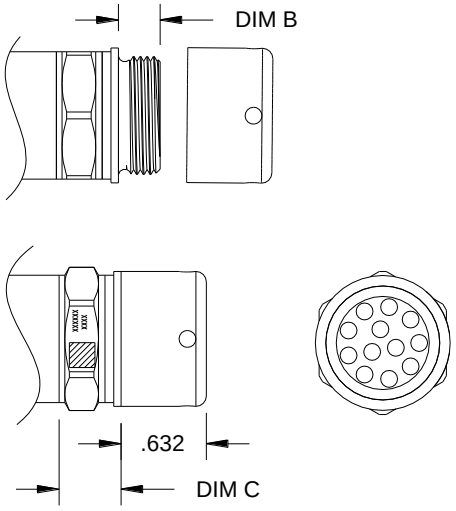
## DIMENSIONS [mm]




**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 J514 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] |
| Y | 7/8-20UNEF MALE WITH POLYOXYMETHYLENE END CAP | 0.46 [11.68] | 0.31 [7.87] |

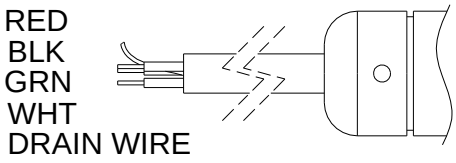
COMMON WATER LEVEL MEASUREMENT PORT WITH DELRIN CAP WITH SCREEN




PRESSURE PORT 'Y' OPTION

## WIRING

CABLE




CABLE WITH GLAND SEAL
4 WIRE,22AWG,SHIELD ,VENT TUBE
SUBMERSIBLE POLYURETHANE JACKETED CABLE

**Connection (Current Output)**

| CONNECTION | +SUPPLY | -SUPPLY | GROUND | P REF VENT |
|---|---|---|---|---|
| **CABLE** | RED | BLK | DRAIN WIRE | IN CABLE |

**Connection (Voltage Output)**

| CONNECTION | +SUPPLY | +OUTPUT | COMMON | GROUND | P REF VENT |
|---|---|---|---|---|---|
| **CABLE** | RED | WHT | BLK | DRAIN WIRE | IN CABLE |

**Notes:**
**1. The drain wire is internally terminated to pressure port.**
**2. A psiG transducer requires a vent to atmosphere on the pressure reference. This is accomplished via a vent tube in the cable. The end of the cable should be terminated to a clean dry area.**
**3. The IP68 rating is only met when the cable termination is to a dry clean area. Moisture can enter the transducer through the vent tube at the cable termination.**

## 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 | 8 - 30V |

## ORDERING INFORMATION

U57 3 005 0 0 00 1 5 100P G

| Output | | |
|---|---|---|
| **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 | 8 – 30V |

| Cable Length | |
|---|---|
| **xxxx** | 002-999feet |

| Shipping | |
|---|---|
| **0** | Standard |
| **H** | Expedite |

Selections in blue (expedite) have a 10-business day lead time with a 19-piece maximum order

| Snubber | |
|---|---|
| **0** | No Snubber |
| **1** | With Snubber |

| Label Type | |
|---|---|
| **1** | Laser Marking |

| Pressure Port | |
|---|---|
| **2** | 1/4-19 BSPP |
| **3** | G3/8 JIS B2351 |
| **4** | 7/16-20UNF Male SAE J1326-2 Straight Thread O-Ring BUNA-N 90SH-904 |
| **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 w/o Snubber |
| **P** | 7/16-20 UNF Female SAE J513 Straight Thread |
| **N** | 7/16-20 UNF 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 |
| **W** | M20x1.5mm ISO6149-2 |
| **G** | M14x1.5mm ISO6149-2 |
| **Y** | 7/8-20 UNEF Male with Delrin End Cap |

Refer to online installation instruction for recommended torque.

| Pressure Range [psi] | |
|---|---|
| psi std | bar std |
| 002P | .14B |
| 005P | .35B |
| 015P | 001B |
| 030P | 002B |
| 050P | 3.5B |
| 100P | 007B |
| 150P | 010B |
| 200P | 014B |
| 300P | 020B |
| 500P | 035B |
| 01KP | 070B |
| 03KP | 200B |
| 05KP | 350B |
| 10KP | 700B |

Compound pressure range is -14.7 to xxxpsig or -1 to xxxbarg.
(e.g. 200PC: -14.7 to 200psig, 020BC: -1 to 20barg)

| Pressure Type | |
|---|---|
| **G** | Gauge |
| **S** | Sealed |
| **A** | Absolute |
| **C** | Compound |
| **G** | Gauge |
| **S** | Sealed |
| **A** | Absolute |
| **C** | Compound |
| **G** | Gauge |
| **S** | Sealed (Port 2,5 only) |
| **A** | Absolute (Port 2,5 only) |
| **C** | Compound |

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