



KPSI 700

- ◆ Submersible level transducer
- ◆ $\pm 1.00\%$ FS static accuracy
- ◆ Custom built in two days
- ◆ Two year warranty

The KPSI 700 is a submersible hydrostatic level transducer specifically designed to meet the rigorous environments encountered in liquid level measurement and control. It can be configured to perform to specifications under most adverse, reactive conditions.

Every KPSI Transducer utilizes a highly accurate pressure sensor assembly specifically designed for hostile fluids and gases. The assembly is integrated with supporting electronics in a durable waterproof housing constructed of 316 stainless steel or titanium. The attached electrical cable is custom manufactured and includes para-aramid synthetic fiber members to prevent errors due to cable elongation, and a unique water block feature that self-seals in the event of accidental cuts to the cable. Each vented reference transducer is shipped with a SuperDry Vent Filter that prevents moisture from entering the vent tube for at least one year without maintenance, even in the most humid environments.

Features

- ◆ Custom polyurethane or ETFE cable lengths
- ◆ Welded 316SS or titanium body
- ◆ Custom level ranges up to 700 ft. (210 m) H₂O
- ◆ Multiple analog output
- ◆ Multiple nose piece styles
- ◆ Optional lifetime lightning protection
- ◆ Long life vent filter or aneroid bellows
- ◆ Available molded cable seal

Applications

- ◆ Lift stations
- ◆ Pump control
- ◆ Level control
- ◆ Surface water monitoring
- ◆ Landfill leachate
- ◆ Well monitoring
- ◆ Groundwater monitoring

Specifications

| PARAMETER | | COMMENT |
|---|--|-------------------------|
| LEVEL RANGES | | |
| Full Scale Level Ranges <small>(Intermediate level ranges are available)</small> | 2.3 thru 700 ft. H ₂ O (0.70 thru 210 m H ₂ O) | Vented Gage Reference |
| | 10 thru 700 ft. H ₂ O (3 thru 210 m H ₂ O) | Sealed Gage Reference |
| | 35 thru 700 ft. H ₂ O (10 thru 210 m H ₂ O) | Absolute Gage Reference |
| Proof Pressure | 1.5 x FS | |
| Burst Pressure | 2.0 x FS | |

STATIC PERFORMANCE

| | | |
|---|------------|-------------|
| Static Accuracy (combined effects of non-linearity, hysteresis and repeatability, best fit straight line method) | ±1.00% FSO | BFSL method |
|---|------------|-------------|

| | |
|------------|-------------|
| Resolution | +0.0001% FS |
|------------|-------------|

ENVIRONMENTAL

| | | |
|---|---|---|
| Wetted Materials | 316 SS or Titanium; POM; FKM; Polyurethane or ETFE | |
| Compensated Temp Range | 0 to 50°C | |
| Thermal Error (maximum allowable deviation from the Best Fit Straight Line due to a change in temperature) | ±0.05% FSO/°C ±0.1% FSO/°C | Worse case over compensated temperature range for ranges < 12 ft. (4 m) H ₂ O |
| Operating Temp Range | -20 to 60 °C | When attached to polyurethane cable |
| Protection Rating | IP 68, NEMA 6P | |

ELECTRICAL

| | | |
|-----------------------|---|--|
| Excitation | 9-28V – VDC output 9-28V – mA output 15-28V – VDC output 10-28V – VDC output | 0-5 V, 0-2.5 V, 0-4 V 4-20 0-10 V 1.5-7.5 V |
| Input Current | 20 mA max., 3.5 mA max. | For mA output, for VDC output |
| Output | 4-20 mA, 0-5 VDC, 0-2.5 VDC, 0-4 VDC, 0-10 VDC, 1.5-7.5 VDC | For ranges < 5 ft. (1.5m) H ₂ O, only 4-20mA output is available |
| Zero Offset | ±0.25 mA for mA output < 0.25 VDC for VDC output | |
| Output Impedance | See loop diagram for mA output 20 ohm for VDC output | |
| Insulation Resistance | 100 mega ohm at 50 VDC | |
| Circuit Protection | Polarity, surge/shorted output | |

CERTIFICATIONS

| | |
|----------------|--|
| CE compliant | EN 61326-1:2013 and 61326-2-3:2013 |
| UL, CUL and FM | Class I, II, III, Div. 1, Groups A,B,C,D,E,F&G |
| WEEE/RoHS | Waste from Electrical and Electronic Equipment (WEEE) and Restrictions on the use of Hazardous Substances (RoHS) |

PHYSICAL

| | | |
|----------------------------|--|--|
| Approximate Weight | 0.44 lbs. (198 g) transducer 0.05 lbs./ft. (79 g/m) cable | |
| Cable Jacket Material | Polyurethane (Standard), ETFE (Optional) | |
| Cable Pull Strength | 200 lbs (90 kg) | Polyurethane |
| Cable Number of Conductors | 4 max. | |
| Cable Conductor Size | 22 AWG | |
| Cable Seal | Molded Polyurethane FKM Gland | For polyurethane cable For ETFE cable |

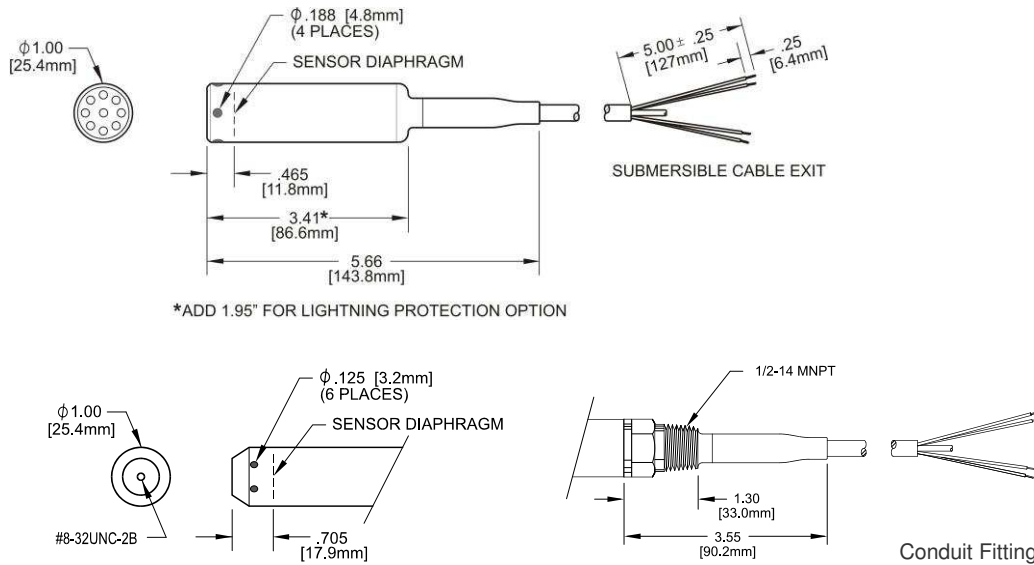
TEMPERATURE OUTPUT OPTION (Not Intrinsically safety approved)

| | | |
|-------------------------------------|-------------|--|
| Temperature Range | -20 to 60°C | Available for 4-20 mA output versions only |
| Output Signal | 4-20 mA | |
| Temperature Measurement Accuracy | ±4°C | ±1°C with single point calibration |

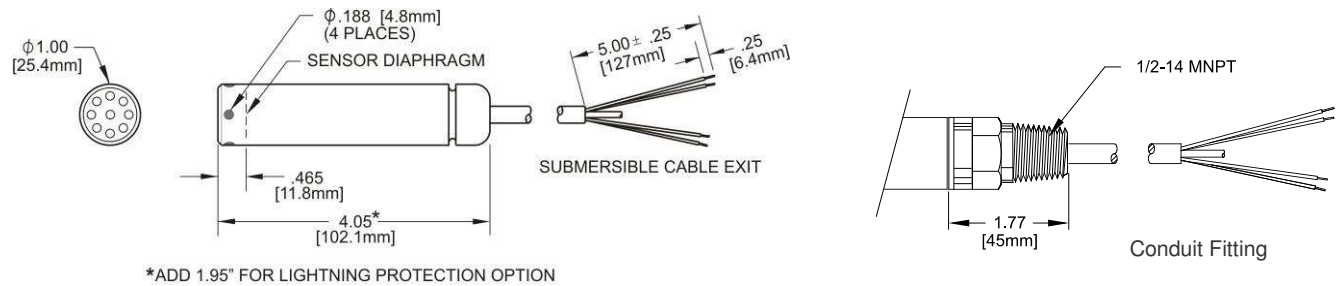
LIGHTNING PROTECTION (Power supply needs to be limited to 150mA to avoid lock up of the gas tube after a suppression event)

| | | |
|-----------------------|-------------------|--|
| Life Expectancy | >1,000 Operations | |
| Peak Clamping Voltage | 36 Volts | |
| Response Time | <10 nsecs | |
| Shunts | 20,000 Amperes | |

Dimensions



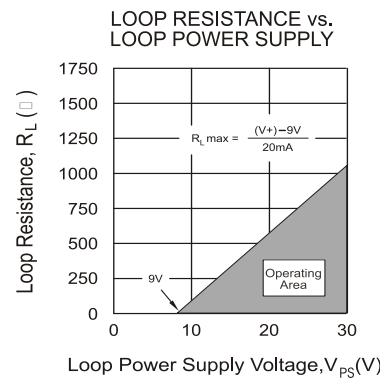
Molded Cable Seal Configuration for Polyurethane Cable



Gland Cable Seal Configuration for ETFE Cable

Electrical Termination / Loop Resistance

| ELECTRICAL TERMINATION | | |
|---|------------|--------------|
| 22AWG CONDUCTORS IN A SHIELDED CABLE WITH VENT TUBE | | |
| 4-20 mA | RED | + EXCITATION |
| | BLACK | - EXCITATION |
| 0-5 VDC | RED | + EXCITATION |
| | BLACK | - EXCITATION |
| | WHITE | + SIGNAL |
| ALL | DRAIN WIRE | SHIELD |



Ordering Information

| MODEL | | | SUBMERSIBLE LEVEL TRANSDUCER | | | | | | | | | | | | | | | | | |
|-------|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|----------------------------|---|---|---|--|
| 7 | 0 | 0 | ±1.00% FSO Static Accuracy | | | | | | | | | | | | | | | | | |
| ↓ | ↓ | ↓ | MATERIAL | | | | | | | | | | | | | | | | | |
| | | | S Stainless Steel | | | | | | | | | | | | | | | | | |
| | | | T Titanium | | | | | | | | | | | | | | | | | |
| | | | REFERENCE FORMAT | | | | | | | | | | | | | | | | | |
| | | | 1 Vented gage | | | | | | | | | | | | | | | | | |
| | | | 3 Sealed gage | | | | | | | | | | | | | | | | | |
| | | | 4 Absolute | | | | | | | | | | | | | | | | | |
| | | | OUTPUT | | | | | | | | | | | | | | | | | |
| | | | 3 0-5 VDC | | | | | | | | | | | | | | | | | |
| | | | F 0-2.5 V | | | | | | | | | | | | | | | | | |
| | | | G 0-4 V | | | | | | | | | | | | | | | | | |
| | | | H 0-10 V | | | | | | | | | | | | | | | | | |
| | | | J 1.5-7.5V | | | | | | | | | | | | | | | | | |
| | | | 4 4-20mA | | | | | | | | | | | | | | | | | |
| | | | 6 4-20mA temperature measurement option | | | | | | | | | | | | | | | | | |
| | | | PRESSURE CONNECTION | | | | | | | | | | | | | | | | | |
| | | | A Open-face nose cap | | | | | | | | | | | | | | | | | |
| | | | B Ported nose cap | | | | | | | | | | | | | | | | | |
| | | | E Piezometer nose cap | | | | | | | | | | | | | | | | | |
| | | | 2 1/4" - 18 NPT male fitting | | | | | | | | | | | | | | | | | |
| | | | 7 1/2" - 14 NPT male fitting | | | | | | | | | | | | | | | | | |
| | | | ELECTRICAL CONNECTION | | | | | | | | | | | | | | | | | |
| | | | 0 Molded cable seal | | | | | | | | | | | | | | | | | |
| | | | 4 1/2" - 14 NPT male conduit fitting with molded cable seal | | | | | | | | | | | | | | | | | |
| | | | A Gland cable seal | | | | | | | | | | | | | | | | | |
| | | | B 1/2" - 14 NPT male conduit fitting with gland cable seal | | | | | | | | | | | | | | | | | |
| | | | LIGHTNING PROTECTION | | | | | | | | | | | | | | | | | |
| | | | A None | | | | | | | | | | | | | | | | | |
| | | | B Full Lightning Protection | | | | | | | | | | | | | | | | | |
| | | | LEVEL RANGE (at MAX output)¹ | | | | | | | | | | | | | | | | | |
| | | | # | # | # | . | # | # | # | LEVEL RANGE (at MIN output)¹ | | | | | | MOISTURE PROTECTION | | | | |
| | | | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | # | # | # | . | # | # | # | ↓ | ↓ | ↓ | A None (sealed/absolute only) |
| | | | | | | | | | | | | | | | | | | | | B Vent Filter |
| | | | | | | | | | | | | | | | | | | | | C Aneroid Bellows |
| | | | | | | | | | | | | | | | | | | | | D Stainless Steel Vent Filter |
| | | | | | | | | | | | | | | | | | | | | CABLE TYPE |
| | | | | | | | | | | | | | | | | | | | | 1 Polyurethane |
| | | | | | | | | | | | | | | | | | | | | 2 ETFE (Electrical Connection "A" or "B" Only) |
| | | | | | | | | | | | | | | | | | | | | CABLE LENGTH |
| | | | | | | | | | | | | | | | | | | | | (in feet) |
| | | | | | | | | | | | | | | | | | | | | LABEL² |
| | | | | | | | | | | | | | | | | | | | | A psi |
| | | | | | | | | | | | | | | | | | | | | B ft H ₂ O |
| | | | | | | | | | | | | | | | | | | | | C m H ₂ O |
| | | | | | | | | | | | | | | | | | | | | ↓ |

Notes:

1 The part number requires two level range limits, corresponding to the maximum and minimum analog outputs of the transducer, to be specified in **pounds per square inch (psi)** to three decimal places. The lower level range is typically 000.000 unless otherwise required. For reverse output requirements, enter the lower level range for the maximum output signal and the upper range for the minimum output. Use the following conversion factors: **Ft. H₂O / 2.3073 = psi** // **m H₂O / 0.703265 = psi**
Examples: 10 ft. H₂O / 2.3073 = 4.334 psi (Enter 004.334 in the part number), 10 m H₂O / 0.703265 = 14.219 psi (Enter 014.219 in the part number)
 For sealed gage reference add local atmosphere when converting to psi. Contact PSI for assistance.
Example: 10 ft. H₂O / 2.3073 + 14.7 = 19.034 psi (Enter 019.034 in the part number)

2 Units of measure on standard MEAS label. Contact Measurement Specialties if private labeling is required.