

FEATURES

- Custom Level Ranges up to 4614 ft (1408 m) H₂O
- Accuracy of ±0.5% FS
- Analog Outputs of 4-20 mA or 0-5 VDC
- Welded 316 SS Construction
- Small Diameter, Rugged and Waterproof
- Custom Cable Lengths



APPLICATIONS

- Ground Water Monitoring
- Surface Water Monitoring
- Down Hole
- Shipboard Use
- Dewatering
- Level Control

The Series 300DS submersible hydrostatic level transducer is specifically designed for small bore applications and to meet the rigorous environments encountered in deep water level measurements. These transmitters provide repeatable, precision depth measurement under most hostile conditions.

All KPSI Transducers utilize 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 316SS. The attached electrical cable is custom manufactured to Pressure Systems' specifications and includes Kevlar® members to prevent errors due to cable elongation as well as a unique water block feature that self-seals in the event of accidental cuts to the cable.

The Series 300DS is CE compliant to EN 61000-6-4:2001 and EN 61000-6-2:2001 and have a IP 68 and NEMA 6P housing protection rating.

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Updates: PressureSystems.com/updates.html

Order On-Line!

E-commerce: LEVELandPRESSURE.com

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Series 300DS

Specifications

Specifications subject to change without notice.

| Parameter | 300DS | Units | Comments |
|--------------------------------------|--|---|---|
| LEVEL RANGES | | | |
| Full Scale Level Ranges ¹ | 700 thru 4614 (210 thru 1408) | ft H ₂ O (m H ₂ O) | sealed gage reference |
| Proof Pressure | 1.5 | x FS | |
| Burst Pressure | 2.0 | x FS | |
| STATIC PERFORMANCE | | | |
| Static Accuracy ² | ±0.5 | %FSO | BFSL method |
| Resolution | Infinitesimal | | |
| ENVIRONMENTAL | | | |
| Wetted Materials | 316 SS; Delrin®; Viton® | | Delrin® and Viton® are registered trademarks of DuPont |
| Compensated Temp Range | 0 to 50 | °C | |
| Thermal Error ³ | ±0.05 | %FSO/°C | worst case over compensated temperature range |
| Operating Temp Range | -20 to 60 | °C | |
| ELECTRICAL | | | |
| Excitation | 9 - 30 | VDC | for mA and VDC output |
| Input Current | 20 3.5 | mA max | for mA output for VDC output |
| Output | 4 - 20 0 - 5 | mA VDC | options available ⁴ |
| Zero Offset | ±0.12 <0.1 | mA VDC | |
| Output Impedance | See Loop Resistance diagram on page 5 <10 | ohm | for mA output for VDC output |
| Insulation Resistance | 100 | mega ohm | at 50 VDC |
| Circuit Protection | Polarity, surge/shorted output | | |
| PHYSICAL | | | |
| Approximate Weight | 0.63 (285) 0.05 (79) | lbs (g) lbs/ft (g/m) | transducer cable |
| Cable Jacket Material | Polyurethane (std) Tefzel® (opt) | | Tefzel®, Teflon® and Kevlar® are registered trademarks of DuPont. |
| Pull Strength | 200 (90) | lbs (kg) | |
| Number of Conductors | 4 | | |
| Conductor Size | 22 | AWG | |

Notes:

- 1 Intermediate level ranges are available.
- 2 Static accuracy includes the combined errors due to nonlinearity, hysteresis and nonrepeatability on a Best Fit Straight Line (BFSL) basis, at 25°C per ISA S51.1.
- 3 Thermal error is the maximum allowable deviation from the Best Fit Straight Line due to a change in temperature, per ISA S51.1.
- 4 Optional VDC outputs can be provided up to 2.5 VDC less than the excitation supply voltage.

Uniquely-Designed Submersible Cable

Our level transducers utilize one of two types of custom cable made specifically for submersible applications. The most common is a polyurethane-jacketed cable incorporating Kevlar® strength members to prevent errors due to cable elongation, and a water block liner to prevent water intrusion due to minor cuts to the cable jacket. This is the cable of choice for most water applications.

The other alternative is a Tefzel®-jacketed cable which provides superior chemical resistance and toughness yet preserving the other features found in the polyurethane-jacketed cable. Tefzel® is a Teflon® derivative from DuPont and is the better choice for caustic media or when a high degree of abrasion is anticipated. While more expensive and less flexible, it can save money in the long term due to reduced maintenance costs.

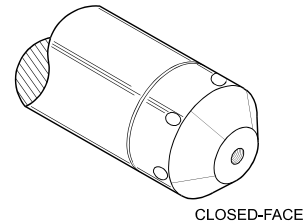
Both submersible cables have a pull strength of over 200 lbs. In all installations, care should be taken to ensure no damage occurs to the cable as cable damage represents one of the most frequent causes of transducer failure. In the case where the user is not sure which material is best, contact Pressure Systems for assistance.

Installation Tips

The Series 300DS submersible transducer may be suspended directly into the media. However, care should be taken to take advantage of the Kevlar strength tensioning members within the cable if cable lengths are in excess of 500 feet. **Do not utilize cable hangers, which depend on the cable sheath for suspension. Consult the factory for proper installation and maintenance.**

Nose Cap

The closed-face nose cap with a #8-32UNC-2B threaded hole can be used to attach weights. It was designed for installations where users may encounter sharp, protruding objects.

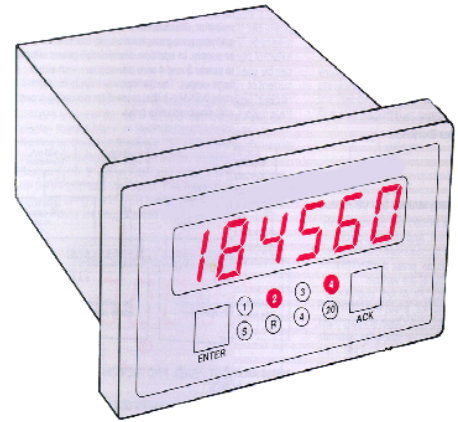


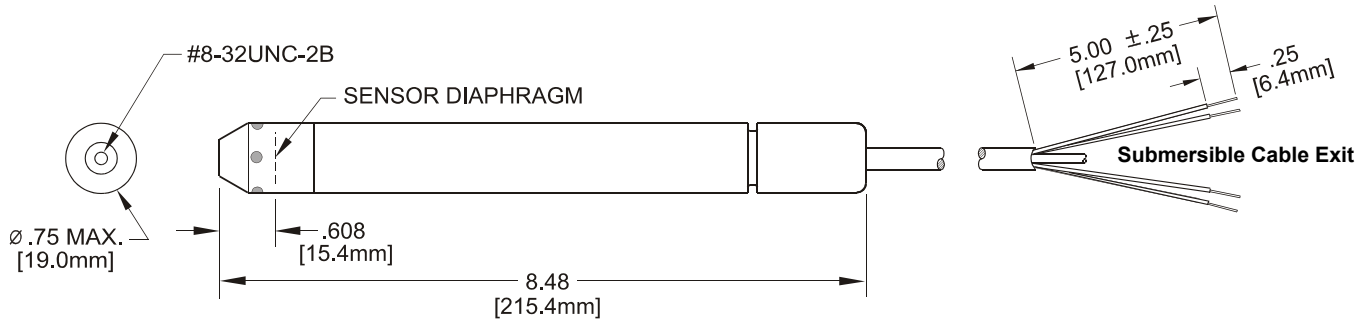
Display Meter

Pressure Systems offers two types of Display Meters to provide a visual readout of a single KPSI transducer having mA or VDC output. Both varieties utilize a red 0.54" LED display with 4 active characters to indicate a numeric range of -1999 to 9999. The units operate from VAC power and provide a 24 VDC supply for power to the transducer.

The Model 3019 Digital Readouts provide a sophisticated display of the transducer output with six 14-segment LED's for display of true alphanumeric characters; the last two used for process descriptors. These readouts offer programmable input configuration, isolated transducer power supply, selectable 2-point scaling or up to 17-point linearization, optional 4-20 mA retransmission, and two or four optional 10-amp SPDT alarm contacts for control. The 3019 has a NEMA 4X front panel with a polycarbonate bezel and a 1/8 DIN aluminum housing measuring 1.9375" H x 3.75" W x 6.5" D.

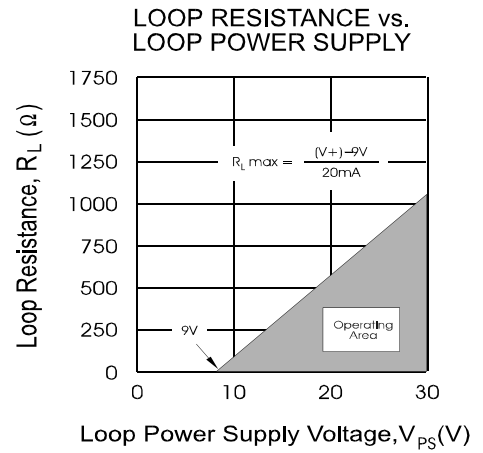
The Model 3620 Pump Controllers provide a more rugged package specifically designed to operate external pumps via two 10-amp SPDT alarm contacts. The 3620 provides front panel scaling, operates from -20 to 70° C, and uses 120 or 240 VAC. The NEMA 4X rated enclosure can be surface or panel mounted and measures 3.2" H x 5.5" W x 2.7" D.





Gland Cable Seal

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



Standard shipment is 4 weeks upon receipt of order. All orders are shipped FOB from our factory in Hampton, Virginia.

Ordering Information

| | | | | | | | | | | | | | | | | | | |
|------------------|---|---|---|---|---|---|--|---|---|---|--|--|--|--|---|--|--|--|
| Model No. | | | | | Submersible Level Transducer, ±0.5% FSO Static Accuracy | | | | | | | | | | | | | |
| 3 | 0 | 0 | D | S | | | | | | | | | | | | | | |
| ↓ | ↓ | ↓ | ↓ | ↓ | | | | | | | | | | | | | | |
| | | | | | Reference Pressure Format | | | | | | | | | | | | | |
| | | | | | 3 Sealed gage | | | | | | | | | | | | | |
| | | | | | Output | | | | | | | | | | | | | |
| | | | | | ↓ 3 0-5 VDC | | | | | | | | | | | | | |
| | | | | | 4 4-20 mA | | | | | | | | | | | | | |
| | | | | | Pressure Connection | | | | | | | | | | | | | |
| | | | | | ↓ 0 Closed-face nose cap | | | | | | | | | | | | | |
| | | | | | Electrical Connections | | | | | | | | | | | | | |
| | | | | | 0 Gland cable seal | | | | | | | | | | | | | |
| | | | | | Level Range | | | | | | | | | | | | | |
| | | | | | ↓ See Note | | | | | | | | | | | | | |
| 3 | 0 | 0 | D | S | - | 3 | | 0 | - | 0 | | | | | . | | | |

Note: The part number requires the level range be expressed in pounds per square inch (psi) out to three decimal places. Use the following conversions for water at 4°C to calculate the level range for inclusion in the part number.

$$\text{ft H}_2\text{O} / 2.3067 = \text{psi}$$

$$\text{m H}_2\text{O} \times 1.421 = \text{psi}$$

Examples:

$$1500 \text{ ft H}_2\text{O} / 2.3067 = 650.280 \text{ psi}$$

$$1000 \text{ m H}_2\text{O} \times 1.421 = 1421 \text{ psi}$$

(enter 0650.280 in the part number)
(enter 1421.000 in the part number)

Cable:

PN: 26-03-0424ER Polyurethane-jacketed vented cable, 4 conductor

PN: 26-03-0324A Tefzel®-jacketed vented cable, 4 conductor

Warranty: The Series 300DS product is warranted against defects in material and workmanship for 2 years from date of shipment. Products not subjected to misuse will be repaired or replaced. THE FOREGOING IS IN LIEU OF ANY OTHER EXPRESSED OR IMPLIED WARRANTIES. We reserve the right to make changes to any product herein and assume no liability arising out of applications or use of any product or circuit described. Products described in this specification are not intended for life support applications.