



KPSI 501

- SDI-12 Submersible Level Transducer
- ± 0.01 ft. H₂O, reading ≤ 10 ft (3m) H₂O
- $\pm 0.10\%$ reading, reading > 10 ft (3m) H₂O
- Accuracy for 0-15 psi and 0-22 psi ranges meets USGS OSW requirements
- Optional Lifetime Lightning Protection
- Two Year Warranty

The KPSI 501 submersible hydrostatic level transducer represents the leading edge of level sensing technology available today. Designed and tuned to meet stringent USGS OSW specifications of ± 0.01 Ft. H₂O often required by governmental regulatory agencies and research institutions. The KPSI 501 incorporates a highly stable media-isolated sensor, and features SDI-12 and RS-485 serial-digital interface standards. SDI-12 is a commonly used standard for interfacing data recorders with microprocessor-based sensors, in the environmental monitoring field. The KPSI 501 is an excellent solution for applications that require minimal current drain. It will accommodate cable lengths between sensors and recorder up to 1000 feet.

Features

- Custom Polyurethane or ETFE Cable Lengths
- Welded 316SS or Titanium
- Custom Level Ranges up to 50 ft. (15m) H₂O
- Shipped with Long-Life Vent Filter
- Removable Cable Options including PVC jacketed steel armored cable

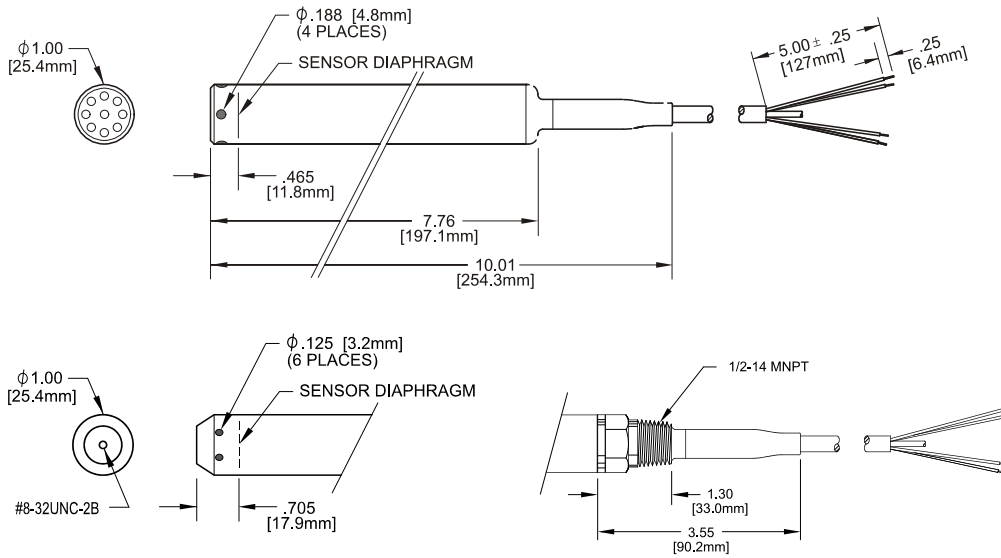
Applications

- Groundwater Monitoring
- Down Hole
- Surface Water Monitoring
- Tailrace and Forebay Monitoring
- Oceanographic Research

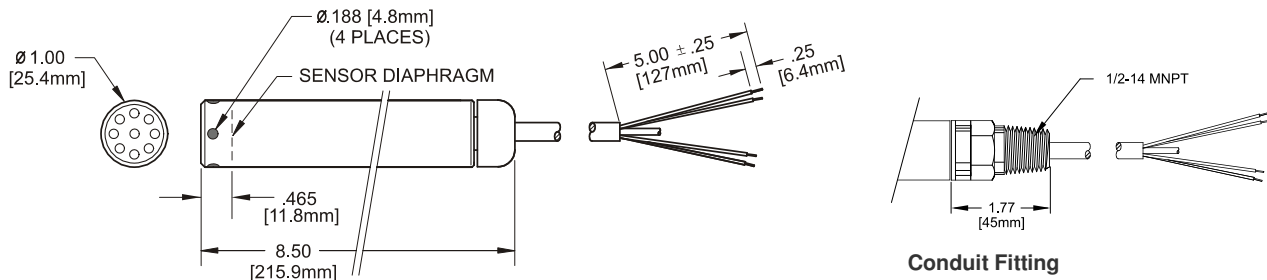
Specifications

PARAMETER	COMMENT	
LEVEL RANGES		
Full Scale Level Ranges (intermediate level ranges are available)	10 thru 50 ft. (3 thru 15 m) H ₂ O	Vented Gage Reference
Proof Pressure	1.5 x FS	
Burst Pressure	2.0 x FS	
STATIC PERFORMANCE (Combined Errors Due to Nonlinearity, Hysteresis, Non-repeatability, and Thermal Effects over the Compensated Temperature Range)		
Level	±0.01 ft. H ₂ O ±0.10% reading	For reading ≤ 10 ft. (3m) H ₂ O For reading > 10 ft. (3m) H ₂ O
Temperature	±0.5°C	
Excitation	±0.5 VDC	8 to 28 volts
Resolution	±0.0001% FS	
MEASUREMENT RESOLUTION		
Level	±0.0001% FS	
Temperature	±0.001°C	
Excitation	±0.1 VDC	
ENVIRONMENTAL		
Wetted Materials	316 SS or Titanium; POM; FKM Polyurethane or ETFE	
Compensated Temp Range	0 to 50°C	
Operating Temp Range	-20 to 60 °C	When attached to polyurethane cable
Protection Rating	IP 68, NEMA 6P	
ELECTRICAL		
Excitation	6-28V – VDC output	
Input Current	8 mA max 1.0 mA	Average current during data acquisition Quiescent
Interface	SDI-12, version 1.3, RS-485	SDI-12 protocol
CERTIFICATIONS		
	CE compliant	EN 61326-1:2001 and 61326-2-3:2006
PHYSICAL		
Approximate Weight	0.75 lbs. (340 g) transducer 0.05 lbs./ft. (79 g/m) cable	
Cable Jacket Material	Polyurethane ETFE Armored Polyurethane (optional 859 accessory)	PVC Jacketed steel armored polyurethane
Cable Pull Strength	200 lbs. (90 kg)	Polyurethane
Cable Number of Conductors	4	
Cable Conductor Size	22 AWG	
Cable Seal	Molded Polyurethane FKM Gland	For polyurethane cable For ETFE cable
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 and Removable Cable Options

ELECTRICAL TERMINATION		
22AWG CONDUCTORS IN A SHIELDED CABLE WITH VENT TUBE		
SDI-12	RED	+ SUPPLY
	BLACK	- SUPPLY
	WHITE	SIGNAL
RS-485	RED	+ SUPPLY
	BLACK	- SUPPLY
	WHITE	RS485-A
	GREEN	RS485-B
ALL	DRAIN WIRE	SHIELD

MODEL		REMOVABLE CABLE	
8	5	9	
↓	↓	↓	
		MATERIAL	
		S	Stainless Steel
		T	Titanium
		OUTPUT	
		C	SDI-12
		D	RS 485 w/SDI-12 protocol
		ELECTRICAL CONNECTION	
		0	Molded cable seal
		A	Gland cable seal
		CABLE TYPE	
		1	Polyurethane
		2	ETFE (Connection A Only)
		4	Armored (Connection O Only; 200 Feet Max)
		CABLE LENGTH	
		#	#
		#	#
		#	(in feet)
8	5	9	

Ordering Information

MODEL		SUBMERSIBLE LEVEL TRANSDUCER	
5	0 1	±0.01 ft. H ₂ O Accuracy	
↓	↓ ↓	MATERIAL	
		S	Stainless Steel
		T	Titanium
		↓	REFERENCE FORMAT
		1	Vented gage
		↓	OUTPUT
		C	SDI - 12
		D	RS 485 w/SDI-12 protocol
		↓	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
		R	Removable Cable
		↓	LIGHTNING PROTECTION
		A	None
		B	Full Lightning Protection
		↓	LEVEL RANGE (at MAX output in PSI)¹
		# # # . # # #	LEVEL RANGE (at MIN output in PSI)¹
		↓ ↓ ↓ . ↓ ↓ ↓	↓ ↓ ↓ . ↓ ↓ ↓
			MOISTURE PROTECTION
		A	None (Electrical Connection "R" Only)
		B	Vent Filter
		D	Stainless Steel Vent Filter
		↓	CABLE TYPE
		0	Removable (See Note 3)
		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:**
- 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)
 - Units of measure on standard MEAS label. Contact Measurement Specialties if private labeling is required.
 - Armored Cable must utilize Electrical Connection R only.
 Armored cable must be ordered as separate 859 Removable Cable Assembly Part Number (see guide on page 3).

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