

# KPSI 710



- Submersible Level Transducer
- $\pm 0.50\%$  FSO Static Accuracy
- Custom Built in Two Days
- Two Year Warranty



## DESCRIPTION

The MEAS KPSI 710 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.

All MEAS 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 316 stainless steel or titanium. The attached electrical cable is custom manufactured and includes Kevlar® 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 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
- Custom Level Ranges up to 700 ft (210m) H<sub>2</sub>O
- Multiple Analog Outputs
- Multiple Nose Piece Styles
- Optional Lifetime Lightning Protection
- Shipped with Long Life Vent Filter

## APPLICATIONS

- Lift Stations
- Pump Control
- Level Control
- Surface Water Monitoring
- Landfill Leachate
- Well Monitoring
- Groundwater Monitoring

## SPECIFICATIONS

Parameter	Comment	
<b>LEVEL RANGES</b>		
Full Scale Level Ranges (intermediate level ranges are available)	2.3 thru 700 ft H <sub>2</sub> O (0.70 thru 210 m H <sub>2</sub> O)	Vented Gage Reference
	10 thru 700 ft H <sub>2</sub> O (3 thru 210 m H <sub>2</sub> O)	Sealed Gage Reference
	35 thru 700 ft H <sub>2</sub> O (10 thru 210 m H <sub>2</sub> O)	Absolute Gage Reference
	Proof Pressure	1.5 x FS
Burst Pressure	2.0 x FS	

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## SPECIFICATIONS

### STATIC PERFORMANCE

Static Accuracy (combined effects of non-linearity, hysteresis and repeatability, best fit straight line method)	±0.50% FSO	BFSL method
Resolution	+0.0001% FS	

### ENVIRONMENTAL

Wetted Materials	316 SS or Titanium; Delrin®; polyurethane or Viton®	Delrin® and Viton® are registered trademarks of DuPont.
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	worst case over compensated temperature range for ranges < 12 ft (4 m) H <sub>2</sub> 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	0-5V, 0-2.5V, 0-4V
	9-28V – mA output	4-20
	15-28V – VDC output	0-10V
	10-28V – VDC output	1.5-7.5V
Input Current	20 mA max	for mA output
	3.5 mA max	for VDC output
Output	4-20mA, 0-5 VDC, 0-2.5VDC, 0-4VDC, 0-10VDC, 1.5-7.5VDC	for ranges < 5 ft (1.5m) H <sub>2</sub> 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 61326-1:2001 and 61326-2-3:2006
	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)	ETFE is a fluoropolymer (Teflon® derivative) material, Tefzel® or equivalent. Tefzel®, Teflon® and Kevlar® are registered trademarks of DuPont.
Cable Pull Strength	200 lbs (90 kg)	
Cable Number of Conductors	4	
Cable Conductor Size	22 AWG	
Cable Seal	Molded Polyurethane Viton® Gland	for polyurethane cable for ETFE cable

### TEMPERATURE OUTPUT OPTION (not intrinsically safety approved)

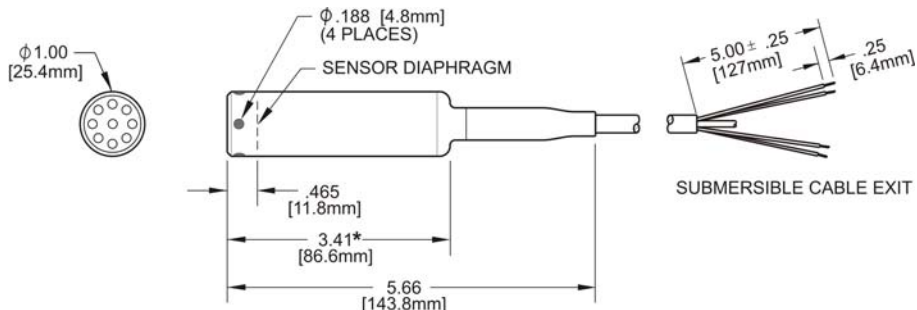
Temperature Range	-20 to 60°C	available for 4-20mA output versions only
Output Signal	4-20mA	
Temperature Measurement Accuracy	±4°C	

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

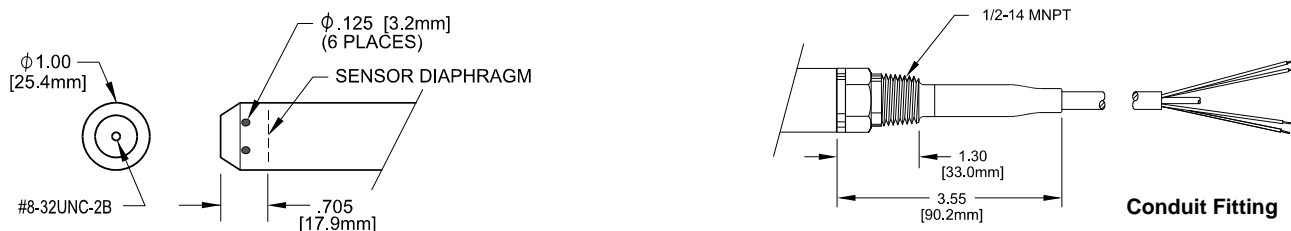
Life Expectancy	>1,000 Operations	
Peak Clamping Voltage	36 Volts	
Response Time	<10 nsecs	
Shunts	20,000 Amperes	

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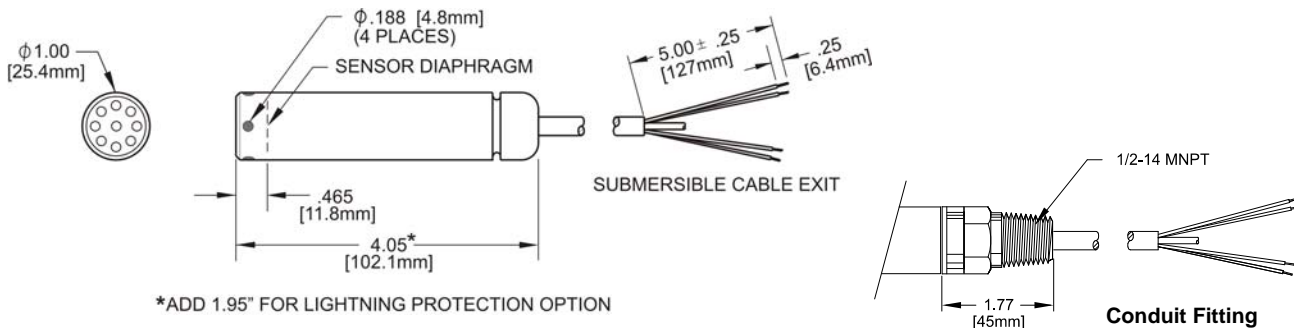
## DIMENSIONS



\*ADD 1.95" FOR LIGHTNING PROTECTION OPTION



Molded Cable Seal Configuration for Polyurethane Cable

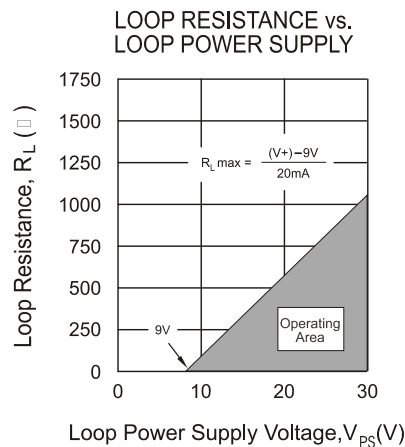


\*ADD 1.95" FOR LIGHTNING PROTECTION OPTION

Gland Cable Seal Configuration for ETFE cable

## ELECTRICAL TERMINATION / LOOP RESISTANCE / CERTIFICATIONS

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



# KPSI 710

## ORDERING INFORMATION

MODEL	SUBMERSIBLE LEVEL TRANSDUCER									
7 1 0	±0.50% FSO Static Accuracy									
↓ ↓ ↓	<b>MATERIAL</b>									
	S Stainless Steel									
	T Titanium									
↓	<b>REFERENCE FORMAT</b>									
	1 Vented gage									
	3 Sealed gage									
	4 Absolute									
↓	<b>OUTPUT</b>									
	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									
↓	<b>PRESSURE CONNECTION</b>									
	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									
↓	<b>ELECTRICAL CONNECTION</b>									
	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									
↓	<b>LIGHTNING PROTECTION</b>									
	A None									
	B Full Lightning Protection									
↓	<b>LEVEL RANGE (at MAX output)<sup>1</sup></b>					<b>LEVEL RANGE (at MIN output)<sup>1</sup></b>				
	#	#	#	#	#	#	#	#	#	#
	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	<b>MOISTURE PROTECTION</b>									
	A None (sealed/absolute only)									
	B Vent Filter									
	C Aneroid Bellows									
↓	<b>CABLE TYPE</b>									
	1 Polyurethane									
	2 ETFE									
↓	<b>CABLE LENGTH</b>									
	#	#	#	#	#	(in feet)				
	↓	↓	↓	↓	↓	↓				
						<b>LABEL<sup>2</sup></b>				
						A psi				
						B ft H <sub>2</sub> O				
						C m H <sub>2</sub> O				
						↓				
7 1 0										

**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 H<sub>2</sub>O / 2.3073 = psi  
 m H<sub>2</sub>O / 0.703265 = psi

Examples: 10 ft H<sub>2</sub>O / 2.3073 = 4.334 psi  
 10m H<sub>2</sub>O / 0.703265 = 14.219 psi

(enter 004.334 in the part number)  
 (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 H<sub>2</sub>O / 2.3073 + 14.7 = 19.034 psi

(enter 019.034 in the part number)

2 Units of measure on standard PSI label. Contact PSI if private labeling is required.

### NORTH AMERICA

Measurement Specialties, Inc.  
 1000 Lucas Way  
 Hampton, VA 23666  
 USA  
 Tel: 1-757-766-1500  
 Fax: 1-800-745-8008  
 Sales: [pvq.cs.amer@meas-spec.com](mailto:pvq.cs.amer@meas-spec.com)

### EUROPE

Measurement Specialties (Europe), Ltd.  
 26 Rue des Dames  
 78340 Les Clayes-sous-Bois  
 France  
 Tel: +33 (0) 130 79 33 00  
 Fax: +33 (0) 134 81 03 59  
 Sales: [pfg.cs.emea@meas-spec.com](mailto:pfg.cs.emea@meas-spec.com)

### ASIA

Measurement Specialties (China), Ltd.  
 No. 26 Langshan Road  
 Shenzhen High-Tech Park (North)  
 Nanshan District, Shenzhen 518057  
 China  
 Tel: +86 755 3330 5088  
 Fax: +86 755 3330 5099  
 Sales: [pfg.cs.asia@meas-spec.com](mailto:pfg.cs.asia@meas-spec.com)

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