



APPLIED MEASUREMENTS LTD.
Transducer Specialists...

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Pa993 Submersible Depth Sensor

Key Features:

- Ranges 0 - 0.5mWG up to 0-100mWG
- Output Options: 4-20mA, 0-5V, 0-10V or 0.5-4.5V Ratiometric
- Environmental Protection: IP68 to 100 metres
- Accuracy: $<\pm 0.25\%$ /FS (Optional 0.1% and 0.15% Versions)
- Factory Scaled/Calibrated Output
- Ø23mm Diameter Body
- Lightning (Surge) Protection
- Excellent Long Term Stability
- Temperature Compensated
- Outstanding Performance
- 3 Year Warranty



The [Pa993 submersible depth sensors](#) are designed for use in rivers, reservoirs, tanks, boreholes, vessels and channels. They are also suitable for the measurement of pressure within submerged pipes and vessels.

The Pa993's robust body and moulded cable exit with vented polyurethane (PUR) cable and internal strain wire provide a high integrity fully waterproof IP68 assembly as standard, which enables the Pa993 depth sensor to withstand environmental pressures of up to 10bar (100mWG) on a permanent basis.

The Pa993 submersible depth sensors are manufactured from 316 Stainless Steel and utilise a highly stable piezo-resistive silicon sensing element, coupled with a cutting edge 16-bit microprocessor, linearisation and temperature compensation to achieve high accuracy in all applications.

The standard submersible level transmitter output is a 2-wire 4-20mA signal which has a surge protection circuit to protect against the effects of electrical transients created by nearby lightning strikes and power fluctuations. For applications where data loggers are to be used, a ratiometric version is available which offers a 0.5-4.5Vdc output from a 5Vdc supply and draws just 2.5mA of current.

The Pa993 series offer rugged construction, excellent long term stability and performance. To further support our assurance of long term reliability we offer the product as standard with a 3-year warranty. In addition, we can offer customisation of the depth sensor to meet your specific requirements, please contact our [technical sales team](#). [See our range of depth sensors](#).

Options:

- Special Ranging Available
- Internal PT100 Temperature Sensor
- Extended Temperature Ranges Available
- Different Cable Lengths
- Higher Accuracy 0.1% and 0.15% Versions Available
- Seawater Compatible Version Available
- SDI-12 Output - [See Pa993D](#)
- Absolute or Sealed Gauge Versions

Applications:

- Rivers
- Reservoirs
- Tanks and Channels
- Submerged Pipes and Vessels
- Fountains
- Boreholes
- Pots
- Waters







Specification:






CHARACTERISTICS	Pa9930	Pa9931	Pa9932	Pa9933	Pa9934	UNITS
Pressure Ranges:	0.5, 1, 2.5, 5, 10, 20, 25, 50, 75, 100					metres Water Gauge (mWG)
Safe Overpressure:	150					% Pressure Range
Burst Pressure:	300					% Pressure Range
Rated Output:	2mV/V	4-20mA	0-5Vdc	0-10Vdc	0.5-4.5Vdc ratiometric	
Wiring Configuration:	4-wire	2-wire	3-wire	3-wire	3-wire	
Supply Voltage:	2-10	8-32	8-32	12-32	5 (2.7-5.5)	Volts DC
Load Driving Capacity:	N/A	1000	N/A	N/A	N/A	Ohms at Max. Supply Voltage
Electrical Connections:	Screened polyurethane (PUR) cable with vent tube, strain and drain wire					
Accuracy:	<0.25 (0.1 or 0.15 optional)					±% Pressure Range
Temperature Range Operating:	-10 to +60 (non-freezing media only)					°C
Temperature Range Compensated:	20±20					°C
Temperature Effect on Output:	<0.015					±%/°C
Temperature Effect On Zero:	<0.02 (0.01 optional)					±%/rated output/°C
Environmental Protection:	IP68 to 100mWG (10bar) Moulded Cable Exit					
Weight:	270 approx. (excluding cable) / Cable = 48/metre					grams
Construction:	316L St/Steel, Viton + PUR (NBR + EPDM Seals optional)					
Electrical Protection:	EMC Immunity: EN50082-1 & Surge (Lightning) Protection: EN61000-4-5					
Supply Reverse Polarity Protection:	No damage, but also no function					

Wiring Diagram:






4-20mA Output (2-wire)

Wire	Designation
 Red	+ve supply
 Blue	-ve supply & 4-20mA output in series
 White	to case
 Green	cable screen

0.5-4.5Vdc, 0-5Vdc, 0-10Vdc Output (3-wire)

Wire	Designation
 Red	+ve supply
 Blue	-ve supply
 Yellow	+ve signal
 White	to case
 Green	cable screen

mV/V Output (4-wire)

Wire	Designation
 Red	+ve excitation
 Blue	-ve excitation
 White	+ve signal
 Yellow	-ve signal
 Green	cable screen



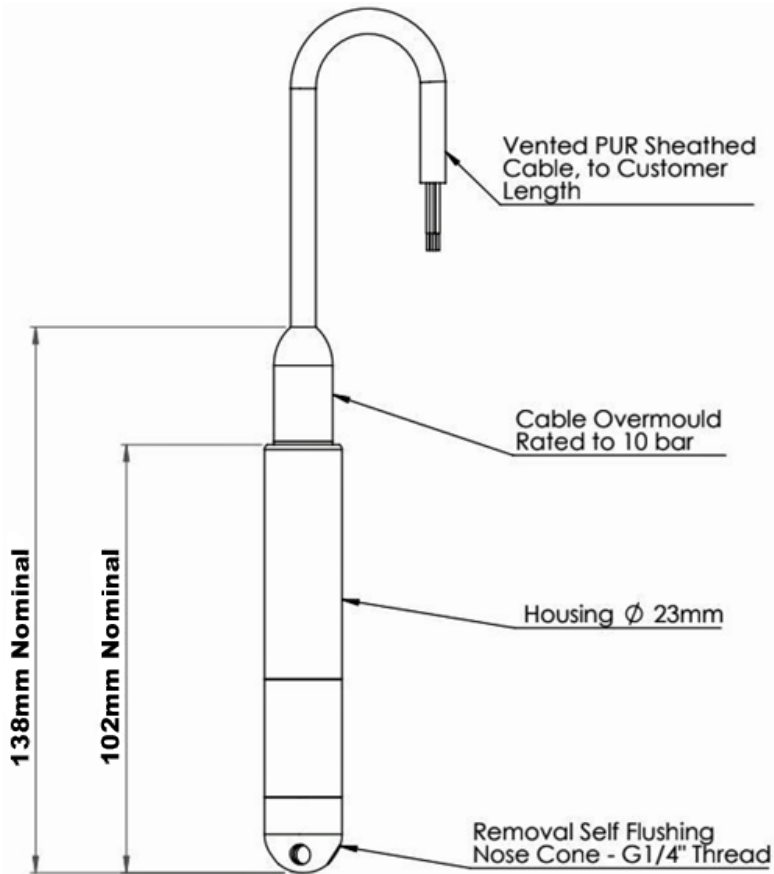
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Dimensions (mm):



Associated Products:



[FUSION Large Digital Display](#)



[T24 Wireless Telemetry Range](#)



[Intuitive4-P Panel-Mount Indicator](#)



[DSC-USB USB Signal Digitiser](#)



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Ordering Codes:

Pa9931-10mWG-A2AAV-01-000	Pa993	1	-	10mWG	-	A	2	A	A	V	-	01	-	000
<i>Example Code</i>														
Product Family														
Pa993	Pa993													
Electrical Output														
0 = 2mV/V		0												
1 = 4-20mA (2-wire)		1												
2 = 0-5Vdc (3-wire)		2												
3 = 0-10Vdc (3-wire)		3												
4 = 0.5-4.5Vdc Ratiometric (3-wire)		4												
Pressure Range														
10mWG = 0 to 10 metres of water gauge (H2O)				10mWG										
10mWA = 0 to 10 metres of water absolute (H2O)				10mWA										
10mWSG = 0 to 10 metres of water sealed gauge (H2O)				10mWSG										
Accuracy (Non-Linearity & Hysteresis)														
A = $\pm 0.25\%/FS$						A								
B = $\pm 0.1\%/FS$						B								
C = $\pm 0.15\%/FS$						C								
Zero Temperature Compensation (TZS)														
2 = $\pm 0.02\%/FS/^{\circ}C$							2							
1 = $\pm 0.01\%/FS/^{\circ}C$							1							
Process Connection														
A = Nose Cone								A						
B = G1/4" Male								B						
Housing Material														
A = 316 Stainless Steel									A					
O-Ring Material														
V = Viton (FKM)										V				
N = Nitrile (NBR)										N				
E = EPDM (Drinking Water Approved)										E				
Cable Length (in metres)														
01 = 1 metre												01		
10 = 10 metres												10		
Specials Code														
000 = No Special Requirements														000