

Series VTHP510 Ultra-high Pressure Transducer

Sputtering Thin Film Pressure Sensor | Micro Fused Pressure Sensor

Features

- Heavy Industrial
- Integral Pressure Cavity, No leakage
- Reverse Polarity Protection on Input
- Short Circuit Protection on Output
- Up to $\pm 0.1\%$ Accuracy
- Up to $\pm 1.0\%$ Total Error Band
- -40°C to $+125^{\circ}\text{C}$ Operating Temperature

Specification

- High Accuracy
- Compact
- Variety of Pressure Ports and Electrical Configurations
- CE Compliant and Weatherproof
- Excellent Stability

Applications

- Water jet cutting; water knife cutting
- Test-bed
- Large hydraulic press
- Ultra-high booster pump
- High-pressure pasteurization; pasteurization
- High pressure cleaning

Accuracy

$\pm 0,25\% \text{FS}$, $\pm 0,25\% \text{FS}$, $\pm 0,25\% \text{FS}$

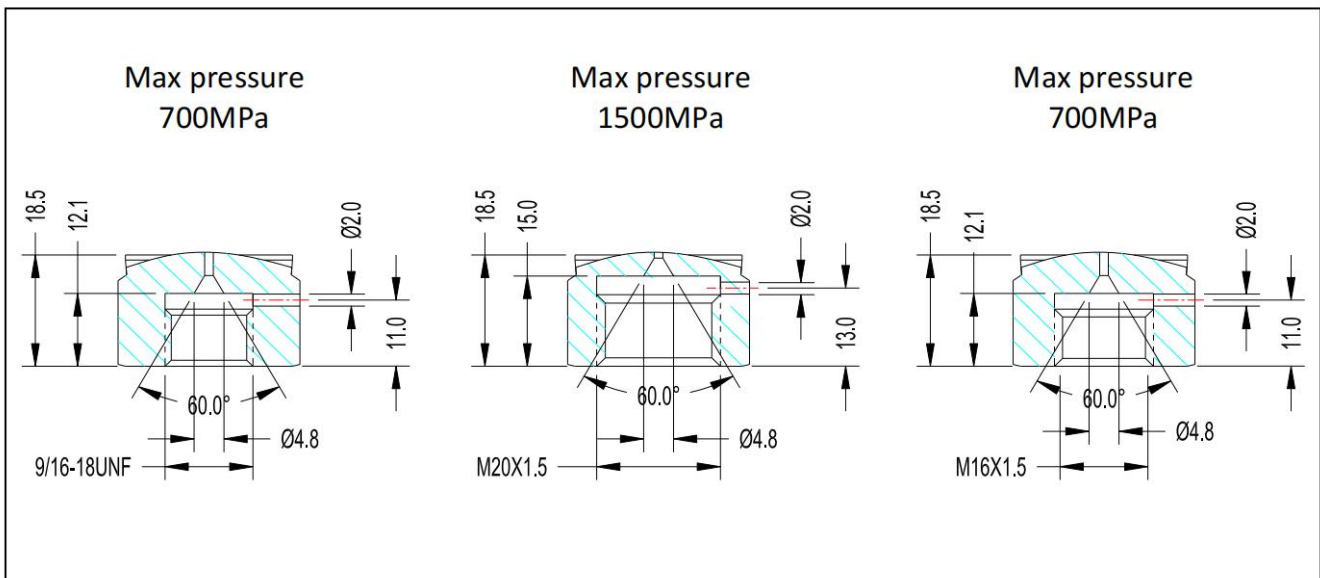
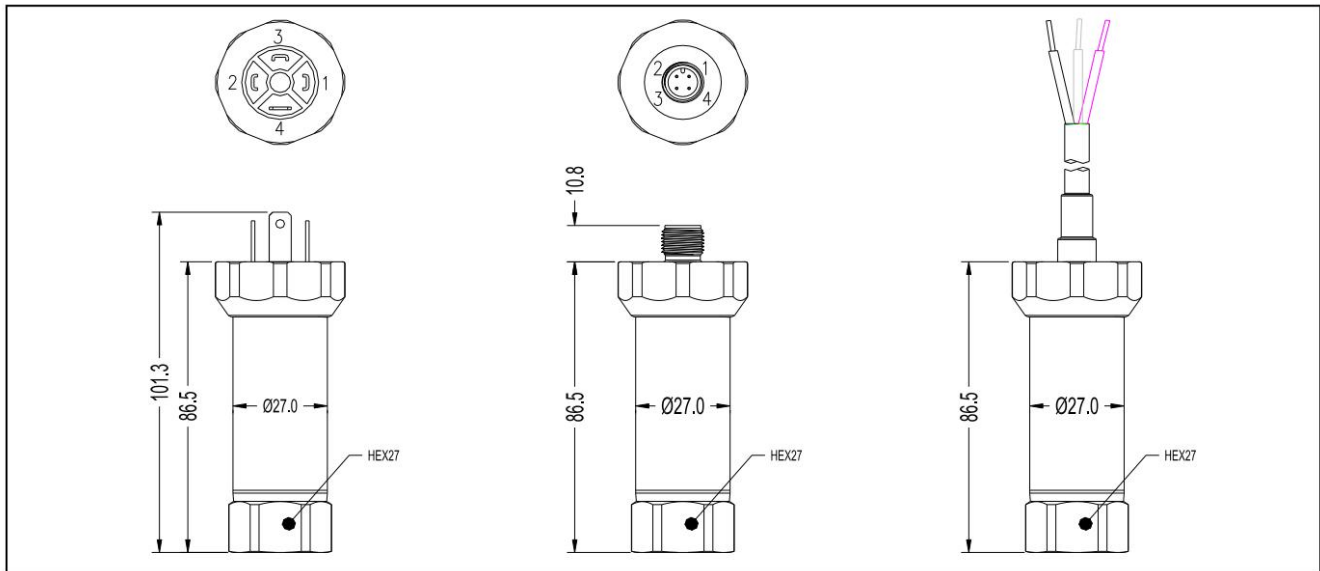
Total error band

$\pm 0,5\% \text{FS}$ @ $0...70^{\circ}\text{C}$

Pressure ranges

$0...1600$ bar to $0...10000$ bar





Standard pressure ranges

Measuring Method	Range (psi)	Range (Bar)	Gage	Sealed	Absolute	Compound	
Metal Thin-film pressure sensor or Micro-fused pressure sensor (Relative pressure)	0...160	0...1600	•				
	0...250	0...2500	•				
	0...350	0...4000	•			•	
	0...500	0...5000	•			•	
	0...750	0...7000	•			•	
	0...1000	0...10000	•			•	
Consult manufacture to custom order, S							

Series VTHP510 Pressure Transducer

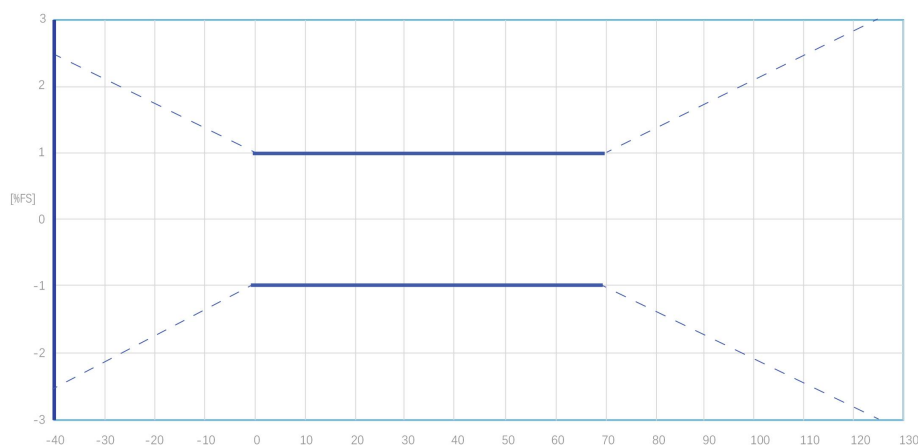
PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Accuracy (Combined Non-linearity, hysteresis, and repeatability)	-1.5	±0.75	1.5	%F.S. BFSL	>750Mpa
	-1	±0.5	1	%F.S. BFSL	<750Mpa
	-0.5	±0.25	0.5	%F.S. BFSL	<500Mpa
	-0.25	±0.1	0.25	%F.S. BFSL	<250Mpa
Zero Error	-0.5	±0.5	0.5	%F.S. BFSL	@25°C
Full Scale Error	-0.5	±0.5	0.5	%F.S. BFSL	@25°C
Isolation, Body to any Lead	100			MΩ	@250VDC
Pressure Cycles	1X10 ⁷			0~FS Cycles	
Proof Pressure	2X		1500 bar		Rated. Not exceeding the thread connection strength
Burst Pressure	3X		1500 bar		
Long Term Stability (1 year)	-0.25		0.25	%F.S.	
Total Error Band	-1	±1.0	1	%F.S.	Over compensated temperature range
Compensated Temperature	0		70	°C	
Operating Temperature	-40		+125	°C	Except cable 105°C MAX
Storage Temperature	-40		+125	°C	Except cable 105°C MAX
Load Resistance (RL)	RL > 100k			Ω	Voltage Output
Load Resistance (RL)	< (Supply Voltage -9V) / 0.02A			Ω	Current Output
Current Consumption			10	mA	Voltage Output
Rise Time (10% to 90%)	<2ms (Voltage Output); <3ms (Current Output); Without Snubber				
Pressure Port Material	17-4PH				
Shock	50g, 11msec Half Sine Shock per MIL-STD-202G, Method 213B, Condition A				
Vibration	±20g, MIL-STD-810C, Procedure 514.2-2, Curve L				

Total error band

The graph opposite shows the maximum deviation across the entire medium temperature range (-20...125 °C, optional: -40...125 °C).

Within the compensated pressure and temperature range, the total error has a maximum value of 0,5 %FS (0...70 °C)

Experience shows that outside the compensated temperature range, total error increases linearly by 0,04 %FS/K.



Compensated Temperature:

This is the temperature range within which the product will produce an output proportional to pressure, while remaining within the specified performance limits.

Operating Temperature:

This is the temperature range within which the product will produce an output proportional to pressure, but it may not remain within the specified performance limits.

Storage Temperature:

This is the temperature range within which the product can be safely stored without pressure applied or power input, while still maintaining its rated performance. Exposure to temperatures beyond this range may cause permanent damage to the product.

All configurations are designed with protection against reverse supply voltage and output short circuits.

Series VTHP510 – Specifications

CODE	OUTPUT SIGNAL	SUPPLYVOLTAGE
1	0.5-4.5V	5±0.25V
	Ratiometric	Protected to 16V
2	1-5V	8-36V
3	4-20mA	9-36V
4	0-5V	8-36V
5	0-10V	13-36V
6	1-6V	8-36V
7	0.5-4.5V	7.5-36V

CODE	CONNECTION TYPE	DIM C (MAX)
1	Cable	1.97 [50.0]
2	Packard A	2.10 [53.5]
3	Packard B	2.10 [53.5]
4	M12	1.71 [43.5]
5	FORMA	1.93 [49.0]
6	FORM C	1.97 [50.0]
7	AMP	2.52 [64.0]

CODE	PRESSURE PORT TYPE		
	PORT	DIMA	DIM B
1	G1/4 JIS B2351	0.472[12.00]	0.3 [8.0]
2	M20x1.5 mm ISO 6149-2	0.661[16.8]	0.3[8.0]
3	1/4-18 NPT	0.600[15.24]	0.3 [8.0]
4	7/16-20UNFFEMALE SAE J513 STRAIGHT THREAD WITH INTEGRAL VALVE DEPRESSOR	0.687[17.5]	0.3 [8.0]
5	M14x1.5 mm ISO 6149-2	0.433[11.0]	0.3 [8.0]
6	1/8-27 NPT	0.390 [9.91]	0.3[8.0]
7	M12x1.5 mm ISO 6149-2	0.433[11.0]	0.3[8.0]
8	M10x1.0 mm ISO 6149-2	0.374 [9.5]	0.3[8.0]
9	G1/4 DIN 3852 FORME GASKETDIN3869-14 NBR	0.512[13.00]	0.3[8.0]

The following wiring definition is commonly used in Mainland China and will need to be determined individually with the European, the UK and the US customers.

CURRENT OUTPUT WIRING					
CONNECTION	+SUPPLY	-SUPPLY	NC. PINS		P REF VENT
Packard, A	A	B	C		Hole Through Connector
Packard, B	B	A	C		
FORM A	1	2	3,4		
M12	1	2	3,4		
CABLE	RED	BLK			
Pipe In Cable					
VOLTAGE OUTPUT WIRING					
CONNECTION	+SUPPLY	+OUTPOT	COMMON	NC. PINS	P REF VENT
Packard, A	A	C	B		Hole Through Connector
Packard, B	B	C	A		
FORM A	1	3	2	4	
M12	1	3	2	4	
CABLE	RED	WHT	BLK		
Pipe In Cable					

Weather-Proof Rating

Connection	P Code
Packard A / B	IP66
Cable	IP67
M12	IP67
Form A	IP65
Form C	IP66
AMP	IP66

Mechanical data

Materials in contact with media

Pressure connection	Stainless steel 17-4 PH
Pressure transducer diaphragm	Stainless steel SUS 316L
Pressure transducer seal (internal)	None
Pressure connection seal (external)	None, metalically sealed

Electrical connections

Round plug	2-wire		3-wire		Valve plug	2-wire		3-wire	
M12 × 1	4...20 mA		0...10 V		Form A	4...20 mA		0...10 V	
	1	+Vs	1	+Vs		1	n.c.	1	GND
	2	n.c.	2	n.c.		2	OUT/GND	2	+OUT
	3	OUT/GND	3	+OUT		3	+Vs	3	+Vs
	4	n.c.	4	GND		↓	Case	↓	Case

Series VTHP510 – Ordering Information

Example	VTHP510-341011500MA	VTHP510	3	4	1	0	1	1	500M	A
Model Code VTHP510 Pressure Transducer										
Output	1	0.5-4.5V RATIO METRIC								
	2	1-5V								
	3	4-20mA								
	4	0-5V								
	5	0-10V								
	6	1-6V								
	7	0.5-4.5V								
	x	Customization								
Connection	1	Cable								
	2	Packard A								
	3	Packard B								
	4	M12								
	5	FORM A								
	6	FORM C								
	7	AMP								
	8	Customization								
Port Material	1	316L								
	2	17-4 PH								
	X	Customization								
Snubber	0	No Snubber								
	1	With Snubber								
Label	0	No Label (OEM)								
	1	Adhesive Label								
	2	Laser Marking								
Pressure Port	1	M16 x 1.5								
	2	M20 x 1.5								
	3	9/16-18UNF								
	4	7/16-20UNF FEMALE SAE								
	5	M14 x 1.5								
	6	1/8-27 NPT								
	7	M12 x 1.5								
	8	M10 x 1.0								
	9	G1/4 DIN 3852								
	A	G3/8 JIS B2351								
	X	Customer Specia								
Pressure Range	B	Bar								
	M	Mpa								
	P	PSI								
	K	Kpa								
Accuracy	A	± 0.1% F.S.								
	B	± 0.25% F.S.								
	C	± 0.5% F.S.								