

SPA 401

Piezoresistive Silicon Pressure Sensor Module

- Calibrated and compensated
- With media separation
- Vacuum resistant
- O - ring mounting



Applications

- Industrial
- Vacuum technology
- Pneumatic and hydraulic components (e.g. valves, pumps)
- Level measuring (e.g. environmental technology)

Specifications

All parameters are measured at supply voltage 5V reference conditions unless otherwise specified

Standard Pressure Ranges											
PSI ¹⁾	bar	Output signal (Offset)		Output signal (FSO)		Proof pressure [PSI ¹⁾ /bar]		Negative pressure [PSI ¹⁾ /bar]		Burst pressure [PSI ¹⁾ /bar]	
			@ Vs = 5 V		@ Vs = 5 V						
1.5	0.1	10 % Vs	0.5 V	90% Vs	4.5 V	15	1	-15	-1	22	≥ 1.5
3	0.2					30	2	-15	-1	45	≥ 3
5	0.35					30	2	-15	-1	45	≥ 3
15	1					75	5	-15	-1	112	≥ 7.5
30	2					150	10	-15	-1	225	≥ 15
50	3.5					250	17.5	-15	-1	375	≥ 25
100	7					500	35	-15	-1	750	≥ 50
Supply / Performance											
				min.		typ.		max.			
Supply voltage Vs [V]				2.7		5.0		5.5			
Current consumption [mA]				2.5 max.							
Linearity [% FSO BFSL]				- 0.25		± 0.1		0.25			
Hysteresis [%FSO]				- 0.1		± 0.05		0.1			
Output load resistance [kΩ]				≥ 5							
Insulation resistance [MΩ]				50 (between housing and sensor chip) @ 50 V _{DC}							

¹⁾ PSI values around rounded and for reference only

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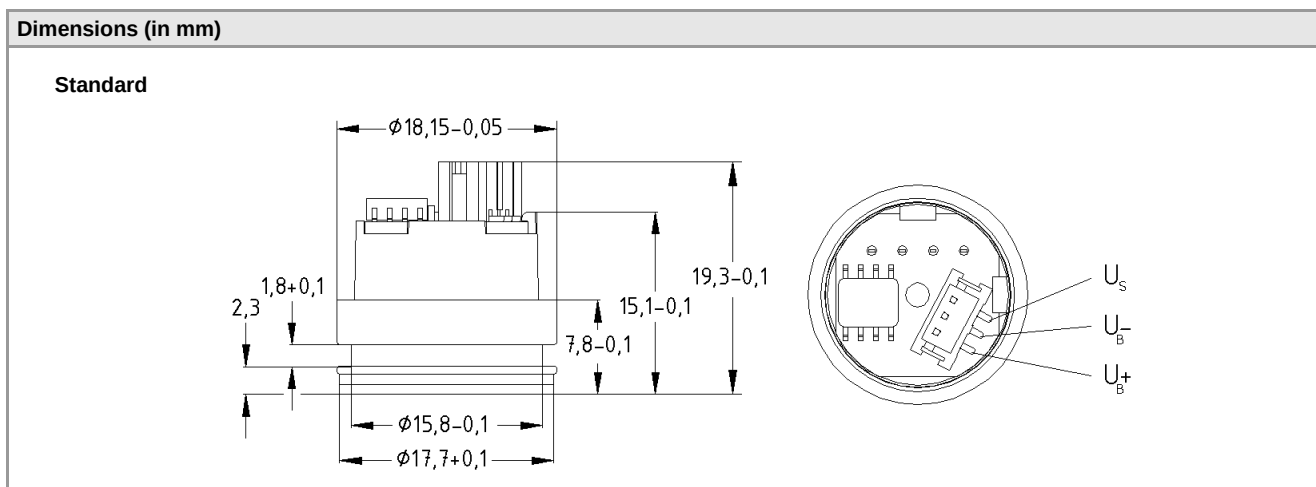
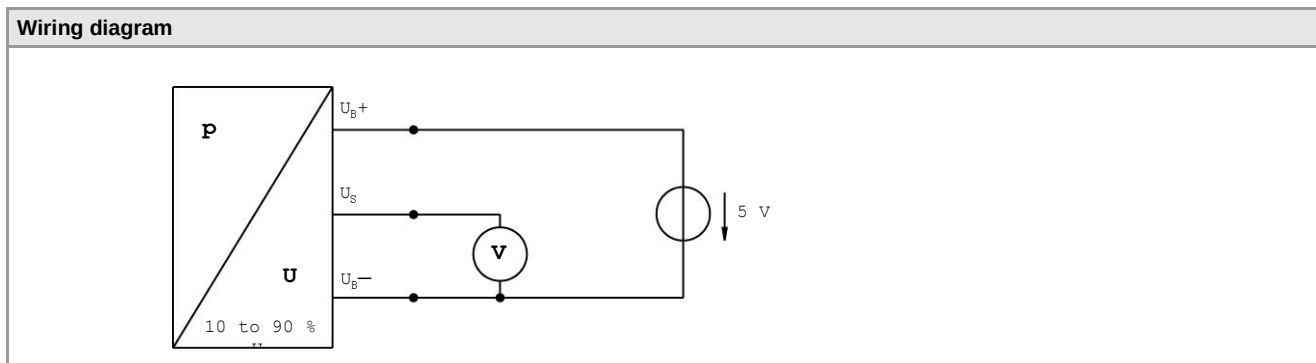
Piezoresistive silicon pressure sensor

Specifications

Thermal errors			
		$p_n \leq 5 \text{ psi}$	$p_n \leq 5 \text{ psi}$
Thermal error offset ³⁾	[% FSO]	$\leq \pm 1.0$	$\leq \pm 0.75$
Thermal error span ³⁾	[% FSO]	$\leq \pm 1.0$	$\leq \pm 0.75$
		0 to 70 °C (32 to 158 °F)	0 to 85 °C (32 to 185 °F)
Operating temperature ranges			
Media	-40 to 125 °C (-40 to 257 °F)		
Storage	-40 to 125 °C (-40 to 257 °F)		

Mechanical stability	
Vibration	10 g RMS (20 to 2000 Hz)
Schock	100 g / 11 ms
Electrical connections	
Standard	JST connector

Materials / Filling fluids	
Housing	Stainless steel 316L (1.4404)
Diaphragm	Stainless steel 316L (1.4435)
Media wetted parts	Housing, diaphragm
Filling liquid	Silicone oil
Miscellaneous	
Installation position	any ³⁾
Protection class	IP 00
Weight	Standard: approx. 10 g
Sealing	O-Ring 15.5 x 1.5 (material: FKM)



²⁾ error band within the compensated temperature range

³⁾ The sensors are calibrated with the face down diaphragm. By changing the mounting position the offset can shift a little for pressure ranges $p_n \leq 15 \text{ psi}$.

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Specifications

Ordering Codes

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Type of pressure												
gauge G												
Pressure range												
1.5 psi / 100 mbar	P	L	1	5								
3 psi / 200 mbar	P	0	0	3								
5 psi / 350 mbar	P	0	0	5								
15 psi / 1 bar	P	0	1	5								
30 psi / 2 bar	P	0	3	0								
50 psi / 3.5 bar	P	0	5	0								
100 psi / 7 bar	P	1	0	0								
Special pressure ranges	9	9	9	9								
Electrical connection												
JST connector					Y	M	E					
others					9	9	9					
Housing material												
Stainless steel 1.4404								8				
others								9				
Diaphragm material												
Stainless steel 1.4435								1				
others								9				
Sealing												
FKM								1				
others								9				
Filling liquid												
Silicone oil								1				
others								9				
Design												
Standard								0	1			
others								9	9			
Special versions												
Standard										0	0	0
others										9	9	9

Subject to change without advance notice