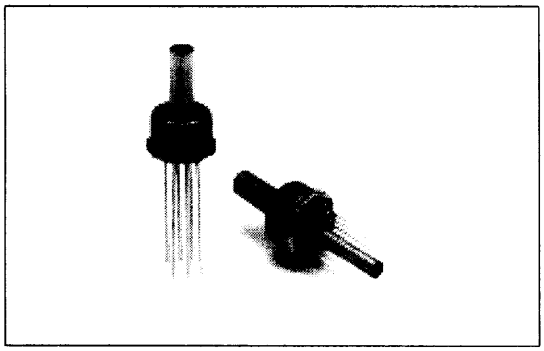
NovaSensor®
NPH Series Solid State Pressure Sensor (Low Pressure)

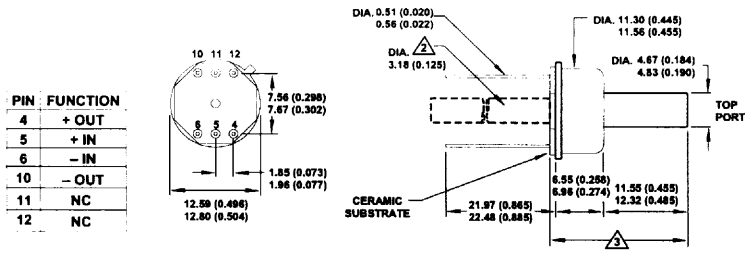


Description

The NPH sensor incorporates a micromachined and ion-implanted piezoresistive silicon sensor die into a metal can package that is PC board mountable. This low pressure sensor is available in the 2.5 kPa (10 inch of water), 7 kPa (1 psi) and 30 kPa (4.3 psi) pressure ranges. All sensors use the SenStable technology that enables the NPH sensor to have excellent output stability. The offset is calibrated and the output is temperature compensated from 0°C to 70°C.

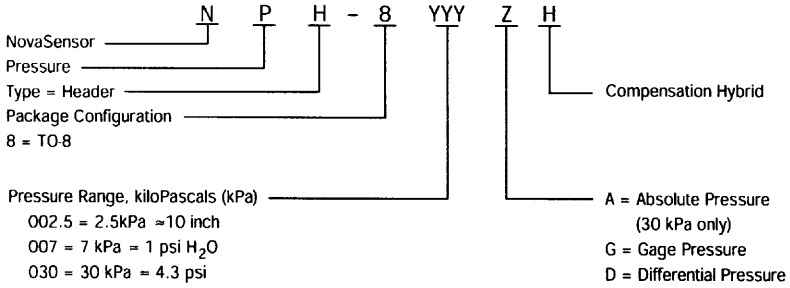
Package Dimensions

PIN	FUNCTION
4	+ OUT
5	+ IN
6	– IN
10	– OUT
11	NC
12	NC



Notes:
1. All dimensions in millimeters (inches).
2. Backside differential tube is 17.145 ±0.254 (0.675 ±0.010) long, measured from back of header to tip, not from backplane of ceramic to tip.
3. Length is 19.33 –0.635/+0.889 (0.761 –0.025/+0.035) for gage type and 19.33 – 0.635/+1.40 (0.761 –0.025/+0.055) for differential type.
4. Do not reverse power polarity!

Ordering Information



Applications

- Process Control, P-to-I Converters
- Pneumatic Control Systems
- HVAC Controls
- Biomedical: Infusion Pumps, Sphygmomanometers, Respirators
- Altimeters, Barometers, Cabin Pressure Sensors

Features

- Solid State, High Reliability
- Temperature Compensated
- 10 inch, 1 psi and 5 psi pressure ranges
- PC Board Mount
- Small Size

Operating Characteristics

PARAMETER	VALUE	UNITS	NOTES
GENERAL			
Pressure Range	2.5	kPa	≈ 0–10" H2O
	7	kPa	≈ 0–1 psi
	30	kPa	≈ 0–5 psi
Maximum Pressure	5x		rated pressure[8]
ELECTRICAL @ 25°C (77°F) unless otherwise stated			
Input Excitation	1.5	mA	2mA max.
Insulation Resistance	10^7	Ω	@ 50 V_{DC}
Input Impedance (10", 1PSI)	3,200	Ω	± 25%
Input Impedance (30kPa)	4,000	Ω	± 20%
Output Impedance	5,000	Ω	± 20%
Bridge Impedance	5,000	Ω	± 20%
ENVIRONMENTAL			
Temperature Range			
Operating[9]	–40 to +125	°C	–40° to +257°F
Compensation Range	0 to +70	°C	+32° to +158°F
Vibration	10	g_{RMS}	20 to 2000Hz
Shock	100	g	11 milliseconds
Life (Dynamic Pressure Cycle)	1×10^6	cycles	
MECHANICAL			
Weight	<5	grams	<0.2 oz.
Media Compatibility	Noncorrosive gases and dry air		
Wetted Materials Top Port:	Nickel, gold plated Kovar, silicone gel, gold wire, RTV, silicon & glass.		
Bottom Port:	Gold plated Kovar, silicon, glass and RTV.[10]		

PERFORMANCE[7] — **COMPENSATED[1]**

		2.5 kPa			7 & 30 kPa			
PARAMETER	UNITS	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	NOTES
Offset	mV	–8	± 2	8	–4	± 2	4	
Full Scale Output								
2.5 kPa	mV	25	50	90				2
7 kPa	mV				50	75	150	2
30 kPa	mV				75	100	125	2
Linearity	%FSO	–1.0	0.1	1.0	–0.25	0.05	0.25	3
Hysteresis and Repeatability	%FSO	–0.2	0.05	0.2	–0.2	0.05	0.2	
Thermal Accuracy of Offset	%FSO	–3	0.5	3	–2	0.5	2	4
Thermal Accuracy of FSO	%FSO	–3	–1	3	–1.5	–0.5	1.5	4
Thermal Hysteresis	%FSO	–0.75	±0.5	0.75	–0.5	±0.2	0.5	5
Short-Term Stability of Offset	µV/V		±25			±25		6, 11

Notes:
1. Performance with offset, thermal accuracy of offset, and thermal accuracy of FSO compensation resistors.
2. FSO measured with 1.5mA input excitation.
3. Best fit straight line.
4. 0 to +70°C with reference to 25°C
5. 0 to +70°C
6. Normalized offset/bridge voltage — one minute.
7. All values measured at 25°C and at 1.5mA, unless otherwise noted.
8. Reduced performance outside compensation range.
9. Backside differential tube is nickel.
10. Top side pressure.
11. Typical specifications are for reference only; absolute values may vary.

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