

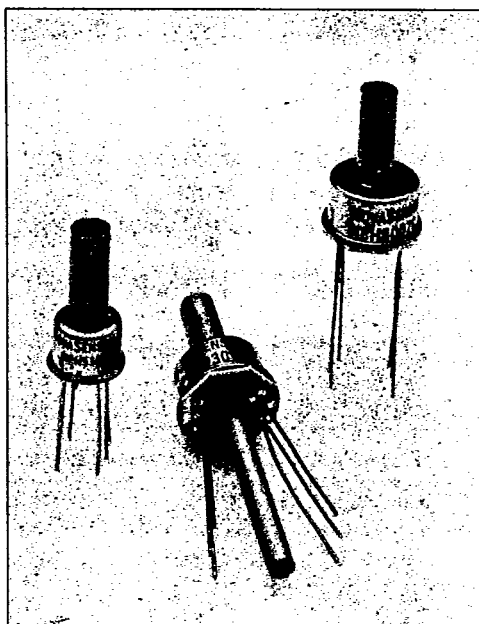
## Nova PH Series

SOLID STATE  
PRESSURE SENSOR

T-65-13

## FEATURES

- ☐ Solid state, high reliability
- ☐ Standard TO-8 or TO-5 package suitable for P.C. board mount
- ☐ Low cost, small size
- ☐ Available in gage, absolute, & differential pressure versions
- ☐ Media compatible with non-corrosive gases and moist air
- ☐ Output signal of 100 mv @1.5 ma
- ☐ Thermal errors 0.5% max
- ☐ Overpressure capability to 4 times maximum rated pressure
- ☐ Four standard pressure ranges: 0-15, 0-30, 0-100 & 0-250 psi  
Low pressure version: 0-1 psi specified on other data sheet
- ☐ Nonlinearity 0.1% max
- ☐ Std. 3/16" OD pressure port
- ☐ Ceramic substrate with temperature compensation resistors is available as standard option with TO-8 package
- ☐ Custom configurations available



Actual Size

## APPLICATIONS

- Process control, P-to-I converters
- Pneumatic control systems
- HVAC controls
- Biomedical: infusion pumps, sphygmomanometers, respirators
- Aerospace: altimeters, barometers, cabin pressure sensors
- Computer peripherals

## DESCRIPTION

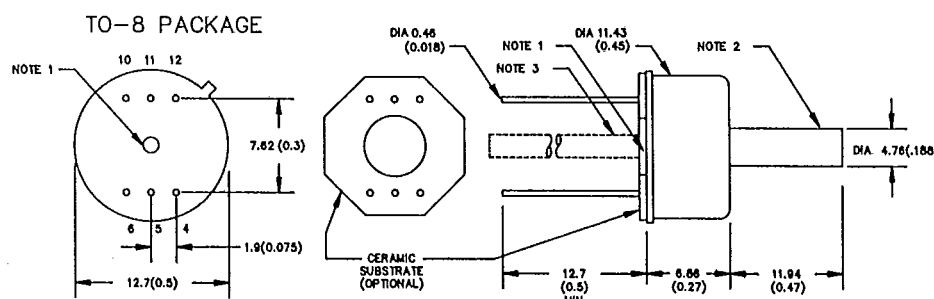
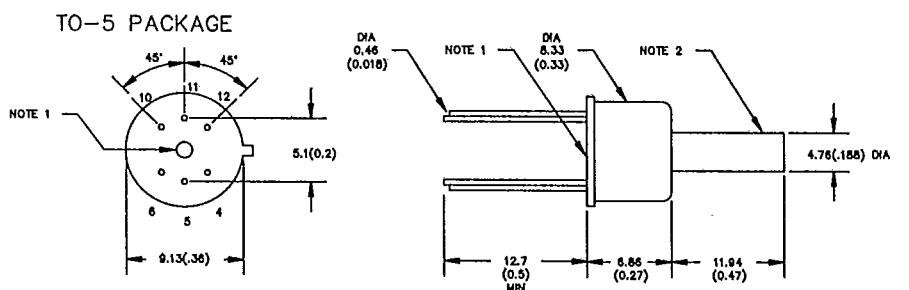
An integrated circuit silicon sensor chip is housed in a standard TO-8 or TO-5 electrical package which is printed circuit board mountable.

The latest techniques in VLSI and micromachining have been used to ion implant piezoresistive strain gages into a Wheatstone bridge configuration which is integrally formed on a micromachined silicon diaphragm. The application of a constant current source to the sensor produces a voltage output that is linearly proportional to the input pressure.

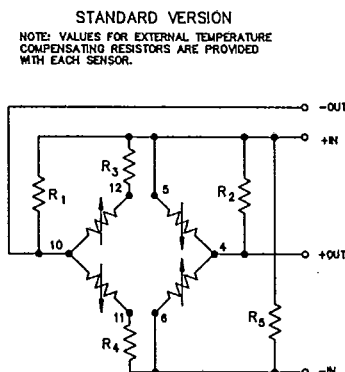
Each sensor is shipped with its specific calibration card. The card lists the resistor values which set the zero offset and full scale output voltages in addition to optimizing the sensor's performance over temperature.

The user can provide standard signal conditioning circuitry to amplify the 100mV output signal. The sensor is compatible with most noncorrosive gases and moist air.

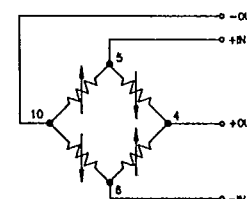
A laser-trimmed, thick film resistor network on hybrid ceramic substrate is available with the TO-8 package.



NOTE 1—GAGE UNITS SUPPLIED WITH HOLE, DO NOT OBSTRUCT.  
NOTE 2—DIFFERENT INPUT PRESSURE PORTS AVAILABLE AS AN OPTION.  
NOTE 3—DIFFERENTIAL VERSION HAS DIA 3.18(0.125) TUBE, 25.4(1.00) LONG  
NOTE 4—DIMENSIONS SHOWN IN MM(INCHES)



## SCHEMATIC DIAGRAMS

COMPENSATED VERSION  
(TO-8 PACKAGE ONLY)

## SPECIFICATIONS

T-65-13

## GENERAL

Parameter	Abbr.	Value	Units	Notes
Pressure Range*	P	0-100	kPa	0- 15 psi
	P	0-200	kPa	0- 30 psi
	P	0-700	kPa	0-100 psi
	P	0-1700	kPa	0-250 psi

Maximum Pressure Pmax 4 times rated pressure

Media Compatibility: Noncorrosive gas and moist air

## ELECTRICAL (@ 25°C (77° F) unless otherwise stated)

Input Excitation	I	1.5	mA	2mA max.
Insulation Resistance	R <sub>iso</sub>	100	MΩ	@ 50 Vdc
Bridge Resistance	R <sub>b</sub>	5000	Ω	± 10% typical

## ENVIRONMENTAL

Parameter	Abbr.	Value	Units	Notes
Temperature Range				
Operating	T <sub>o</sub>	-40 to +125	°C	-40° to +257°F
Compensated	T <sub>c</sub>	0 to +70	°C	+32° to +158°F

Vibration	10	G	20 to 2000 Hz
Shock	100	G	11 milliseconds
Life	100 x 10 <sup>6</sup>	min cycles	

## MECHANICAL

Weight	W	<5	gr	<0.2 oz.
Case Material		Nickel and gold plated Kovar		

\* Other pressure ranges available upon request; please consult factory.

## PERFORMANCE \*\*

Parameter	Value	Units	Notes
Offset	± 2	mV	
Thermal Accuracy - Offset	± 0.5	%FSO	0 to +70°C (with reference to 25°C)
Thermal Accuracy - Fullscale Output	± 0.5	%FSO	0 to +70°C (with reference to 25°C)
Full Scale Output	100 ± 25	mV	@ 1.5 mA
Nonlinearity	± 0.1	%FSO	best fit straight line
Hysteresis	± 0.025	%FSO	
Repeatability	± 0.025	%FSO	
Thermal Hysteresis	± 0.1	%FSO	0 to +70°C (typical)
Long Term Stability - Sensitivity	± 0.1	%FSO	1 year (typical)
Long Term Stability - Offset	± 0.1	%FSO	1 year (typical)

Notes: Performance specifications stated with temperature compensation resistors.

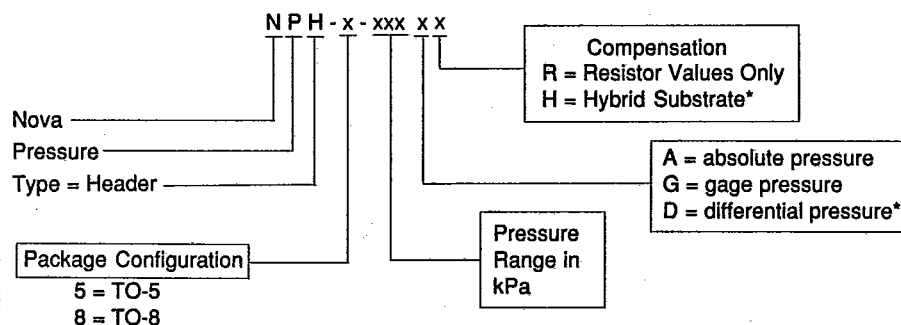
All values are maximum unless otherwise stated.

All values measured in reference to 25°C (77° F) and at 1.5 mA constant current unless otherwise stated.

\*\*Higher performance available upon request.

## ORDERING INFORMATION:

## REPRESENTED BY:



A 3/16" OD pressure port is standard. Optionally a 1/8" OD pressure port or 1/16" DIA. vent hole on top of the package is available. Lead length of 1/2" is standard, optionally 7/8" is available. Please consult factory.

\*Differential pressure and hybrid (H) available on TO-8 configuration only.

Note: See NPH Low Pressure data sheet for 0-1psi specifications.

Ordering Example: Assume a requirement for gage pressure transducer with a 0-30 kiloPascal range, in a TO-8 package. Model number would be: NPH-8-030G

Sales Terms: Net 30 days FOB Fremont, CA 94539. Prices and specifications are subject to change without notice.

Warranty: NovaSensor warrants its products against defects in material and workmanship for 12 months from date of shipment. Products not subjected to misuse will be repaired or replaced. THE FOREGOING IS IN LIEU OF ANY OTHER EXPRESSED OR IMPLIED WARRANTIES. NovaSensor reserves the right to make changes to any product herein and assumes no liability arising out of the application or use of any product or circuit described or referenced herein.