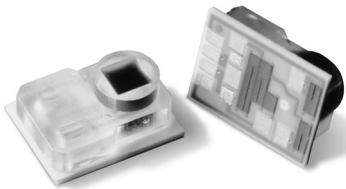




GE NovaSensor

NPC-100 Series

Disposable Medical Pressure Sensor



Description

NovaSensor's NPC-100 pressure sensor is specifically designed for use in disposable medical applications. The device is compensated and calibrated per the Association for the Advancement of Medical Instrumentation (AAMI) guidelines for industry acceptability. The sensor integrates a high-performance, radiation-tolerant pressure sensor die with temperature compensation circuitry and gel protection in a small, low-cost package.

The NPC-100 is manufactured in a class 1000 clean-room to minimize possible sources of contamination. A specially designed silicon micromachined sensing element is used to meet or exceed all industry requirements while minimizing assembly and test cost for maximum customer value. Thick-film laser-trimming is employed for final compensation and calibration. Sensitivity is maintained to $\pm 1\%$ and linearity is better than 1% in the physiological operating pressure range.

The NPC-100 is batch-manufactured in ceramic-plate form and shipped as an intact array for easy customer automation. This assembly method draws from well-established manufacturing techniques used in the electronics industry in order to produce a quality, high volume product.

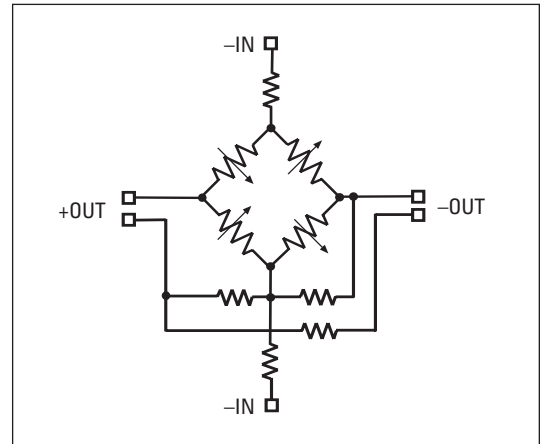
Features

- Solid state, high reliability
- Media compatibility
- High performance
- Factory filled with dielectric gel
- Small size
- Fully tested
- Temperature compensated
- Low cost disposable design
- Designed to AAMI specifications

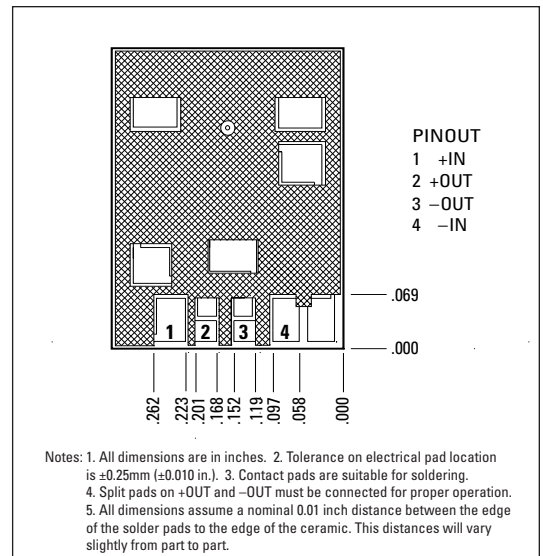
Applications

- Medical instrumentation
- Blood pressure measurement
- Infusion pumps
- Kidney Dialysis machines

Schematic Diagram



Electrical Interface



Specifications

Parameter	Value	Units	Notes
General			
Pressure Ranges	-30 to 300	mmHg	-0.58 to +5.8psi
Overpressure	125	psi	Minimum
Electrical @ 22°C (72°F) unless otherwise stated			
Input Excitation	1-10	VDC	Calibrated for 6VDC
Dielectric Breakdown	10,000	VDC	5
Risk Current	2	μA	Max (per AAMI), 5
Input Impedance	1800-3300	Ω	
Output Impedance	285-315	Ω	
Environmental			
Temperature			
Compensated	+15 to +40	°C	+59 to +104°F
Operating	+15 to +40	°C	+59 to +104°F
Storage	-25 to +70	°C	-13 to +158°F
Humidity	10-90	%	
Light Sensitivity	1	mmHg	Max (per AMMI BP22)
Operating Product Life	168	hours	
Shelf Life	3	years	
Mechanical			
Weight	<2	grams	
Volume Displacement	<0.02	mm ³	
Media Interface	Medical Grade, Dielectric Gel		
Gel Tube Interface Material	Polycarbonate		

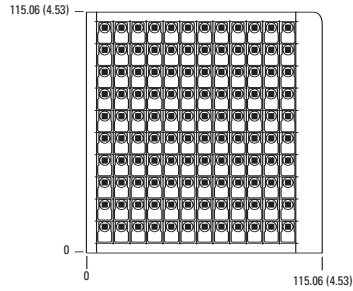
Parameter	Units	Min.	Typ.	Max.	Notes
Performance Parameters (Note 1)					
Offset	mmHg	-25	0	+25	
Sensitivity	μV/V/mmHg	4.95	5	5.05	
Calibration	mmHg	97.5	100	102.5	2
Symmetry	%	—	—	±5	
Linearity (-30 to 100 mmHg)	mmHg	—	—	1	
Linearity (100 to 200 mmHg)	% output	—	—	1	
Linearity (200 to 300 mmHg)	% output	—	—	1.5	
Thermal Coefficient Offset	mmHg/°C	—	—	±0.3	3
Thermal Coefficient Span	%/°C	—	—	±0.1	3
Frequency Response	Hz	1200	—	—	5
Phase Shift	degrees	—	—	5	5
Offset Drift	mmHg/8hrs	—	—	1	4, 5

Notes: 1. Assumes 6 VDC and 22°C and after five second warm up unless otherwise specified. 2. Output of sensor with no pressure applied and a 150kΩ resistor shorted across +VIN to +OUT. 3. Over a temperature range of +15 to +40°C. 4. Normalized offset/bridge voltage — 8 hours after 20 sec. warm-up. 5. Previously qualified, not tested in production.



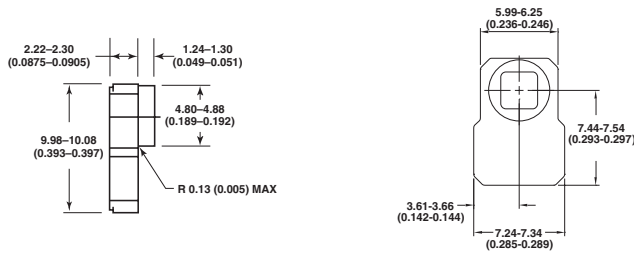
Dimensions and Ordering Information

Shipping Configuration



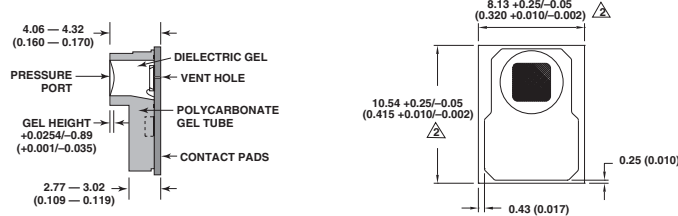
Notes: 1. All dimensions are in millimeters (inches). 2. Sensors are shipped as 120 UP snapstrates and must be singulated by the purchase. 3. Each plate may include units that have failed visual or electrical parameters as well as good units. Bad units are identified with a dot on the backside of the cell location. 4. Plates are shipped in dust free anti-static containers to prevent contamination of the gel surface.

Pressure Port Interface



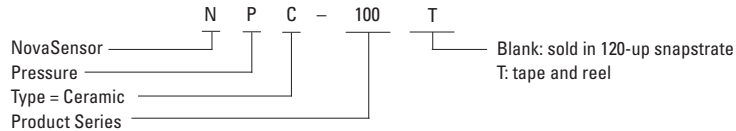
Notes: 1. All dimensions are in millimeters (inches). 2. Material is clear Polycarbonate.

Package Diagram



Notes: 1. All dimensions are in millimeters (inches). 2. Tolerances reflect typical flaring during the singulation process.

Ordering Information



Notes: 1. Sensors are sold in 120 UP snapstrates.



GE NovaSensor



Sales Terms:

NovaSensor standard sales terms apply. Prices and specifications are subject to change without notice.

Warranty:

NovaSensor warrants its products against defects in material and workmanship for 12 months from the date of shipment. Products not subjected to misuse will be repaired or replaced. NovaSensor reserves the right to make changes without further notice to any products herein. NovaSensor makes no warranty, representation or guarantee regarding the suitability of its products for any particular application, nor does NovaSensor assume any liability arising out of the application or use of any product or circuit and specifically disclaims and all liability without limitation consequential or incidental damages. The foregoing warranties are exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED STATUTORY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE SHALL APPLY.

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