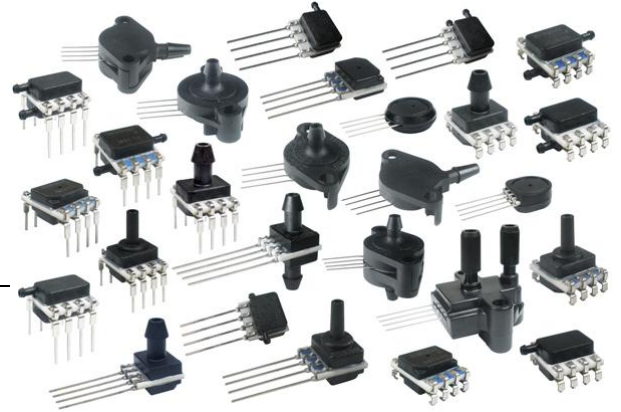


TruStability® Board Mount Pressure Sensors: NSC Series— Uncompensated/Unamplified Uncompensated/Unamplified Millivolt Analog Output, 1 psi to 150 psi (60 mbar to 10 bar)



DESCRIPTION

The TruStability® NSC Series-Uncompensated/Unamplified is a piezoresistive silicon pressure sensor offering a ratiometric analog output for reading pressure over the specified full scale pressure span and temperature range.

The NSC Series is both unamplified and uncompensated. It offers infinite resolution on the pressure signal. Frequency response is limited only by the end user's system. The sensor will operate as specified from -40 °C to 85 °C [-40 °F to 185 °F].

These products are ideal for those customers who want to do their own compensation, calibration, and amplification in order to make use of the maximum resolution of the bare sensor output, leveraging a custom algorithm required for the application.

The NSC Series allows customers the flexibility of self-calibration while still benefiting from the industry-leading stability, accuracy, and repeatability that the Honeywell TruStability® Pressure Sensors provide.

Additionally, the NSC Series offers numerous package styles and mounting options, making it easier for the device manufacturer to integrate the product into their application.

These sensors measure absolute, differential, and gage pressures. The absolute versions have an internal vacuum reference and an output value proportional to absolute pressure. Differential versions allow application of pressure to either side of the sensing diaphragm. Gage versions are referenced to atmospheric pressure and provide an output proportional to pressure variations from atmosphere.

The NSC Series sensors are intended for use with non-corrosive, non-ionic gases, such as air and other dry gases and for non-corrosive, non-ionic liquids. All products are designed and manufactured according to ISO 9001.

FEATURES AND BENEFITS (★=competitive differentiator)

- ★ Industry-leading long-term stability: Even after long-term use and thermal extremes, these sensors perform substantially better relative to stability than any other pressure sensor available in the industry today:
 - Minimizes system calibration needs and maximizes system performance
 - Helps support system uptime by eliminating the need to service or replace the sensor during its application life
- ★ Industry-leading accuracy: Extremely tight accuracy of $\pm 0.25\%$ FSS BFLS:
 - Reduces software needed to correct system inaccuracies, minimizing system design time
 - Supports system accuracy and warranty requirements
 - Helps to optimize system uptime

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FEATURES AND BENEFITS (★=competitive differentiator) (continued)

- ★ Industry-leading flexibility:
 - Modular, flexible design with numerous package styles, pressure ports, and options simplify integration into the device manufacturer's application
 - Single side wet media option allows the end customer to use one port of the sensor with condensing humidity or directly with non-corrosive liquid media
- ★ Small size: Miniature 10 mm x 10 mm [0.39 in x 0.39 in] package is very small when compared to most board mount pressure sensors
 - Occupies less area on the PCB
 - Typically allows for easy placement on crowded PCBs or in small devices
- ★ Repeatability: Provides excellent repeatability, high accuracy and reliability under many demanding conditions
- Extremely low power consumption (operating supply voltage as low as 1.8 Vdc):
 - Reduces power consumption
 - Provides extended battery life
 - Promotes energy efficiency
- Low operating voltage
- Sensitive: Meets specified pressure level requirements, providing enhanced sensitivity and accuracy over the range
- Virtually insensitive to mounting orientation, allowing for flexibility of use within the application
- Ratiometric analog output
- Infinite resolution
- Fast response time
- RoHS compliant
- Absolute, differential and gage types
- Pressure ranges from 1 psi to 150 psi (60 mbar to 10 bar)
- Also available in the HSC Series and the SSC Series which are fully compensated and calibrated with amplified analog or digital I²C or SPI outputs

POTENTIAL APPLICATIONS (★=focus applications)

Medical:

- Respiratory breathing circuits:
 - Nebulizers
 - Spirometers
 - Patient monitoring
- Flow/pressure control:
 - Therapeutic hospital beds
- Gas collection/delivery:
 - ★ Hospital gas supply
 - Oxygen concentrators
- Precise sampling/gas flow:
 - ★ Blood analysis
 - ★ Gas chromatography
 - ★ Analytical instrument sampling systems

Industrial:

- Pneumatic components:
 - ★ Valves
 - ★ Pumps
 - ★ Actuators
- Pneumatic systems:
 - ★ HVAC transmitters
 - ★ Automated pneumatic assembly equipment
 - ★ Pneumatic operator control systems
- Gas collection/delivery:
 - ★ Industrial gas supply
- Precise sampling/gas flow:
 - ★ Barometry
 - ★ Gas chromatography
 - ★ Analytical instrument sampling systems

Table 1. Absolute Maximum Ratings¹

Parameter	Min.	Max.	Unit
Supply voltage (V _{supply})	-12.0	12.0	Vdc
ESD susceptibility (human body model)	3	–	kV
Storage temperature	-40 [-40]	85 [185]	°C [°F]
Soldering time and temperature:			
Lead solder temperature (SIP, DIP)		4 s max. at 250 °C [482 °F]	
Peak reflow temperature (SMT)		15 s max. at 250 °C [482 °F]	