Model 270

SETRACERAM™ for Barometric, Gauge or Absolute Pressure

Barometric Pressure: 600-1100 hPa/mb, 800-1100 hPa/mb
Absolute: 0 to 10, 20, 50, 100 psia / Gauge Pressure: 0 to 5, 10, 20, 50, 100 psig
Non-condensing Air or Gas

For many years, high accuracy environmental and test & measurement applications around the world have relied on the consistent performance of the Setra Model 270 pressure transducer. Applications range from remote weather monitoring and avionics systems, endorsed by government agencies, to crucial compensation for barometric pressure variations in laser interferometers.

Long-term reliability and stability in such demanding application environments are achieved in the 270 with the combination of the SETRACERAM™ capacitive sensor and Setra's proprietary custom IC analog circuit.

The fundamentally simple design and thermally stable glass fused ceramic sensing capsule is coupled with the sophisticated capacitance charge-balance IC circuit where accurate signal conditioning and environmental compensation is performed. Standard accuracy is 0.05% Full Scale, end point method. Higher accuracy and thermal specifications are also available.

Type of Pressure	Pressure Range	Maximum Pressure
Barometric	800 to 1100 hPa/mb 600 to 1100 hPa/mb	20 psia
Absolute	0 to 10, 20, 50, 100 psia	1.5 x rated
Gauge	0 to 5, 10, 20, 50, 100 psig	1.5 x rated

NOTE: Setra adheres to strict quality standards including ISO 9001 and ANSI-Z540-1. The calibration of this product is NIST traceable.

U.S. Patent nos. 4093915, 4168518

Applications

- High Accuracy Barometric Pressure Measurement
- Weather and Environmental Data
- Data Buoys and Remote Weather Stations
- Engine Test Cells
- High Accuracy Transfer Standard for Calibration
- CE Mark Compliance

Features

- SETRACERAM™ Sensor
- High Accuracy, ± 0.05% FS
- ±0.03% FS Optional Accuracy
- Repeatability Within 0.01% FS
- Excellent Long-Term Stability
- Low Power Consumption
- Instant Warm-Up
- Fast Response

When it comes to a product to rely on - choose the Model 270. When it comes to a company to trust - choose Setra.

ISO 9001 Certified

Visit Setra Online:
http://www.setra.com

setra

800-257-3872

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Model 270 Specifications

Performance Data

Accuracy*	<±0.05% FS
Non-Linearity	
End Point	±0.05% FS
Best Fit Straight Line	±0.03% FS
Hysteresis	0.01% FS
Non-Repeatability	0.01% FS
Resolution	Infinite, limited only by output noise level (0.005% FS)
Thermal Effects**	
Compensated Range ℉ (℃)	+30 to +120 (-1 to +49)
Thermal Zero Shift	
Barometric	<±0.2% FS/100℉ (±0.18% FS/50℃)
Other Ranges	<±0.1% FS/100℉ (±0.09% FS/50℃)
Thermal Coefficient Sensitivity	<±0.1% FS/100℉ (±0.09% FS/50℃)
Long Term Stability	<± 0.1% FS over 6 months at 70℉
Static Acceleration Effect	<±0.01% FS/G
Warm-up	<±0.04% FS shift after 20 minutes at constant temperature and pressure
Time Constant	< 10 milliseconds to reach 90% final output with step function pressure input

* RSS of Non-Linearity, Hysteresis, and Non-Repeatability.
Higher accuracy units available on special order.
** Units calibrated at nominal 70℉. Maximum thermal error computed from this datum.

Environmental Data

Temperature	
Operating ℉ (℃)	0 to +175 (-18 to +80)
Storage ℉ (℃)	-65 to +250 (-54 to +120)
Vibration	2g from 5Hz to 500Hz
Acceleration	10g
Shock	50g Operating, 1/2 sine 10 ms
Pressure fitting	1/8" -27 NPT Internal
Electrical connection	2-foot Multi-conductor Cable
Weight (approx.)	9 ounces (0.25 Kgm)

Electrical Data

Electrical Circuit*	4-Wire (+Exc, -Exc, +Out, -Out)
Excitation**	22 to 32 VDC Fully protected against miswiring
Output***	0 to 5 VDC****
Isolation	The insulation resistance between all signal leads tied together and case ground is 100 megohms minimum at 25 VDC.
Output Impedance	<5 ohms
Output Noise	<200 microvolts RMS (0 Hz to 100 Hz).
Current Consumption	8 mA (0.2 Watts)

*For best performance, either negative excitation or negative output should be connected to case (ground). *Both leads cannot be connected to case (ground).* Units calibrated at the factory with negative excitation connected to case.
**Internal regulation minimizes effect of excitation variation, with < ± 0.005% FS output change. Will operate on 28 VDC aircraft power per MIL-STD-704A and not be damaged by emergency power conditions.
*** Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.
**** Zero output factory set to within ±5 mV.
Span (Full Scale) output factory set to within ±5 mV.

Options

Electrical Options

623	12 VDC excitation (11 to 15 VDC)

Performance Options

703	Compensated temperature, -13℉ to +150℉ (±0.13% FS/100℉ zero and span effect). Cannot be ordered with option 707.
707	±0.03% FS (RSS) Accuracy with ±0.027% FS Linearity (End Point Method). Cannot be ordered with option 703.

Mechanical Options

803-825	Up to 25 ft. of cable can be supplied. Please specify cable length when ordering (i.e. 805 for 5 ft. cable).
865	NEMA 4 Weather Proof Enclosure
911	Etched Metal Stainless Steel Tag

Special Range

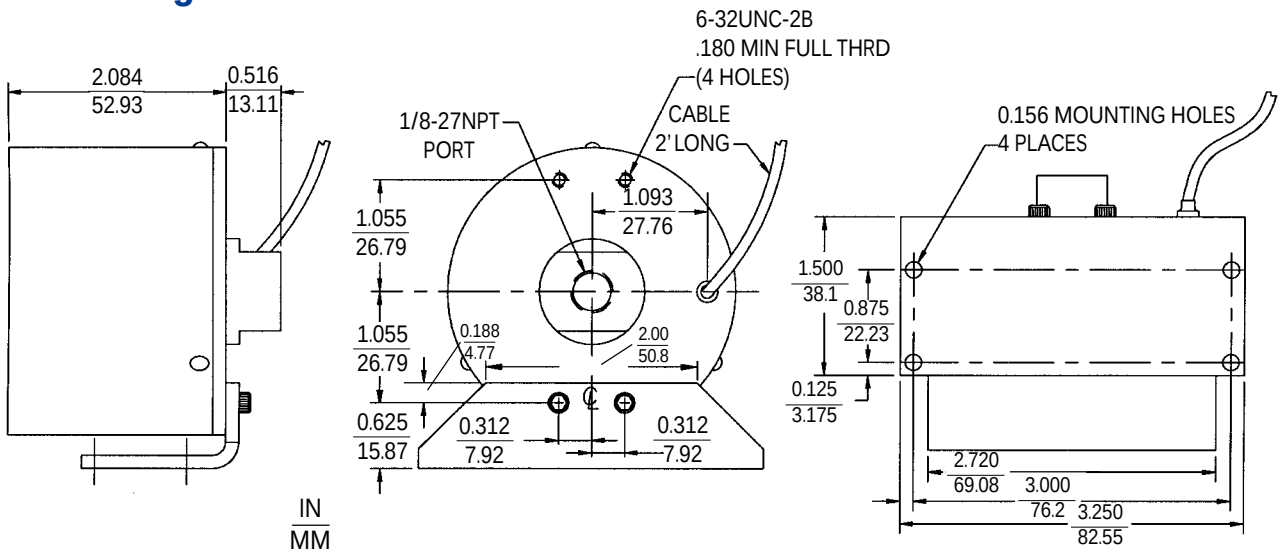
SR	Special Range (Specify Range Required).

Pressure Media

Non-condensing air or gas compatible with hard anodized aluminum, alumina ceramics, gold, fluorocarbon elastomer sealant & Buna-N O-Ring.

Specifications subject to change without notice.

Outline Drawings



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While we provide application assistance on all Setra products, both personally and through our literature, it is the customer's responsibility to determine the suitability of the product in the application.

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