

## Model 270

### Analog Setraceram™ or Barometric/Medium Pressure

Barometric Pressure: 600-1100 hPa/mb, 800-1100 hPa/mb

Absolute: 0 to 10, 20, 50, 100 psia / Gage 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 type IC circuit where accurate signal conditioning and environmental compensation is performed. Standard accuracy is 0.05% with 0.01% non-repeatability and 0.1%/100°F thermal performance. And even tighter specs are available!

The Setra 270 has solved some of the toughest sensing problems in the world with its rock solid performance and dependability. Try it in your application and discover why the Model 270 has been so popular for so long.

### Pressure Ranges

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
Gage	0 to 5, 10, 20, 50, 100 psig	1.5 x rated

NOTE: Setra adheres to strict quality standards including MIL-I-45208A and ANSI-Z540-1. The calibration of this product is NIST traceable.

U.S. Patent nos. 4093915, 4168518

### Features

- SETRACERAM™ sensor
- High accuracy:  $\pm 0.05\%$  FS
- Repeatability within 0.01% FS
- Excellent long-term stability
- Low power consumption
- Instant warm-up
- Fast response

### Applications

- High accuracy barometric pressure
- Barometric pressure compensation for the wavelength of laser beams
- Weather and Environmental Data
- Databuoys and remote weather stations (rugged, low power consumption and instant warm-up)
- Engine test cells
- High accuracy transfer standard for laboratory, factory and field calibration of pressure instrumentation

### Options

- -13°F to 150°F temperature compensation range with  $\pm 0.13\%$  FS/100°F zero and span effect (Option #703) Cannot be ordered with Option 707
- $\pm 0.03\%$  FS accuracy with  $\pm 0.027\%$  FS E.P. linearity (Option #707) Cannot be ordered with Option 703
- 12 VDC (11-15 VDC) Excitation (Option #623)



INGENIEROS ASOCIADOS DE CONTROL, S. L.

# Model 270 Specifications

## Performance Data

Accuracy*	<±0.05% FS
Non-Linearity	
End to point method	±0.05% FS
Best fit straight line method	±0.03% FS
Hysteresis	0.01% FS
Non-Repeatability	0.01% FS
Resolution	Infinite, limited only by output noise level (0.005% FS).
Thermal Effect °F(°C)	30 to 120 (-1 to 49)
Thermal Zero Shift	
Barometric	<±0.2% FS/100°F (±0.36% FS/100°C)
Other Ranges	<±0.1% FS/100°F (±0.18% FS/100°C)
Thermal coef. sensitivity	<±0.1% FS/100°F (±0.18% FS/100°C)
Long Term Stability	<± 0.1% FS over 6 months at 70°F.
Static Acceleration Effect	<±0.01% FS/G
Warm-up	<±0.04% FS shift
After turn on for 20 minutes at constant temperature & pressure.	
Time Constant	< 10 milliseconds to reach 90% final output with step function pressure input.

### Pressure Media:

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

\* Accuracy as RSS of non-linearity, hysteresis, and non-repeatability.  
Higher accuracy units available on special order.

## Environmental Data

Temperature	
Operating °F (°C)	0 to 175 (-18 to 80)
Storage °F (°C)	-65 to 250 (-54 to 120)
Vibration	2 g from 5Hz to 500Hz continuous any axis
Acceleration	10 g maximum
Shock	50 g operating, 1/2 sine 10 ms
Pressure fitting	1/8" -27 NPT internal
Electrical connection	2 ft. multiconductor cable
Weight (approx.)	9 ounces (0.25 Kg)

## Electrical Data

Full Scale Output**	5.00 VDC, internally adjustable, factory set within ± 5 mV.
Zero Pressure Output	0 mV, internally adjustable, factory set within ± 5 mV.
Excitation Power	Nominal 24 VDC, 8 milliamperes (0.2 watts), 20 to 32 VDC. Fully protected against miswiring. 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.
Electrical Circuit***	Four-terminal circuit for units with 0 to 5 VDC output.

### Isolation

The insulation resistance between all signal leads tied together and case ground is 100 megohms minimum at 25 VDC.

Output Impedance	< 5 ohms (effective)
Output Noise	< 200 microvolts RMS (0 Hz to 100 Hz).

\*\* Calibrated into 50K ohm load, operable into loads of 5000 ohms or greater. You can attenuate output to match your data system.

\*\*\*For best performance, either negative excitation or negative output should be connected to case. Unit calibrated at the factory with negative excitation connected to case.

## Options

623:	12 VDC excitation (11 to 15 VAC)
703:	Compensated temperature, -13°F to 150°F (±0.13% FS/100°F zero and span effect). Cannot be ordered with option 707.
707:	±0.03% FS (RSS) Accuracy. Cannot be ordered with option 703.
803-825:	2 ft. (nominal) cable is standard on most transducers and transmitters and all accelerometers. Up to 25 ft. of cable can be supplied on your order; please specify cable length when ordering (eg. 805 for 5 ft. cable). Consult factory for cables longer than 25 ft.
865:	NEMA 4 Weather proof enclosure.
911:	Etched metal stainless steel tags.

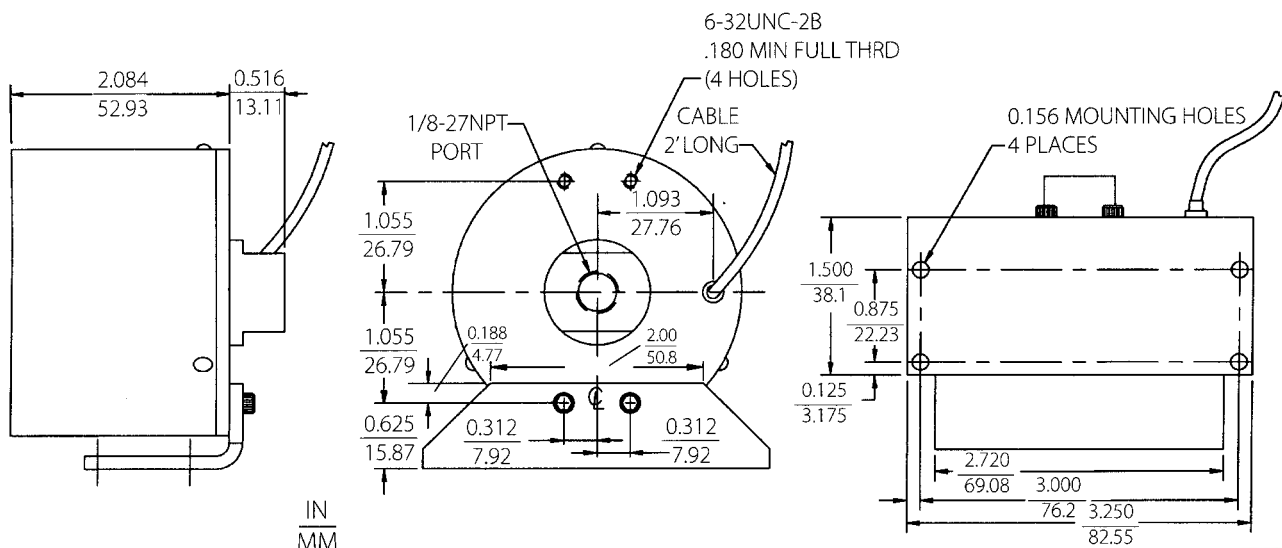
## Ordering Information

Order as Model 270 Analog SETRACERAM™

Specify: Pressure Range, Electrical Output, Option Number.

*Specifications subject to change without notice.*

## Outline Drawings



SSP270 Rev.B 08/06/98



INGENIEROS ASOCIADOS DE CONTROL S.L.  
Tel.: 913831390  
comercial@iac-si.es