

Model 270

SETRACERAM™ for Barometric, Gauge or Absolute pressure

Features

- Highest accuracy analog sensor
- Captures dynamic pressure changes
- Robust for severe weather detection
- High optional accuracy: ±0.03% FS
- Stable ceramic sensor
- Repeatability within 0.01% FS
- Excellent long-term stability: 0.1% FS/YR
- Low power consumption
- Instant warm-up
- Fast response time

Applications

- High accuracy barometric pressure measurement
- Weather and environmental data
- Data buoys and remote weather stations
- Engine test cells

The Model 270 is Setra's highest performing analog sensor for barometric, absolute and gauge pressure measurements. Its decades worth of installations have built a reputation of reliability and remains the trusted choice for critical installations. The ceramic sensor on the 270 delivers high performance; its ±0.03% FS accuracy over a wide temperature range outperforms competitive transducers in the environmental sensing market. The 270 offers multiple options to fit the needs of difficult applications, making it easier to install and gather higher quality data for your project.

High accuracy for demanding applications

The Model 270 pressure transducer is the most accurate analog sensor Setra manufactures. The available 0.03% FS accuracy is perfect for vital installations where precise measurements determine success or failure of the application.

Improved performance with ceramic sensor

The 270 utilizes a variable capacitance sensor that is made using ceramic material fused together with glass and gold to form the SETRACERAM™ pressure element. This stable material and design offers class leading thermal performance and low hysteresis, allowing integration into demanding installations. The ceramic sensor enables improved performance compared to other stainless steel sensors, enabling the 270 to give accurate measurements and better test results.

Flexibility in installation

The 270 offers mechanical and electrical options that can be installed into existing applications. These options reduce engineering design time, allowing for earlier project completion.

WARNING: This product can expose you to chemicals including Lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm (For more information go to www.p65warnings.ca.gov)

NOTICE: Lead is encapsulated in the sensor glass housed inside the product.

1 YEAR WARRANTY · USA Made · RoHS · CE

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Specifications

Performance data

Accuracy (at constant temp)	±0.05% FS
Non-linearity	
End point	±0.05% FS
Best fit straight line	±0.03% FS
Hysteresis	<0.01% FS (TYP.)
Resolution	Infinite, limited only by output noise level (0.005% FS)

Electrical data

Electrical Circuit[3]	4-Wire (+Exc, -Exc, _Out, -Out)
Excitation	24 VDC (22-32 VDC) 12VDC (11-15 VDC) Reverse Wiring Protection
Output[3]	0 to 5 VDC[6]
Isolation	The insulation resistance between all signals leads tied together and case ground is 100 ohms 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)

Pressure media

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

Environmental data

Operating temperature[1] **°F(°C)**	0 to +175 (-18 to +80)
Storage temperature °F(°C)	-65 to +250 (-54 to +120)
Vibration	2g from 5Hz to 500 Hz
Acceleration	10g
Shock	50g Operating, 1/2 sine 10ms
Pressure fitting	1/8"-27 NPT Internal
Electrical connection	2' Multiconductor Cable
Weight (approx.)	9 ounces (0.25 Kgm)

Thermal effects[2]

Compensated range °F(°C)	+30 to +120 (-1 to +49)
Thermal Zero Shift %FS/°100F (%FS/50°C)	
Barometric	±0.2 (±0.18)
Other Ranges	±0.1 (±0.09)
Thermal Coefficient Sensitivity (span)	±0.1 (±0.09)
Long Term Stability	< ±0.1% FS/YR
Warm-up	< ±0.04% FS shift after 20 minutes at constant temp.
Time Constant	<10 milliseconds to reach 90% final output with step function pressure input

Approvals

CE

[1]RSS of Non-Linearity, Hysteresis, and Non-Repeatability. Higher accuracy units available on special order.
[2]Units calibrated at nominal 70°F. Max thermal error computer from this datum.
[3]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.
[4]Internal regulation minimizes effect of excitation variation, with <±0.005% FS output change. Will operate on 28 VDC aircraft power per MIL-STD-70A and not be damaged by emergency power conditions.
[5]Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.
[6]Zero output factory set to within ±5mV. Span (Full Scale) output factory set to within ±5mV.

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Ordering information

Example part number: 2701800MA1F2B02YNN

Model 270, 800-1100 mb/hPa pressure range, Absolute,1/8" NPT internal fitting, 0 to 5 VDC Output, 2' Cable Length, ±0.03% FS Accuracy.

2	7	0	1															
[1]				[2]			[3]	[4]	[5]		[6]		[7]		[8]	[9]		

[1]

Model	
2701	Model 270

[2]

Pressure range	
600	600-1100
800	800-1100
005[1]	0-5
010	0-10
020	0-20
050	0-50
100	0-100

[3]

Units	
M	mb/hPa
M	mb/hPa
P	PSI
P	PSI
P	PSI
P	PSI
P	PSI

[4]

Pressure type	
A	Absolute
G	Gauge (PSI units only)

[5]

Fitting	
1F	1/8" NPT Internal

[6]

Output	
2B	0 to 5 VDC (24 VDC EXC)
3B	0 to 5 VDC (12 VDC EXC)

[7]

Termination	
02	2' Cable
10	10' Cable
25	25' Cable
XX	Consult factory for other cable lengths

[8]

Accuracy	
N	±0.05% FS
Y	±0.03%[2] FS

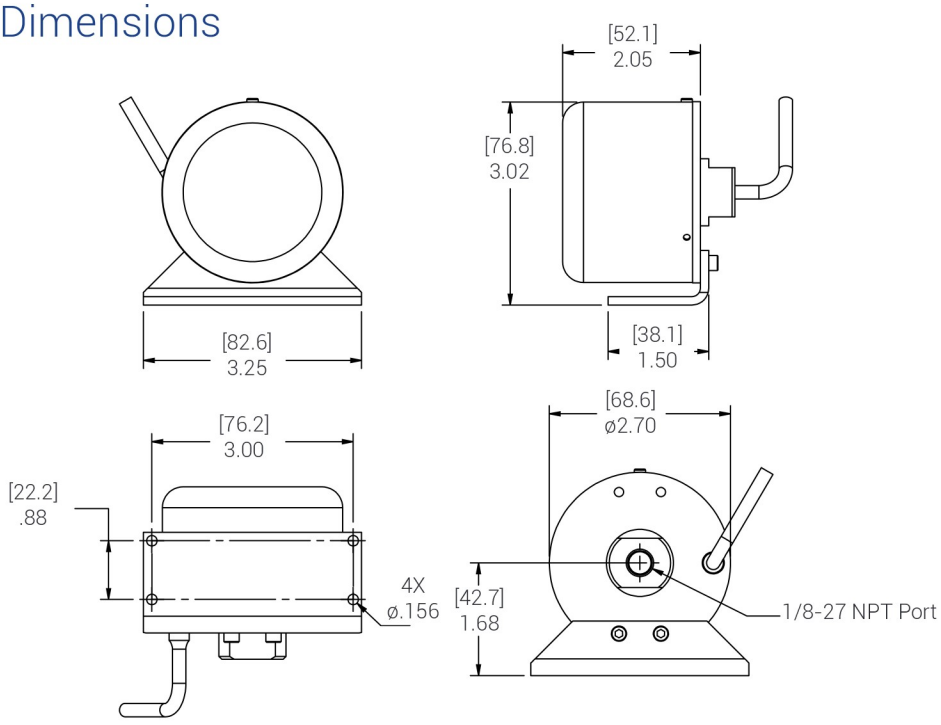
[9]

Options	
NN	None
C	11 PT Cal. certificate
L	Etched SS tag
2	-13 to 150°F compensated range[2]

[1]Available in Gauge Pressure Type Only
[2]Accuracy "Y" and Option "2" cannot be combined

Both boxes must be filled in alphanumeric order:
- If No options: N + N
- If 1 option: Option Code + N
- If 2 options: Option Code + Option Code

Dimensions



Proof pressure

Type of pressure	Pressure range	Maximum
Barometric	600 to 1100 hPa/mb 800 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

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