

230-278 Barometric Pressure Transducer



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The **Model 230-278 Barometric Pressure Transducer** is designed for use in environmental applications that require excellent accuracy, fast dynamic response, and long-term stability and reliability. To withstand the environmental extremes typically found in Automated Weather Station (AWS) and environmental monitoring applications, the 230-278 housing is constructed of stainless steel and polyester. A removable 5-pin terminal strip module is provided for easy connection to data logger and signal connections, and a 1/8" barbed fitting is used for pressure connection. The transducer's footprint (3.6" x 2.4" x 1.0") makes it ideal for use as a new or drop-in replacement to existing configurations.

The 230-278 is operable in temperatures from -40°F to +140°F (-40°C to +60°C). This unit consumes low levels of power (3mA nominal) while in operation. Its sleep mode feature reduces power consumption to 1 μ A, and provides instant startup for applications where pressure readings must be taken quickly.

Principles of Operation The 230-278 utilizes the Setraceram™ capacitive sensor and proprietary custom IC analog circuit. This fundamentally simple design and thermally stable glass fused ceramic sensing capsule is coupled with a sophisticated capacitance charge-balance IC circuit where accurate signal conditioning and environmental compensation is performed. The Setraceram™ sensor provides excellent thermal expansion coefficient and low mechanical hysteresis, which contributes to the long-term stability of the instrument.

Specifications

Performance Data

Pressure Range	500	600	800
Temperature	Accuracy (mb)		
68°F (20C)	±0.6	±0.5	±0.3
32-104°F (0/40C)	±1.2	±1.0	±0.6
4-122°F (-20/50C)	±2.0	±1.5	±1
40-140°F (-40/60C)	±2.5	±2.0	±1.5
Non-Linearity	±0.5	±0.4	±0.25
Hysteresis	±0.06	±0.05	±0.03
Non-Repeatability	±0.04	±0.03	±0.02
Resolution	0.01 mb		
Long term stability:	0.1 mb/yr		
Warm-up:	< 1 sec from shutdown mode (Warm-up shift < 0.1 mb maximum)		
Response time:	< 100 mSec		
Proof pressure:	1500 mb		
Burst pressure:	2000 mb		

Environmental Data

Operating temperature: -40°F to +140°F (-40°C to +60°C)
Storage temperature: -76°F to +248°F (-60°C to +120°C)

Physical Description

Case: Stainless steel and polyester
Pressure fitting: 1/8" (i.d.) barbed fitting
Electrical connection: 5-pin terminal block
Dimensions: 3.6" x 2.4" x 1.0"
Weight: 4.8 oz (135g) approx

Electrical Data

Electrical circuit: 3 or 4 wire
Excitation:** 9.5 to 28 Vdc
Output:*** 0 to 2.5 Vdc
0 to 5 Vdc
Output impedance: < 10 ohms
Output noise: < 50 microvolts
Current consumption: 3 mA nominal (operating mode)
1 μ A (sleep mode)

** Internal regulation minimizes effect of excitation variation, with < 0.02 mb output change over 9.5 Vdc to 28 Vdc range

*** Zero output saturates at about 20 mV

Ordering Information

230-278-5	Barometric Pressure Transducer, 0-5 Vdc 500 to 1100 mb
230-278-6	Barometric Pressure Transducer, 0-5 Vdc 600 to 1100 mb
230-278-8	Barometric Pressure Transducer, 0-5 Vdc 800 to 1100 mb