BAROMETRIC PRESSURE SENSOR

FEATURES

- **Inexpensive**
- **Excellent Long-Term Stability**
- **Temperature Compensated**
- **Digital and Analog Voltage Outputs**
- **Compact Size**

Climatronics' barometric pressure sensor, P/N 102663, is designed for applications which require accurate pressure measurements at a modest cost. It is a stable transducer using nano-technology, yielding a linear and repeatable sensor with low hysteresis. The digital and analog output signals are directly useable without additional signal conditioning.

This P/N 102663 barometric pressure sensor uses a piezoresistive pressure sensor module that is mounted on a small electronic circuit board. The pressure sensing module includes an analog-to-digital converter, a temperature sensor, and non-volatile memory for the storage of calibration coefficients. A microcontroller controls the operation of the sensor and the data interface.

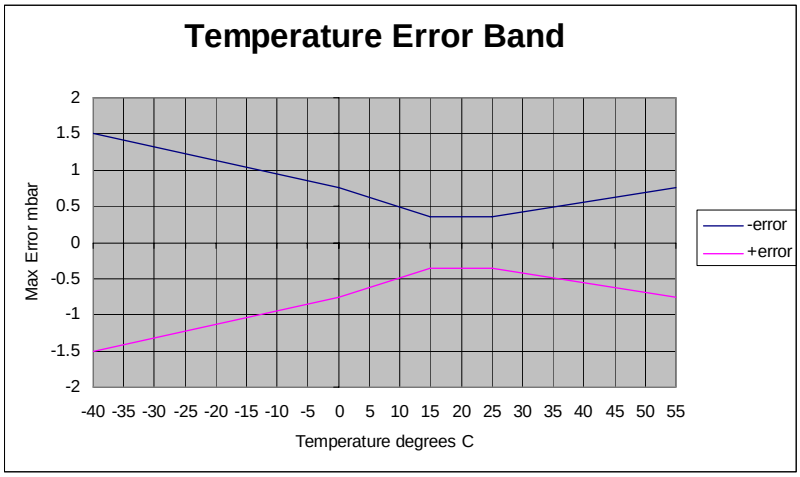
The microcontroller polls the pressure sensor module once per second for the barometric pressure and the ambient temperature. The raw readings are temperature corrected by the microcontroller. Then, second and third order temperature corrections are applied to the pressure reading. Finally, an individual NIST-traceable factory calibration coefficient is applied and the pressure value is stored for output.

There are two digital output ports on the barometer. One is configured for either RS-232C or RS-485 communications, and the other performs SDI-12 communications. The two serial ports function independently. Data output from the digital ports is over the full range of the barometer. The analog output is scaled for a 200 hPa range within the full scale range of the sensor using an internal switch. This switch also controls the voltage range of the analog output.

SPECIFICATIONS

PERFORMANCE

Range:	600 – 1100 hPa (17.70 – 32.50 in Hg)
Accuracy:	±1.5 hPa over the full pressure range ±0.5 hPa over any 200 hPa range with offset correction ±0.35 hPa at 25°C



Resolution:	0.1 hPa
Operating Temperature Range:	-40° to +55°C (-40° to +131°F)
Temperature Compensated Range:	-40° to +55°C (-40° to +131°F)
Over Pressure Range:	10 to 10,000 hPa
Time Constant:	Less than 10 milliseconds to reach 90% final output with step function pressure input
Long Term Stability:	±1.0 hPa over 12 months

ELECTRICAL

Excitation Power:	6-16 Vdc; 10 mA @ +12 Vdc
Signal Output:	0.0 to 1.0Vdc 0.0 to 2.0Vdc 0.0 to 2.5Vdc 0.0 to 5.0Vdc RS-232C, RS-485, SDI-12
Communication Protocol:	Terminal mode for RS-232C and RS-485
Serial Settings:	Baud Rates: 1200, 2400, 4800, 9600, 19,200 (default) Format: 8 data bits, no parity, 1 stop bit

PHYSICAL SPECIFICATIONS

Enclosure Dimensions:	120 X 80 X 55 mm (4.72” X 3.14” X 2.16”)

Climatronics Corporation
140 Wilbur Place
Bohemia, NY 11716-2404

TEL: 631-567-7300
FAX: 631-567-7585
E-Mail: sales @climatronics.com

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