BAROCAP® Digital Barometer PTB330

For Professional Meteorology, Aviation, and Industrial Users

Features

- Vaisala BAROCAP® sensor
- Accurate measurement
- Excellent long-term stability
- Added reliability through redundancy
- Graphical trend display with 1-year history data
- Height and altitude corrected pressure (QFE, QNH)
- For professional meteorology and aviation, laboratories, demanding industrial applications

Vaisala BAROCAP® Digital Barometer PTB330 is a new-generation barometer, designed for a wide range of high-end atmospheric pressure measurement. The pressure measurement of PTB330 is based on the Vaisala silicon capacitive, absolute pressure sensor - the Vaisala BAROCAP sensor. It provides high measurement accuracy and excellent long-term stability.

Highly Accurate

The PTB330 series is highly accurate. The Class A barometers for the most demanding applications are fine-tuned and calibrated against a high-precision pressure calibrator. Class B barometers are adjusted and calibrated using electronic working standard. All PTB330 barometers come with a traceable factory calibration certificate.

Reliability through Redundancy

According to your choice, PTB330 can incorporate one, two, or three BAROCAP sensors. When two or three sensors are used, the barometer continuously compares the readings of the pressure sensors against one another and reports if they are within the set internal difference criteria. This unique feature provides redundancy in pressure measurement.

Users also get a stable and reliable pressure reading at all times as well as a pre-indication of when to service or recalibrate the barometer.

QNH and QFE

PTB330 can be set to compensate for QNH and QFE pressure used especially in aviation. The QNH represents the pressure reduced to sea level, based on the altitude and temperature of the observation site. The QFE represents the height-corrected pressure of small differences in altitude, for example, the air pressure at the airfield elevation.

Graphical Display

PTB330 features a multilingual, graphical display allowing users to monitor measurement trends. PTB330 updates the graph automatically during measurement and it provides a one-year measurement history. In addition to instant pressure, PTB330 provides the WMO pressure trend and tendency codes.

Applications

PTB330 can be used successfully for aviation, professional meteorology, and for demanding industrial pressure measurement applications such as accurate laser interferometric measurement and exhaust gas analysis in engine test benches.

Technical Data

Measurement Performance

Barometric Pressure Range 500 ... 1100 HPA		
	Class A	Class B
Linearity [1]	±0.05 hPa	±0.10 hPa
Hysteresis [1]	±0.03 hPa	±0.03 hPa
Repeatability [1]	±0.03 hPa	±0.03 hPa
Calibration uncertainty [2]	±0.07 hPa	±0.15 hPa
Accuracy at +20 °C (+68 °F) [3]	±0.10 hPa	±0.20 hPa
Barometric Pressure Range 50 ... 1100 HPA		
		Class B
Linearity [1]		±0.20 hPa
Hysteresis [1]		±0.08 hPa
Repeatability [1]		±0.08 hPa
Calibration uncertainty [2]		±0.15 hPa
Accuracy at +20 °C [3]		±0.20 hPa
Temperature Dependence [4]		
500 ... 1100 hPa		±0.1 hPa
50 ... 1100 hPa		±0.3 hPa
Total Accuracy −40 ... +60 °C (−40 ... +140 °F)		
	Class A	Class B
500 ... 1100 hPa	±0.15 hPa	±0.25 hPa
50 ... 1100 hPa		±0.45 hPa
Long-term Stability		
500 ... 1100 hPa		±0.1 hPa/year
50 ... 1100 hPa		±0.1 hPa/year

1) *Defined as ±2 standard deviation limits of endpoint non-linearity, hysteresis, or repeatability error.*
2) *Defined as ±2 standard deviation limits of inaccuracy of the working standard including traceability to international standards.*
3) *Defined as the root sum of the squares (RSS) of endpoint non-linearity, hysteresis error, repeatability error, and calibration uncertainty at room temperature.*
4) *Defined as ±2 standard deviation limits of temperature dependence over the operating temperature range.*

Operating Environment

Pressure range	500 ... 1100 hPa, 50 ... 1100 hPa
Operating temperature	−40 ... +60 °C (−40 ... +140 °F)
Operating temperature with local display	0 ... +60 °C (+32 ... +140 °F)
Compliance	EMC standard EN61326-1:1997 + Am1:1998 + Am2:2001: Industrial Environment

Data Transfer Software

MI70 Link Interface software requirements	Microsoft® Windows OS Microsoft® Excel

Mechanical Specifications

Housing material	G AlSi10 Mg (DIN 1725)
Housing classification	IP66 IP65 (NEMA4) with local display
Weight	1 - 1.5 kg (2.2 - 3.3 lbs)

Inputs and Outputs

Supply voltage		10 ... 35 VDC
Supply voltage sensitivity		Negligible
Typical power consumption at +20 °C (U_{in} 24 VDC, one pressure sensor)		
RS-232		25 mA
RS-485		40 mA
U_{out}		25 mA
I_{out}		40 mA
Display and backlight		+20 mA
Serial I/O		RS-232C, RS-485, RS-422
Pressure units		hPa, mbar, kPa, Pa inHg, mmH20, mmHg, torr, psia
	Class A	**Class B**
Resolution	0.01 hPa	0.1 hPa
Settling time at startup (one sensor)	4 s	3 s
Response time (one sensor)	2 s	1 s
Acceleration sensitivity		Negligible
Pressure connector		M5 (10-32) internal thread
Pressure fitting		Barbed fitting for 1/8 inch I.D. tubing or quick connector with shutoff valve for 1/8 inch hose
Maximum pressure limit		5000 hPa abs.

Analog Output (Optional)

Current output	0 ... 20 mA, 4 ... 20 mA	
Voltage output	0 ... 1 V, 0 ... 5 V, 0 ... 10 V	
Accuracy at pressure range	500 ... 1100 hPa	50 ... 1100 hPa
At +20 °C (68 °F)	±0.30 hPa	±0.40 hPa
At −40 ... +60 °C (-40 ... 140 °F)	±0.60 hPa	±0.75 hPa

Accessories

Serial interface cable	19446ZZ
USB-RJ45 serial connection cable	219685
Software interface kit	215005
Wall mounting kit	214829
Outdoor installation kit (weather shield)	215109
Installation kit for pole or pipeline	215108
Power supply module	POWER-1
Temperature compensated analog output module	AOUT-1T
Isolated RS-485 module	RS485-1
DIN Rail Kit	215094

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