



# 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. 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 an electronic working standard. All PTB330 barometers come with a traceable factory calibration certificate.

### Reliability through Redundancy

According to your choice, PTB330 can incorporate 1, 2, or 3 BAROCAP sensors. When 2 or 3 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 <sup>1)</sup>	±0.05 hPa	±0.10 hPa
Hysteresis <sup>1)</sup>	±0.03 hPa	±0.03 hPa
Repeatability <sup>1)</sup>	±0.03 hPa	±0.03 hPa
Calibration uncertainty <sup>2)</sup>	±0.07 hPa	±0.15 hPa
Accuracy at +20 °C (+68 °F) <sup>3)</sup>	±0.10 hPa	±0.20 hPa

### Barometric Pressure Range 50 ... 1100 hPa

	Class B
Linearity <sup>1)</sup>	±0.20 hPa
Hysteresis <sup>1)</sup>	±0.08 hPa
Repeatability <sup>1)</sup>	±0.08 hPa
Calibration uncertainty <sup>2)</sup>	±0.15 hPa
Accuracy at +20 °C (+68 °F) <sup>3)</sup>	±0.20 hPa

### Temperature Dependence <sup>4)</sup>

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

M170 Link Interface software requirements	Microsoft® Windows OS Microsoft® Excel
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## Mechanical Specifications

Housing material	G AISi10 Mg (DIN 1725)
IP rating	IP66 IP65 (NEMA4) with local display
Weight	1 ... 1.5 kg (2.2 ... 3.3 lb)

## Inputs and Outputs

Supply voltage	10 ... 35 VDC	
Supply voltage sensitivity	Negligible	
Typical power consumption at +20 °C (+68 °F) (U <sub>in</sub> 24 VDC, one pressure sensor)		
RS-232	25 mA	
RS-485	40 mA	
U <sub>out</sub>	25 mA	
I <sub>out</sub>	40 mA	
Display and backlight	+20 mA	
Serial I/O	RS-232C, RS-485, RS-422	
Pressure units	hPa, mbar, kPa, Pa inHg, mmH2O, mmHg, torr, psia	
	<b>Class A</b>	<b>Class B</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 absolute

## Analog Output (Optional)

Current output	0 ... 20 mA, 4 ... 20 mA	
Voltage output	0 ... 1 V, 0 ... 5 V, 0 ... 10 V	
<b>Accuracy at pressure range</b>	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-IT
Isolated RS-485 module	RS485-1
DIN Rail Kit	215094



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