

PTB210 Digital Barometer



The Vaisala BAROCAP® Digital Barometer PTB210 is a reliable outdoor barometer that withstands harsh conditions.

For harsh environments

The Vaisala BAROCAP® Digital Barometer PTB210 is ideal for outdoor installations and harsh environments. The barometers are designed to operate in a wide temperature range, and the electronics housing provides IP65 (NEMA 4) standardized protection against sprayed water.

The PTB210 barometers are ideal for use in applications such as weather stations, data buoys and ships, airports, and agronomy. They are also an excellent solution for monitoring barometric pressure in industrial equipment such as laser interferometers and engine test benches.

Several pressure ranges

The PTB210 barometers are designed for various pressure ranges. They are available in two basic configurations: serial output for 500 ... 1100 hPa and 50 ... 1100 hPa and analog output with

different scalings between 500 ... 1100 hPa.

Accurate and stable measurement

All the PTB210 barometers are digitally adjusted and calibrated by using electronic working standards. A higher accuracy barometer, that is fine-tuned and calibrated against a deadweight tester, is available for the 500 ... 1100 hPa pressure range.

In addition, the PTB210 integrates directly with Vaisala Static Pressure Head Series SPH10/20. This pairing offers accurate measurement in all wind conditions.

Vaisala BAROCAP® technology

The PTB210 barometers use the Vaisala BAROCAP® Sensor, a silicon capacitive absolute pressure sensor developed by Vaisala for barometric pressure applications. The Vaisala BAROCAP®

Features/Benefits

- 500 ... 1100 hPa or 50 ... 1100 hPa pressure ranges with serial output
- Different scalings between 500 ... 1100 hPa with analog output
- Electronics housing IP65 protected against sprayed water
- Accurate and stable measurement
- NIST traceable (certificate included)

Sensor provides excellent hysteresis and repeatability characteristics and outstanding temperature and long-term stability. All PTB210 barometers are delivered with a factory calibration certificate which is NIST traceable.



The PTB210 paired with the SPH10 Static Pressure Head.

Technical Data

Operating range (1hPa=1mbar)

Pressure range (order specified)	500 ... 1100 hPa
serial output	50 ... 1100 hPa
analog output	500 ... 1100 hPa
	600 ... 1060 hPa
	800 ... 1060 hPa
	900 ... 1100 hPa
Operating temperature range	-40 ... +60 °C (-40 ... +140 °F)
Humidity range	non-condensing

Accuracy

Serial output (units in hPa)			
Pressure range	500 ... 1100	Class A	Class B
Pressure range	50 ... 1100		50 ... 1100
Non linearity*	± 0.10	± 0.15	± 0.20
Hysteresis*	± 0.05	± 0.05	± 0.10
Repeatability*	± 0.05	± 0.05	± 0.10
Calibration uncertainty**	± 0.07	± 0.15	± 0.20
Accuracy at +20°C (+68 °F)***	± 0.15	± 0.20	± 0.35
Temperature dependence****	± 0.20	± 0.20	± 0.40
Total accuracy***	± 0.25	± 0.30	± 0.50
-40 ... +60 °C (-40 ... +140 °F)			
Long term stability (hPa/year)	± 0.10	± 0.10	± 0.20
Analog output			
Non linearity*			± 0.20 hPa
Hysteresis*			± 0.05 hPa
Repeatability*			± 0.05 hPa
Calibration uncertainty**			± 0.15 hPa
Accuracy at +20 °C (+68 °F)***			± 0.30 hPa
Temperature dependence****			± 0.50 hPa
Total accuracy***			± 0.60 hPa
-40 ... +60 °C (-40 ... +140 °F)			
Long term stability			± 0.10 hPa/year

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

General

(• Factory setting)

Serial output

Current consumption	
normal mode	< 15 mA•
power down mode	< 0.8 mA
shutdown mode	0.2 mA
Shutdown	ON/OFF
Settling time at power up	2 s
Serial I/O (factory setting•)	RS232C
	RS232C /TTL (optional)
	RS485, non isolated (optional)

parity	none, even•, odd
data bits	7, 8
stop bits	1, 2
Baud rate	1200, 2400, 4800, 9600•, 19200
Response time	1 s•
Resolution	0.01 hPa (1 measurement/s) 0.05 hPa (20 measurements/s)

Analog output

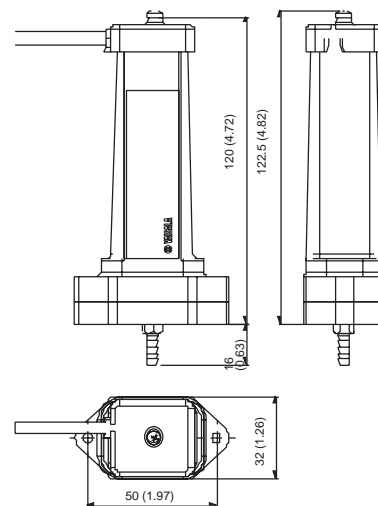
Outputs	0 ... 5 VDC, 0 ... 2.5 VDC (order specified)
Current consumption	
normal mode	< 8 mA
shutdown mode	0.2 mA
Shutdown	ON/OFF
Response time	500 ms
Resolution	300 µV
Measurement rate	3 measurements/s

All models

Supply voltage (reverse polarity protected)	5 ... 28 VDC
Max. pressure	5 000 hPa abs.
Pressure connector	M5 (10-32) internal thread
Pressure fitting	barbed fitting for 1/8" I.D. tubing
Housing	
electronics	IP65 (NEMA 4)
sensor	IP53
Housing material	PC plastic
Supply/output cable length	1, 2, 3, 5 or 10 m
Weight	
Instrument	110 g
Cable	28 g/m
Electromagnetic compatibility	Complies with EMC standard EN61326-1, Generic Environment

Dimensions

Dimensions in mm (inches)



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