

PTB220 Series Digital Barometers

APPLICATIONS

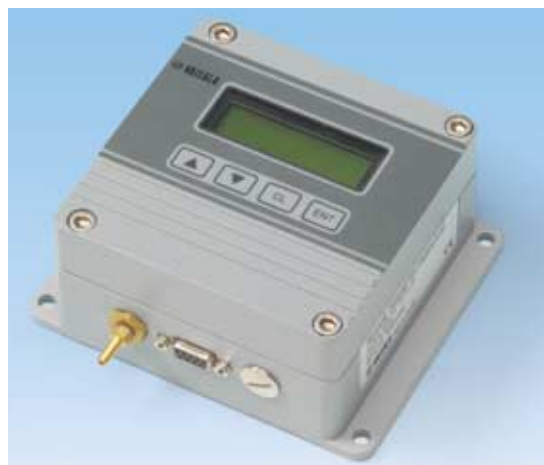
- Barometric pressure standard
- Electronic alternative for an Hg barometer
- Weather stations
- Data buoys and ships
- Laser interferometers

The PTB220 Series Digital Barometers are designed for a wide pressure and temperature range. Class A barometers are fine-tuned and calibrated against a dead-weight tester. Class B barometers are adjusted and calibrated by using electronic working standards.

A single barometer can have one, two, or three pressure transducers. Two or three transducers provide improved reliability in airport, weather station, and pressure standard applications.

The local display can simultaneously show the barometric pressure, the three-hour pressure trend, and a WMO pressure tendency code. An analog output option is also available, which is particularly well suited for traditional systems with analog input.

The PTB220 Barometers use the BAROCAP® silicon capacitive absolute pressure sensor developed by Vaisala. This sensor has excellent hysteresis and repeatability characteristics and outstanding temperature and long-term stability. All PTB220 Barometers are delivered with a factory calibration certificate.



- 500...1100 hPa or 50...1100 hPa pressure ranges
- -40...+60 °C temperature range
- total accuracy

500...1100 hPa, class A	±0.15 hPa
500... 1100 hPa, class B	±0.25 hPa
50...1100 hPa	±0.45 hPa
- long-term stability

500...1100 hPa	±0.1 hPa/year
50...1100 hPa	±0.2 hPa/year
- available with one, two, or three barometric pressure transducers
- available with RS 232C/TTL level or RS 485/RS 422 serial interfaces or RS 232C/0...5 VDC (4...20 mA) output



TECHNICAL DATA

PTB220 SERIES DIGITAL BAROMETERS

OPERATING RANGE

(1 hPa = 1 mbar)

Pressure ranges	500...1100 hPa, 50...1100 hPa
Temperature range	
operating	-40...+60 °C
with local display	0...+60 °C
storage	-60...+60 °C
with local display	-20...+60 °C
Humidity range	non-condensing

ACCURACY

	500...1100 hPa	
	class A	class B
Linearity *	±0.05 hPa	±0.05 hPa
Hysteresis *	±0.02 hPa	±0.03 hPa
Repeatability *	±0.02 hPa	±0.03 hPa
Calibration uncertainty **	±70 ppm	±0.07 hPa
Accuracy at +20° C ***	±100 ppm	±0.10 hPa
	500...1100 hPa 50...1100 hPa	
	class B	class B
Linearity *	±0.10 hPa	±0.20 hPa
Hysteresis *	±0.03 hPa	±0.08 hPa
Repeatability *	±0.03 hPa	±0.08 hPa
Calibration uncertainty **	±0.15 hPa	±0.20 hPa
Accuracy at +20° C ***	±0.20 hPa	±0.30 hPa
Temperature dependence ****		
500...1100 hPa		±0.1 hPa
50...1100 hPa		±0.3 hPa
Total accuracy		
500...1100 hPa	class A	±0.15 hPa
	class B	±0.25 hPa
50...1100 hPa		±0.45 hPa
Long-term stability		
500...1100 hPa		±0.1 hPa/year
50...1100 hPa		±0.2 hPa/year

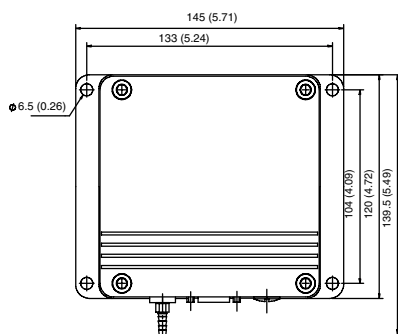
□ Class A / 800...1100 hPa / +20 °C

* Defined as ±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 •)

Supply voltage	10...30 VDC reverse polarity protected
Supply voltage sensitivity	negligible
Current consumption	
operation mode	less than 30 mA
with local display	less than 50 mA
hardware shutdown mode	less than 0.1 mA
Serial I/O	RS 232C • full duplex or bidirectional TTL level or RS 485/422 half duplex (optional)
code	ASCII
parity	none, even •, odd
data bits	7 • or 8
stop bits	1 • or 2
Pulse output	TTL level pulse output at 5 kHz or 50 kHz
Pressure units	hPa •, mbar, kPa, Pa, inHg, mmH ₂ O, mmHg, torr, psia
Baud rates	300, 600, 1200, 2400, 4800, 9600 •
Resolution	
class A	0.01 hPa •
class B	0.1 hPa •
Settling time at power-up (one sensor)	
class A	4 s •
class B	3 s •
Response time (one sensor)	
class A	2 s •
class B	1 s •
fast measurement mode	0.2 s •
Acceleration sensitivity	negligible
Pressure connector alternatives (M5 (10-32) internal thread)	
barbed fitting for 1/8" I.D. tubing	
quick connector with shutoff valve for 1/8" hose	
Maximum pressure limit	5000 hPa abs.
Minimum pressure limit	0 hPa
Electrical connector	female 9-pin subD
Housing	epoxy painted aluminium
Weight	1 kg
Complies with EMC standard EN 61326-1:1997 + Am1:1998. Generic Environment.	

OPTIONAL ANALOG OUTPUT

(factory setting •)

Output range	0...5 V •, 4...20 mA
Resolution	4 Pa
Total accuracy (+15...+30 °C)	
Class A	±0.25 hPa
Class B	±0.30 hPa

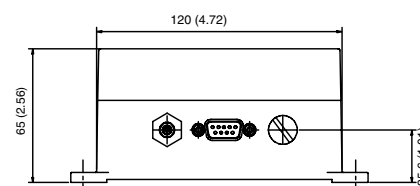
The analog output is a secondary barometer output option supplied without a calibration certificate.

BAROCAP® is a registered trademark of Vaisala. Specifications subject to change without prior notice.

© Vaisala Oyj



Dimensions in mm (inches):



Vaisala Oyj
P.O. Box 26
FIN-00421 Helsinki
FINLAND

Phone (+358-9) 894 91
Fax (+358-9) 8949 2485

E-mail industrialsales@vaisala.com
Homepage www.vaisala.com