PTB220 Series Digital Barometers

APPLICATIONS

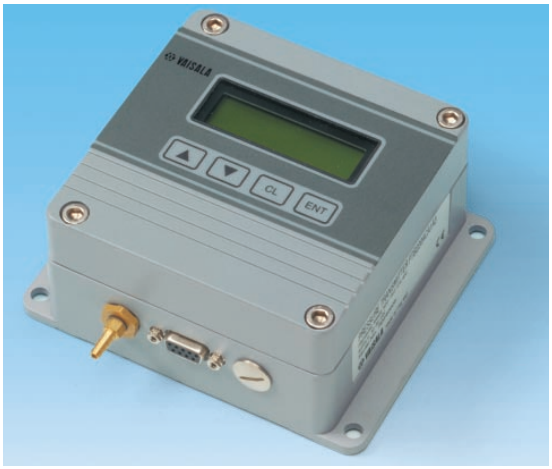
- **Barometric pressure standard**
- **Electronic alternative for an Hg barometer**
- **Weather stations**
- **Data buoys and ships**
- **Laser interferometers**

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 pressure range
- -40…+60 °C temperature range
- total accuracy
  class A ±0.15 hPa
  class B ±0.25 hPa
- long-term stability ±0.1 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 range	500…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

	0.1% R¤	class A
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

	class B
Linearity *	±0.10 hPa
Hysteresis *	±0.03 hPa
Repeatability *	±0.03 hPa
Calibration uncertainty **	±0.15 hPa
Accuracy at +20° C ***	±0.20 hPa

Temperature dependence ****	±0.1 hPa
Total accuracy	
class A	±0.15 hPa
class B	±0.25 hPa
Long-term stability	±0.1 hPa/year

¤ Class A / 800…1100 hPa / +20 °C

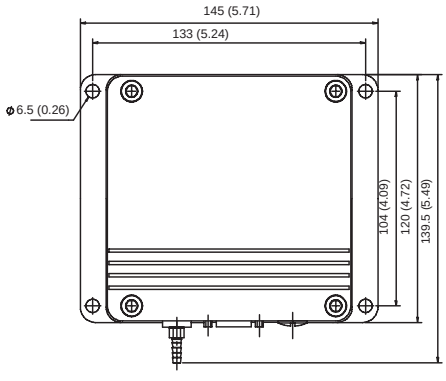
* Defined as ±2 standard deviation limits of end-point non-linearity, hysteresis error, or repeatability error.

** 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.

Dimensions in mm (inches):



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_2O, 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

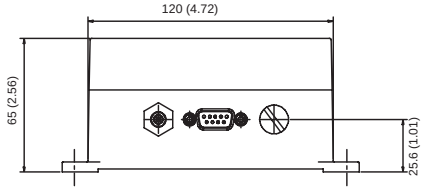
Fully electromagnetically compatible according to the EN50081-1 and EN50082-1 standards

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.



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