

# Strong under pressure

## New barometer generation for atmospheric pressure measurement

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Since its introduction in 1995, the Vaisala BAROCAP® Digital Barometer PTB220 has become a network and reference barometer used by several meteorological institutes and various customers in different industrial and laboratory applications. Now we are introducing the next generation successor for this barometer: the Vaisala BAROCAP® Digital Barometer PTB330 with several new and improved features.

### Important parameter in many applications

In meteorology, air pressure and its changes are related to low and high pressure fronts and their movements. According to the World Meteorological Organization (WMO), analyzed pressure fields are a fundamental requirement of meteorology. It is imperative that these pressure fields are accurately defined as they form the basis for all subsequent preconditions of the state of the atmosphere. The atmospheric pressure measurements should be as accurate as technology allows<sup>1</sup>.

Atmospheric pressure is also a crucial parameter in aviation and important in several industrial type applications, such as accurate laser interferometric measurements. Other measurements like exhaust gas analysis in engine test benches may also require pressure measurement.

### As accurate as technology allows

The pressure measurement of the PTB330 is based on the Vaisala BAROCAP® sensor providing high measurement accuracy and excellent long-term stability. PTB330 provides two alternative accuracy classes: class A accuracy for the most demanding applications, such as using the PTB330 as a barometric reference, and class B accuracy for more conventional use. The calibration of the PTB330 is traceable to NIST (National Institute of Standards and Technology, USA).

The PTB330 provides the pressure output with a pressure unit chosen by the customer. In addition to instant pressure, it also calculates the WMO pressure

trend and tendency code. The pressure trend indicates the amount of pressure change, and the tendency code the nature of the pressure tendency during three hours preceding the time of observation. Furthermore, the PTB330 can calculate and output the QNH and QFE pressures used especially in aviation. The QNH represents the pressure reduced to sea level, based on the altitude and temperature of the observation site, and the QFE the air pressure at the airfield elevation.

### Added reliability through redundant measurement

According to the customer choice, the PTB330 can incorporate one, two or three BAROCAP® sensors. This unique feature enables the customer to achieve a redundant pressure measurement. In the case of two or three sensors, the barometer compares the readings of the different pressure sensors all the time and provides information on whether these are within a set internal difference criteria. This way the user gets a stable and reliable pressure reading at all times, as well as a pre-indication of when service or recalibration is needed.

### Display that speaks your language

As an option, the PTB330 can also incorporate a graphic display, together with an intuitive menu-based interface. With the display the outputs and units can easily be selected by the user. The display language can be chosen from English, German, French, Spanish, Swedish, Finnish, Japanese and Russian.

Through the graphical display the user can see the trends of the selected parameters in six different time windows, the longest of these being a one-year history of active operation of the unit. With movable cursors, the values at individual time spots can be referred to and the minimum and maximum values observed.

### Alternative connections

The voltage supply ranges from 10...35 VDC, allowing the PTB330 to be also

used in battery powered applications. An external AC supply enables the barometer to be connected to all universal mains AC supplies.

The PTB330 provides several different communication signals. The standard output is RS232 but optionally an RS485 serial line can also be used. An optional USB connection cable enables the barometer to be connected through its service port to a USB port of a PC. Linear voltage and current output for pressure are also available.

The PTB330 can be connected to a PC either via a terminal program or using a specific Windows® software application to transfer the measured data, which can be further processed and copied to other Windows® programs.

### Various installation possibilities

The housing of PTB330 is IP65 rated, enabling the unit to be installed outdoors. The installation can be carried out in many different ways. The unit can be mounted as such or using a separate wall mounting plate that also enables the easy detachment of the barometer. With the mounting plate and a DIN rail kit the unit can be easily connected to a standard DIN rail. A pole installation kit with a rain shield is also available for mounting the PTB330 onto a vertical pole. The Vaisala Static Pressure Head Series SPH10/10 is available to minimize wind induced error for the measured static pressure.

The Vaisala BAROCAP® Digital Barometer PTB330 is the latest step in the continuous development of high accuracy and high stability barometers. The Vaisala BAROCAP® sensor represents the highest barometric pressure measurement quality.

<sup>1</sup> Guide to Meteorological Instruments and Methods for Observation, WMO - No. 8, Sixth Edition, (1996)

