Take the Lab to the Field
Vaisala Barometric Pressure Transfer Standard PTB330TS

Operational PTB330TS unit includes a PTB330 digital barometer, hand-held MI70 indicator, optional HMP155 humidity and temperature probe, optional MI70 Link PC software, a user's guide and a weatherproof transfer case equipped with a shoulder strap.

PTB330TS transport case

Barometric Pressure Transfer Standard PTB330TS makes field inspection accurate and easy. It combines a PTB330 digital barometer with a hand-held MI70 indicator within a portable unit functioning as a transfer standard. The optional HMP155 probe is available for accurate humidity and temperature measurement.

The PTB330TS is suitable for various reference measurements in industrial and meteorological areas.

The PTB330TS comes in a durable and weatherproof transport case that can be easily carried and shipped. The components are placed in a proofing foam interior, with accessories and user's guide placed in the lid organizer. The case includes a separate inner tabletop case in which the barometer is mounted. Shoulder strap is included for convenience. Battery duration is up to 11 hours of continuous use and up to 30 days in data logging use.

Features / Benefits

- Portable, battery operated transfer standard with data logging capability
- Barometric pressure with Vaisala BAROCAP® Digital Barometer PTB330
  - Excellent long term stability
  - Accurate measurements
  - Added reliability through redundancy

- Optional humidity and temperature measurements with HMP155
  - Vaisala HUMICAP®180R sensor - superior long-term stability
  - New, fast temperature probe
  - Chemical purge
- Multilingual user interface, nine languages

- Data can be logged, and transferred to a PC via MI70 Link software
- SO/IEC 17025 Accredited calibration services available
- For professional meteorology, aviation, laboratories and demanding industrial applications

The PTB330 Digital Barometer

The HMP155 probe

The MI70 hand-held indicator displaying the prevailing pressure in hPa

PTB330 Digital Barometer

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 the PTB330 is based on the Vaisala in-house, silicon capacitive, absolute pressure sensor – the Vaisala BAROCAP® Sensor. It provides high measurement accuracy and excellent long-term stability.

High Accuracy

The PTB330 series features extremely high accuracy. Class A barometers for the most demanding applications are fine-adjusted and calibrated against a high-precision pressure calibrator. All the PTB330 barometers come with a NIST traceable, factory calibration certificate, also optional ISO/IEC 17025 accreditation calibration services are available.

Reliability through Redundancy

According to customers' choice, the PTB330 can incorporate one, two or three BAROCAP® sensors. When two or three sensors are used, the barometer continuously compares the readings of the pressure sensors against one another and provides information on whether these are within the set internal difference criteria. This unique feature provides redundancy in pressure measurement. Thus, users get a stable and reliable pressure reading at all times as well as a pre-indication of when to service or re-calibrate the barometer.

Optional HMP155 Humidity and Temperature Probe

The new Vaisala HUMICAP® Humidity and Temperature Probe HMP155 provides reliable humidity and temperature measurement.

Long-Term Stability

The HMP155 has a new generation Vaisala HUMICAP®180R sensor that has excellent stability and withstands harsh environments well. The probe structure is solid and the sensor is protected with a sintered teflon filter, which gives maximum protection against liquid water, dust, and dirt.

Fast Temperature Measurement

What's more, with its fast response time, the additional temperature probe for the HMP155 is ideal for measurement in environments with rapidly changing temperatures.

MI70 Hand-Held Indicator for Spot-Checking Applications

The Vaisala Measurement Indicator MI70 is a user-friendly indicator for demanding spot-checking measurements. It is ideal for field checking and calibration of Vaisala's fixed instruments.

Easy-to-Use User Interface and Three-Variable Display

The MI70 features a multilingual, menu-based user interface, and a clear graphical LCD display. Overall three measurement parameters can be displayed and logged into the meter's memory at the same time. One or two probes or transmitters can be connected simultaneously.

MI70 Link

The optional MI70 Link Windows® software and the USB connection cable form a practical tool for transferring logged data and real time measurement data from the MI70 to a PC.

Pressure

VAISALA

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Vaisala Barometric Pressure Transfer Standard PTB330TS

Technical Data

These specifications apply when MI70, PTB330 and HMP155 are used together in the PTB330TS product. For individual specifications, please refer to the product documentation and brochures of the PTB330 and HMP155.

General

Operating temperature range	-10 ... +40 °C (+14 ... +104)°F
Operating humidity range	non-condensing
Maximum pressure limit	5000 hPa abs.
Power supply	Rechargeable NiMH battery pack with AC-adapter or 4xAA-size alkalines, type IEC LR6
Operation time	
(using rechargeable battery pack)	
Continuous use with PTB330	11 h typical at +20 °C (+68 °F)
Datalogging use	up to 30 days
Menu languages	English, Chinese, French, Spanish, German, Russian, Japanese, Swedish, Finnish
Display	LCD with backlight, graphic trend display of any parameter, character height up to 16 mm
Data logging capacity	2700 points
Alarm	audible alarm function

PTB330TS is in conformity with the following EU directives:
- EMC Directive (2004/108/EC) Complies with the EMC product family standard EN61326-1, Electrical equipment for measurement control and laboratory use - Basic immunity test requirements.
- Low Voltage Directive (2006/95/EC)
- ROHS Directive (2002/95/EC)

Performance

Barometric Pressure (PTB330)

Measurement range	500 ... 1100 hPa
Linearity*	±0.05 hPa
Hysteresis*	±0.03 hPa
Repeatability*	±0.03 hPa
Calibration uncertainty**	±0.07 hPa
Accuracy at +20 °C (+68 °F) ***	±0.10 hPa
Temperature dependence****	±0.1 hPa
Total accuracy -40... +60 °C (-40...+140 °F)	±0.15 hPa
Long-term stability	±0.1 hPa/year
Settling time at power-up (one sensor)	4 s
Response time (one sensor)	2 s
Acceleration sensitivity	negligible

*   Defined as ±2 standard deviation limits of endpoint nonlinearity, hysteresis 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 endpoint 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.

Relative Humidity (HMP155)

Measurement range	0 ... 100 %RH
Accuracy (incl. non-linearity, hysteresis and repeatability) at +15 ... +25 °C (+59 ... +77 °F)	
	±1 %RH (0 ... 90 %RH)
	±1.7 %RH (90 ... 100 %RH)
-10 ... +40 °C (-4 ... 104 °F)	±(1.0 + 0.008 x reading) %RH
Factory calibration uncertainty (+20 °C /+68 °F)	
	±0.6 %RH (0 ... 40 %RH)*
	±1.0 %RH (40 ... 97 %RH)*
Humidity sensor	HUMICAP180R
	HUMICAP180RC
Response time at +20 °C in still air with a sintered PTFE filter	
63 %	20 s
90 %	60 s

* Defined as ±2 standard deviation limits. Small variations possible, see also calibration certificate.

Temperature (HMP155)

Measurement range	-10 ... +40 °C (+14 ... +104 °F)
Accuracy	
-10 ... +20 °C	±(0.176 - 0.0028 x temperature) °C
+20 ... +40 °C	±(0.07 + 0.0025 x temperature) °C
Accuracy over temperature range (see graph overleaf)	
Temperature sensor	Pt100 RTD Class F0.1 IEC 60751
Response time with additional temperature probe in 3 m/s air flow	
63 %	<20 s
90 %	<35 s

Technical Data

Available Parameters

|	
Pressure parameters	P, P3h, HCP, QFE, QNH
Humidity and temperature parameters	RH, T, Tdf, Td, x, Tw

Inputs and Outputs

MI70 probe ports	2
MI70 data interface	RS-232 (accessible only with MI70 Link software)
PTB330 supply voltage	10 ... 35 VDC (if not powered by MI70)
PTB330 data interface	RS-232C
PTB330 serial I/O connectors	RJ45 (service port)
	Male 8-pin M12 (user port)
HMP155 data interface	RS-485
HMP155 serial I/O connector	Male 8-pin M12

Mechanics

PTB330

Housing material	G-AlSi 10 Mg (DIN 1725)
Housing classification	IP65
Pressure connector	M5 (10-32) internal thread
Pressure fitting	barbed fitting for 1/8" I.D. tubing or quick connector with shutoff valve for 1/8" hose

HMP155

Housing material	PC
Housing classification	IP66
Additional T-probe cable length	2 m
Cable material	PUR
Sensor protection	Sintered PTFE

MI70 MEASUREMENT INDICATOR

Housing classification	IP54
Housing material	ABS/PC blend

TRANSPORT CASE

Housing classification (when closed)	IP67
Plastic parts	TTX01®, PP+SEBS, POM
Metal parts	stainless steel AISI303
Interior foam material	PE and polyether
Weight with all instruments and typical accessories	5.9 kg
Exterior dimensions (LxWxH)	405×330×165 mm (15.94×12.99×6.50) inch

Accessories

PTB330

MI70 – PTB330 Spiral Cable	223235SP
USB-RJ45 serial connection cable	219685
Serial connection cable	19446ZZ
Barbed fitting 1/8"	19498SP
Quick Connector 1/8"	220186
Transport case with interior foams and tabletop casing for PTB330	224068SP
Tabletop casing for PTB330	224064SP

MI70

USB cable for MI70, includes MI70 Link software	219687
MI70 Link software	MI70LINK
MI70 connection cable to HMT330, MMT330, DMT340, HMT120/130, HMT100, PTB330	211339
MI70 battery pack	26755
variety of AC adapters available	

HMP155

HMP155 – MI70 connection cable	221801
Protection set for HMP155 calibration buttons: protective cover, 2 O-rings and protective plug	221318
USB cable for HMP155	221040
Sintered teflon filter + O-ring	219452SP
Humidity sensor	HUMICAP180R
Humidity Calibrator	HMK15
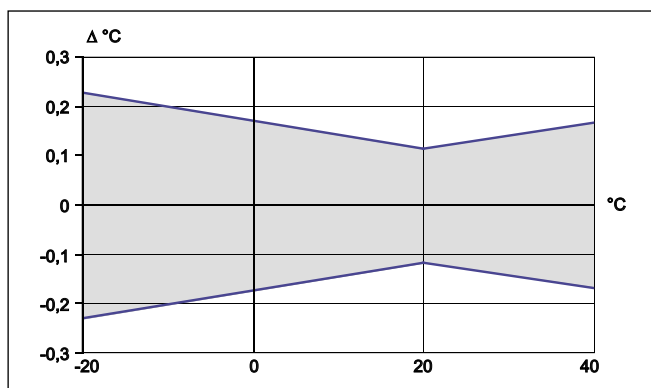
Accuracy of HMP155 temperature measurement over temperature range

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