Dracal TECHNOLOGIES

USB ATMOSPHERIC PRESSURE, TEMPERATURE AND RELATIVE HUMIDITY SENSOR — PTH200

DESCRIPTION

The PTH200 is designed for environmental temperature, humidity and atmospheric pressure (barometric) data acquisition. Its core digital sensor chips are built around industry-proven technologies and are individually factory-calibrated, linearized and temperature-compensated, resulting in a cutting-edge performance. The compact probe eases integration, even in space-constrained locations, and the built-in particle filter provides protection against dust, soot and other contaminants.

APPLICATIONS

○ OEM
○ Greenhouse
○ Server rooms
○ Manufacturing
○ Pre-certification
○ LIMS integration
○ Humidity control
○ Scientific research
○ Building automation
○ Engineering and R&D
○ Environmental chamber

INSTALLATION TIME
Less than 10 minutes

UNIQUE SERIAL NUMBER
Each unit is assigned a unique serial number allowing for traceability and certification

FREE DAQ SOFTWARE
Real-time data visualization and logging

DATA INTEGRATION
Command-line tools for direct data access and integration

OPTIONS
○ Virtual COM Port (VCP) communication protocol
○ 3-point user calibration mechanism

ALSO AVAILABLE
Traceability certificates

SPECIFICATIONS

Parameter	Condition		Value	Units
Temperature				
Operating range	Max., -40 to 70°C		–	–
Accuracy	-40 to 70°C	Typ.	±0.3	°C
		Max.	±0.4	
Accuracy	-40 to 0°C	Typ.	±0.3	°C
		Max.	±0.4	
Accuracy	0 to 70°C	Typ.	±0.2	°C
		Max	±0.4	
Resolution	Typ.		0.01	°C
Repeatability	Typ.		0.06	°C
Response time	t63%		10	s
Factory calibrated	Individually[2]		yes	–
Relative humidity				
Operating range[3]	Non-condensing	–	0 to 100	%RH
Accuracy	0 to 100 %RH	25°C Typ.	±2	%RH
		Max	±3.5	
Accuracy	0 to 90 RH%	25°C Typ.	±2	%RH
		Max	±2.5	
Accuracy	0 to 90 %RH	0 to 70°C Typ.	±2	%RH
		Max.	±2.5	
Accuracy	90 to 100 %RH	0 to 70°C Typ.	±2	%RH
		Max.	±3.5	
Resolution	Typ.		0.01	%RH
Hysteresis	25°C		0.8	%RH
Factory calibrated	Individually[2]		Yes	–
Atmospheric pressure				
Sensor location	Inside the USB interface housing			
Operating temperature range	–		0 to 70	°C
Operating pressure range	For full accuracy		45 to 110	kPa
Extended pressure range	Linear range of ADC		1 to 120	kPa
Altitude resolution[4]	–		≈10	cm
ADC resolution	–		24	bits
Response time	–		0.5	s

SPECIFICATIONS

Parameter	Condition			Value	Units
Atmospheric pressure					
Factory calibrated	Individually[2]			Yes	–
Filter	1ⁿᵈ order			–	–
Noise	–			±0.0012	kPa
Accuracy	70 to 110 kPa	25°C	Typ.	±0.15	kPa
Accuracy	70 to 110 kPa	10 to 40°C	Typ.	±0.18	kPa
Accuracy	45 to 110 kPa	0 to 50°C	Typ.	±0.2	kPa
Long term stability		–		±1	mbar
Probe					
Operating range	–	–		-40 to 70	°C
Cable material	PVC				
Cable lenght	–	–		1 (3)	m (ft)
Filters					
First filter material	Polyethylene terephthalate (PET) mesh				
Second filter matirial	PTFE membrane				
Efficiency	Particle size ≥200 nm			99.99	%
Power supply					
Voltage	Powered through a USB port			5	V
Current consumption	–	At 5V		15	mA
Mechanical					
Dimensions	See schema below			–	–
Colour	–	–		Cyan	–
Weight (without USB cable)	–			40	g

[1] Only if cable is not moved/flexed while the temperature is below 0°C.

[2] Each sensor is individually conditioned by the manufacturer of the semi-conductor sensor chips, in the best stable conditions and their correction coefficients are recorded in each of them.
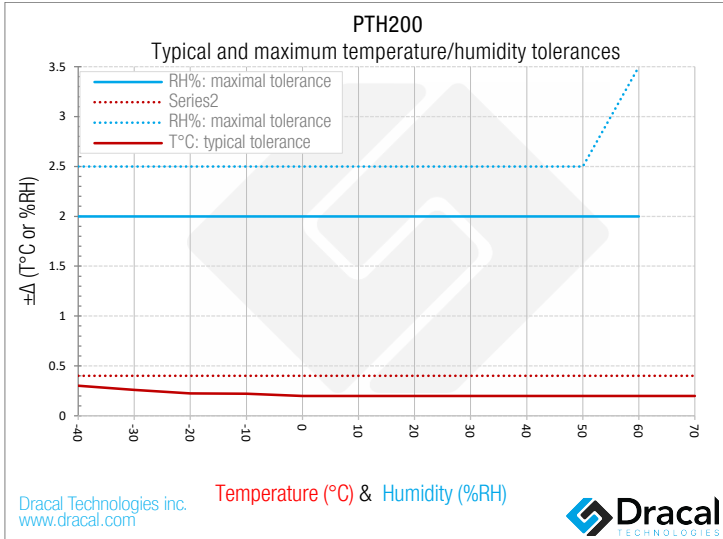
[3] If water condensation or splashing is possible, it is recommended to install the probe pointing down to reduce the risk of water build-up in the sensor. If water splashing is possible, protect the sensor and the cable converter using extra precautions. Extra housing may be required depending on the application.
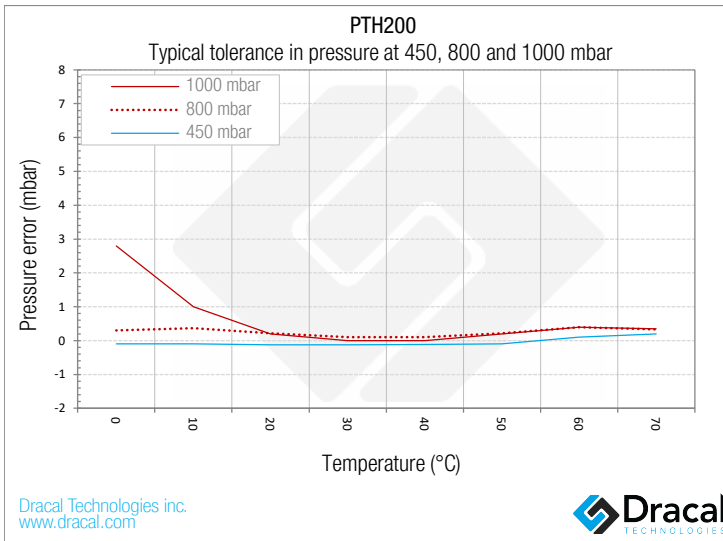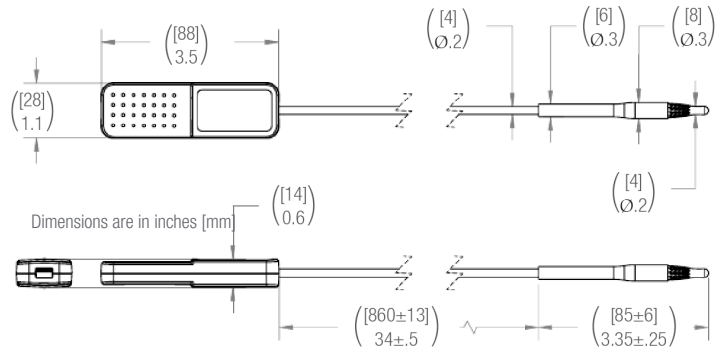
[4] In a fully controlled environment.

SPECIFICATIONS

Parameter	Condition	Value	Units
Housing and USB cable			
Temperature operating range	–	0 to 70	°C
Humidity operating range	Non condensing	10 to 90	%RH
Material	–	ABS	–
IP rating	–	51	–
System galvanic isolation	–	None	–
USB cable length	–	1 (3)	m (ft)
Miscellaneous			
ADC resolution	–	16	bits
Long-term stability	–	Yes	–
Temperature compensated	By the manufacturer	Yes	–
Lifetime	–	5	years

AVAILABLE CHANNEL(S)
As displayed in our logging software

CHANNEL ID*	DECRIPTION	TYPE	NATURE
00	MS5611 Pressure	Pressure	Real
01	SHT31 Temperature	Temperature	Real
02	SHT31 Relative Humidity	Relative Humidity	Real
03	Dew point	Dew point	Virtual
04	Humidex	Humidex	Virtual
05	Heat index	Heat index	Virtual
06	Altitude	Height	Virtual

* Channel Id as it appears in DracalView. Virtual channel Id differ in DracalView and dracal-usb-get.

PTH200
Typical and maximum temperature/humidity tolerances

- RH%: maximal tolerance
- Series2
- RH%: maximal tolerance
- T°C: typical tolerance

$\pm\Delta$ (T°C or %RH)

Temperature (°C) & Humidity (%RH)

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www.dracal.com

PRODUCT DIMENSIONS

Dimensions are in inches [mm]

ORDERING

PTH200
Typical tolerance in pressure at 450, 800 and 1000 mbar

- 1000 mbar
- 800 mbar
- 450 mbar

Pressure error (mbar)

Temperature (°C)

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PRODUCT(S)

PART NUMBER	OPTION	DESCRIPTION
601014	USB-PTH200	USB Atmospheric pressure, temperature and relative humidity sensor
608014	USB-PTH200-CAL	USB Atmospheric pressure, temperature and relative humidity sensor - calibratable
603014	VCP-PTH200	USB Atmospheric pressure, temperature and relative humidity sensor - with VCP mode
605014	VCP-PTH200-CAL	USB Atmospheric pressure, temperature and relative humidity sensor - calibratable with VCP mode

TRACEABILITY CERTIFICATE(S)

NT1WT	1-point temperature certificate for one (1) unit
NT2WT	2-point temperature certificate for one (1) unit
NT3WT	3-point temperature certificate for one (1) unit
NT4WT	4-point temperature certificate for one (1) unit
NT1WH	1-point relative humidity certificate for one (1) unit
NT2WH	2-point relative humidity certificate for one (1) unit
NT3WH	3-point relative humidity certificate for one (1) unit
NT4WH	4-point relative humidity certificate for one (1) unit
NT1WP	1-point pressure certificate for one (1) unit
NT2WP	2-point pressure certificate for one (1) unit
NT3WP	3-point pressure certificate for one (1) unit
NT4WP	4-point pressure certificate for one (1) unit
NT5WP	5-point pressure certificate for one (1) unit

CAUTION: Please keep in mind that electromagnetic interference (EMI) may decrease the accuracy of the sensor. Avoid using this device near EMI sources such as motors, high voltage transformers and fluorescent tubes.

NOTE: Note that this product is not waterproof and requires protection if contact with water is possible.

TIP: Avoid installing the sensor in a location where strong vibration is likely to occur. Strong vibrations may cause slight inaccuracies in the reading.

TIP: As for any precision measurement equipment, it is advised to power on the unit at least 15 minutes before using it.

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