Dracal
TECHNOLOGIES

USB ATMOSPHERIC PRESSURE, ENHANCED PRECISION HUMIDITY AND WIDE RANGE TEMPERATURE SENSOR PTH450

DESCRIPTION

The PTH450 includes an enhanced precision temperature and humidity sensor, pushing the precision limit a step further. It 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 and field interchangeability. Thanks to its probe special construction, the PTH450 can sustain a wide range of temperature. 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	–	-40 to 125	°C
Accuracy	Typ., 20 to 60°C	±0.1	°C
Accuracy	-40 to 125°C	±0.2	°C
Resolution	Typ.	0.015	°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	Typ., 25°C, 0 to 80 %RH	±1.5	%RH
Accuracy	Typ., 25°C, 80 to 100 %RH	±2	%RH
Resolution	Typ.	0.01	%RH
Repeatability	–	0.15	%RH
Factory calibrated	Individually[2]	Yes	–
Atmospheric pressure			
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
Factory calibrated	Individually[2]	Yes	–
Filter	–	2nd order	–
Noise	–	±0.0012	kPa
Sensor location	Inside the USB interface housing		

SPECIFICATIONS			
Parameter	Condition	Value	Units
Atmospheric pressure			
Accuracy	Typ., 25°C, 70 to 110 kPa	±0.15	kPa
Accuracy	0 to 50°C 45 to 110 kPa	±0.2	kPa
Accuracy	-20 to 85°C 45 to 110 kPa	±0.35	kPa
Accuracy	-40 to 85°C 45 to 110 kPa	±0.6	kPa
Probe			
Operating range	–	-40 to 125	°C
Cable material	Silicon		
Cable lenght	–	1 (3)	m (ft)
Filter - Layer 1			
Material	Anodized aluminum		
Filter - Layer 2			
Material	PTFE membrane		
Efficiency	Particle size ≥200 nm	99.99	%
Housing and USB cable			
Temperature operating range	–	0 to 70	°C
Humidity operating range	Non condensing	10 to 90	%RH
Material	–	ABS	–
IP rating[3]	–	51	–
System galvanic isolation	–	None	–
USB cable length	–	1 (3)	m (ft)
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

Warning: This product is not designed for use in, and should not be used for, human applications.

Note: While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions.

Note: Data may change without notification, and you are strongly advised to obtain copies of the most recently issued datasheet.

SPECIFICATIONS

Parameter	Condition	Value	Units
Miscellaneous			
ADC resolution	–	16	bits
Long-term stability	–	Yes	–
Temperature compensated	By the manufacturer	Yes	–
Lifetime	–	5	years

[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.

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 QTenki. Virtual channel Id differ in QTenki and usbtenkiget.

PRODUCT DIMENSIONS

Dimensions are in inches [mm]
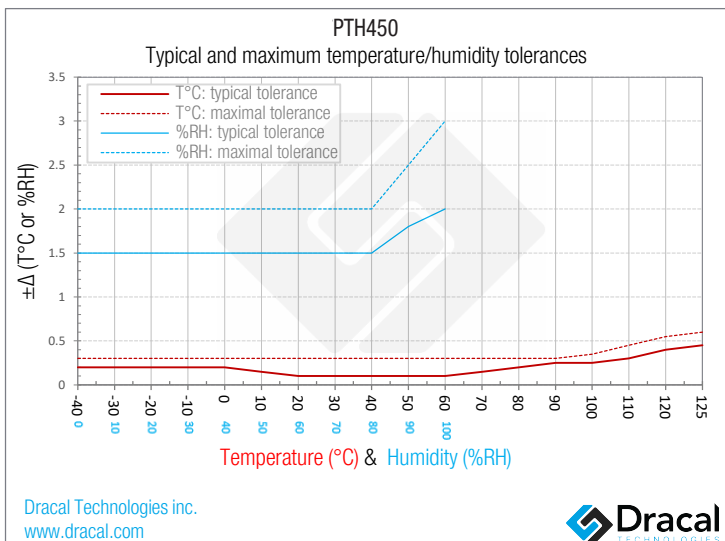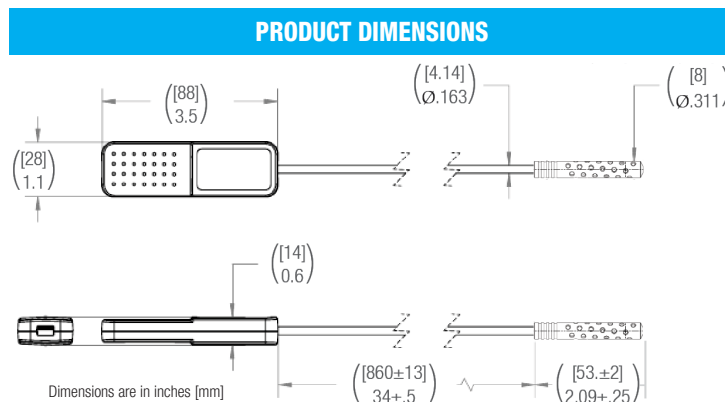
CAUTION: Keep in mind that electromagnetic interferences (EMI) may adversely reduce the precision of the sensor. Avoid using this unit close to EMI sources such as or, transformers, high voltage and fluorescent light.

NOTE: This product is not waterproof and must be protected if contact with water is possible.

If the probe is inadvertently splashed or submerged in water for a few seconds, unplug the unit, shake it up and let it dry.

TIP: Avoid installing the sensor in a location where considerable vibrations may be present. Large vibrations can introduce extra inaccuracy in the pressure readings.

PTH450
Typical and maximum temperature/humidity tolerances

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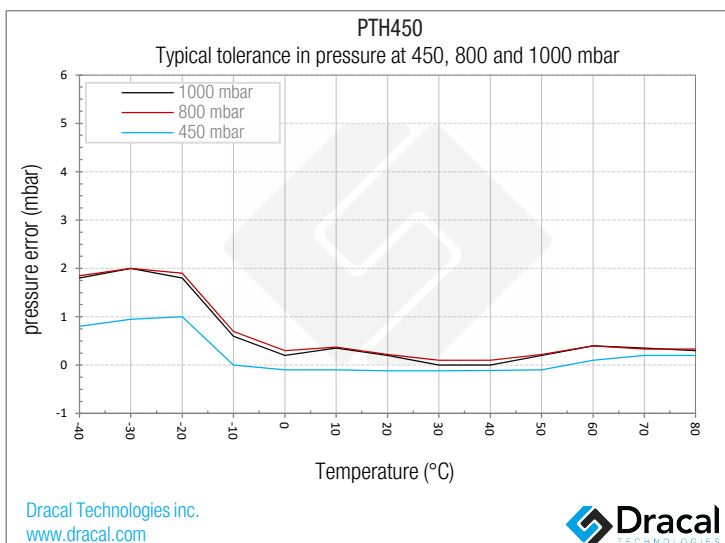
ORDERING

PRODUCT(S)

PART NUMBER	OPTION	DESCRIPTION
601081	USB-PTH450	Enhanced precision USB temperature, humidity and barometer sensor (aluminium probe)
603081	VCP-PTH450	Enhanced precision USB temperature, humidity and barometer sensor (aluminium probe) - with VCP mode
608081	USB-PTH450-CAL	Enhanced precision USB temperature, humidity and barometer sensor (aluminium probe) - calibratable

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

PTH450
Typical tolerance in pressure at 450, 800 and 1000 mbar

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