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Dracal TECHNOLOGIES PTH200 USB Atmospheric Pressure Temperature Sensor User Manual

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Product Overview

The PTH200 USB sensor is a sophisticated instrument tailored for environmental data acquisition, encompassing temperature, humidity, and atmospheric pressure. Its precision lies in advanced digital sensor chips, meticulously calibrated, linearized, and temperature-compensated during manufacturing. Remarkably sensitive, it can detect minute variations in all three parameters through a standard USB connection. With its compact design, the probe will fit anywhere, making it an invaluable tool for diverse scientific applications.

Specifications

Temperature

- Probe operating range -40 °C * to 70 °C
- Typical accuracy from -40 °C to 70 °C ±0.3 °C, Maximum ±0.4 °C
- Resolution 0.01 °C (typical)

Relative humidity

- Probe operating range 0 %RH to 100 %RH (non-condensing)
- Typical accuracy from 0 to 70 °C ±2 %RH from 0 %RH to 100 %RH
- Maximum accuracy at 25 °C
    - ±2 %RH from 0 to 90 %RH;
    - ±3.5 %RH from 90 %RH to 100 %RH
- Resolution 0.01 %RH (typical)

Atmospheric pressure

- The operating range for full accuracy is 45 to 110 kPa
- Accuracy ±0.15 kPa at 25 °C
- Resolution 0.0065 kPa
- Digital resolution 24 bits
- Altitude resolution Approx. 10 cm
- Internal factory-calibration coefficients

Miscellaneous

- Supply: Powered by a USB port or a powered USB HUB.
- Operating temperature range (USB cable and housing): -20 °C to 70 °C.
- Supported by the SensGate DAQ unit.
- Computes the dew point, heat index, humidex, and altitude.
- Simultaneous operation of multiple Dracal sensors is supported.**

* Only if the cable is not moved/flexed while the temperature is below 0 °C.
** Only limited by allowable USB topologies and OS capacity. Fifty simultaneous USB sensors have been tested under Windows 8.

Safety Guidelines
WARNING: Electromagnetic interference (EMI) may decrease the sensor's accuracy. Avoid using this device near EMI sources such as motors, high-voltage transformers, and fluorescent tubes.
WARNING: This product should not be used in applications where its failure may cause personal injury.

Installation and Setup

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

Installation

1. Download the DracalView* software at **https://www.dracal.com/en/software/**
2. Follow the installer's instructions. The whole process should take less than a minute. The setup is now completed.
3. Insert the unit into a free USB port.

* Includes a set of command-line tools.

Usage Guidelines and Applications

Operation – DracalView
We recommend launching DracalView to check if the instrument is connected correctly and works as expected. Here are the main steps of the Getting Started with DracalView guide.

1. Connect an instrument.
2. Launch DracalView.
3. Verify the instrument appears in the Sources tab.
4. Modify units and decimals in the Configuration tab (Optional).
5. Customize the names of channels to record in the Sources tab (Optional).
6. Visualize data on GraphView.

   Please refer to the **PTH200** page for the complete guide, specifically the "Software & Documentation" tab.

Of note, to log data with DracalView, these are the remaining main steps of the Getting Started guide:

7. Initiate the logging task in the Logging tab.

8. Keep an eye on data with BigView.

Watch an **introductory video** for a quick overview of setting up and logging data in less than 3 minutes.

Operation – Command-line interface

The command-line tools are available with the download of DracalView. In the **Getting Started** guide, locate them and call the -h (help) argument, whether on a Windows, MacOS X, or Linux-based computer. For complete documentation on how to use dracal-usb-get or dracal-sensgate-get, code examples, and integrating sensor data into LabVIEW™, click on the relevant link in the same Getting Started guide. Briefly, to log data to a file, here is the command line: dracal-usb-get -s [serial number] -i [chosen channels] -L [location]

To redirect the output, give the argument -L the parameter "- " to have a stdout output.

Operation – COM Protocol

"VCP-" prefix: If present, the product is equipped with the virtual COM port (VCP) option, which allows it to be freely converted between USB and VCP modes. It is delivered in USB mode. To convert the product from USB to VCP mode,

1. Open a command-line terminal.

2. Call "dracal-usb-set -f set_protocol VCP" and disconnect the product.

To reverse the product back to USB mode, Send the "PROTOCOL USB" command and disconnect the product. Please note that under Windows, once an instrument is converted to VCP, it is not recognizable by DracalView and the command-line tools. For additional information, please click the relevant link in the Software & Documentation section of the **PTH200** page.

Calibration

"-CAL" suffix: If present, the product is equipped with a 3-point user-calibration mechanism. The **Getting Started** guide for calibration is summarized as follows:

1. Determine the calibration points.
2. Perform the calibration using DracalView or dracal-usb-cal.

A comprehensive video tutorial on the best practices for calibrating instruments using DracalView can be found **here**.

The Getting Started guide for successful calibration, mentioned in this section, provides many tips and complementary documentation.

Care, Storage, and Recalibration

Care
Use within the specifications available in the **PTH200** datasheet.
NOTE: Note that this product is not waterproof and requires protection if contact with water is possible.

Storage
Store within the housing temperature and humidity ranges specified in the **PTH200** datasheet.

Recalibration
Dracal's measuring instruments are factory-calibrated. It is possible to purchase a calibration certificate traceable to the SI along with the instrument and receive a calibrated instrument. An ISO17025-accredited laboratory performs this calibration. If the instrument has a "-CAL" suffix, it can be adjusted for accuracy during the calibration. The long-term drift of the PTH200 is less than 0.03 °C per year. Therefore, depending on the user's application, an adjustment might be required more frequently.

Troubleshooting Guide and Support

Troubleshooting
TIP: Avoid installing the sensor in a location where strong vibration is likely to occur. Strong vibrations may cause slight inaccuracies in the reading.
Feel free to browse the website's Resources section for any supplementary information. Here are interesting articles:

- **Most frequent questions about Dracal**
- **Top challenges and their solutions**
- **FAQs about calibration**

Support

Dracal Technologies has a dedicated email address for support: **support@dracal.com**.
As customer satisfaction is a priority, someone (an actual human!) will respond within 24 hours.

Return Process and Warranty Information
Return Process

If a customer experiences issues with a Dracal sensor, they can contact **support@dracal.com** and explain their problem. In most cases, there will be an easy solution. In the rare event of a faulty instrument under warranty, Dracal Technologies will proceed to a replacement upon evaluating the situation. The procedure will be explained through email once the customer advises **support@dracal.com**.

Warranty

The complete warranty can be found on Dracal Technologies' website **here**. Briefly, Dracal Technologies only warrants to the original product purchaser for 36 months (3 years) from the delivery date.

Accessories and Peripherals

To use Dracal Technologies' complete DAQ solution, the user must download the software on a computer with a USB port. Aside from sensors, Dracal Technologies offers a remote data logging station: the **SensGate**. Both a Wi-Fi/Ethernet gateway for Dracal's sensors and a data logger, fulfill the needs of customers requiring a remote solution to precision data acquisition.

Disassembly and Environmental Considerations
Disassembly Instructions

1. Turn Off Power: Before disassembling the USB sensor, ensure it is disconnected from any USB port.
2. Remove External Connections: Unplug any cables connected to the USB sensor.
3. Identify Screws and Fasteners: Locate and identify any screws or fasteners securing the casing of the USB sensor.
4. Separate Casing: Gently separate the casing; be careful about damaging internal components. If resistance is encountered, recheck for any overlooked screws.
5. Document Component Positions: Before further disassembly, document the positions of internal components for ease of reassembly.
6. Handle Components with Care: Handle internal components carefully to avoid electrostatic discharge and damage. Use an ESD (Electrostatic
7. Discharge) mat or wrist strap if available.
8. Follow Reverse Order for Reassembly: When reassembling the USB sensor, follow the disassembly steps in reverse order, ensuring components are correctly positioned and secured.

Environmental Considerations

1. Recycling Recommendations: Dispose of components and packaging materials in local recycling regulations. Check with
2. local authorities for proper e-waste disposal facilities.
3. Reuse Opportunities: Consider reusing components or donating functional parts to minimize environmental impact.
4. Minimize Energy Consumption: Power down or disconnect the USB sensor when not in use to minimize energy consumption.

RoHS Compliance

Our USB sensors adhere to RoHS (Restriction of Hazardous Substances) directives, ensuring they are free from harmful substances such as lead, mercury, and cadmium.

CE and REACH Compliance

These USB sensors comply with CE (Conformité Européenne) and REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) regulations, meeting European safety and environmental impact standards.

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FAQs

Q: What should I do if the sensor's accuracy is affected by electromagnetic interference?
A: To prevent accuracy issues due to electromagnetic interference, ensure that the sensor is not placed near EMI sources like motors, high-voltage transformers, and fluorescent tubes.

Q: Can I recalibrate the sensor if needed?
A: Yes, you can recalibrate the sensor by following the recalibration instructions provided in the user manual or by contacting customer support for assistance.

Documents / Resources

User Manual image	**Dracal TECHNOLOGIES PTH200 USB Atmospheric Pressure Temperature Sensor** [pdf] User Manual PTH200, USB-PTH200, VCP-PTH200, PTH200 USB Atmospheric Pressure Temperature Sensor, PTH200, USB Atmospheric Pressure Temperature Sensor, Pressure Temperature Sensor, Temperature Sensor

References

- ◈ **Home - Dracal Technologies**
- ◈ **Contact Us - Dracal Technologies**
- ◈ **The Most Frequently Asked Questions about Dracal - Dracal Technologies**
- ◈ **Succeeding in 3-Point Calibration of Dracal Sensors - Dracal Technologies**
- ◈ **Getting started with Dracal command-line tools - Dracal Technologies**
- ◈ **3-year warranty policy**
- ◈ **Free USB DAQ for data integration, visualization and automation**
- ◈ **Top challenges faced by Dracal users and solved - Dracal Technologies**
- ◈ **Guide on Dracal sensor calibration and its benefits - Dracal Technologies**
- **User Manual**