

PASCO
PS-4201 Wireless Temperature
Sensor with OLED Display



PASCO PS-4201 Wireless Temperature Sensor with OLED Display User Guide

[Home](#) » [PASCO](#) » PASCO PS-4201 Wireless Temperature Sensor with OLED Display User Guide 

Contents

- 1 [PASCO PS-4201 Wireless Temperature Sensor with OLED Display](#)
- 2 [Specifications](#)
- 3 [Product Usage Instructions](#)
- 4 [FAQ](#)
- 5 [Introduction](#)
 - 5.1 [Components](#)
- 6 [Initial step: Charge the battery](#)
- 7 [Get the software](#)
- 8 [Check for a firmware update](#)
- 9 [Using the sensor without software](#)
- 10 [Use the sensor with software](#)
 - 10.1 [SPARKvue](#)
 - 10.2 [PASCO Capstone](#)
 - 10.3 [chemvue](#)
- 11 [Calibration](#)
- 12 [Temperature probe maintenance](#)
- 13 [Replace the battery](#)
- 14 [Troubleshooting](#)
- 15 [Technical support](#)
- 16 [Limited warranty](#)
- 17 [Copyright](#)
- 18 [FCC statement](#)
- 19 [Documents / Resources](#)
 - 19.1 [References](#)

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PASCO PS-4201 Wireless Temperature Sensor with OLED Display



Specifications

- **Product Name:** Wireless Temperature Sensor with OLED Display
- **Model Number:** PS-4201
- **Display:** OLED
- **Connectivity:** Bluetooth, USB-C
- **Power Source:** Rechargeable battery

Product Usage Instructions

Charging the Battery:

1. Connect the included USB-C cable to the sensor's USB-C port and a standard USB charger.
2. The Battery Status LED will show solid yellow while charging and change to solid green when fully charged.

Powering On and Off:

- To turn the sensor on, press the power button once. Press twice quickly to toggle between units displayed on the OLED screen.
- To turn the sensor off, press and hold the power button.

Data Transmission:

The temperature measurement can be transmitted wirelessly via Bluetooth or using the USB-C cable to connect to a computer or tablet. Ensure the sensor is powered on before transmission.

Software Update:

For firmware updates, follow the specific instructions for SPARKvue or PASCO Capstone as outlined in the user manual.

FAQ

• Can the sensor be submerged in liquid?

No, the sensor body is not waterproof. Only immerse 1-2 inches of the probe in liquid for accurate temperature readings.

• How many units can be connected to a computer or tablet simultaneously?

Multiple sensors can be connected to the same computer or tablet at a time due to each sensor having a unique device ID number.

Introduction

- The Wireless Temperature Sensor with OLED Display measures temperature over a range of -40 °C to 125 °C. The stainless steel temperature probe is more durable than a glass thermometer and is able to work in a wide variety of situations. The sensor is powered by a rechargeable battery, which can be charged using the included USB-C cable, and is designed to optimize the battery usage time. The mounting rod hole on the side of the sensor allows you to mount the sensor on a 1/4-20 threaded rod.
- The temperature measurement is displayed at all times on the built-in OLED display and can be toggled between three different units at any time. The measurement can also be transmitted (either wirelessly through Bluetooth or via the included USB-C cable) to a connected computer or tablet to be recorded and displayed by PASCO Capstone, SPARKvue, or chemvue. Since each sensor has a unique device ID number, more than one can be connected to the same computer or tablet at a time.

CAUTION: Do NOT immerse the body of the sensor in liquid! The casing is not waterproof, and exposing the sensor body to water or other liquids may cause electric shock or serious damage to the sensor. Only 1-2 inches of the probe need to be immersed in the liquid to obtain an accurate temperature measurement.

Components

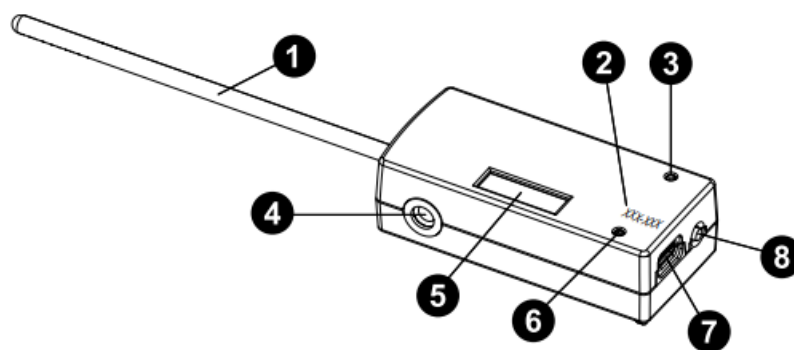
Included equipment:

- Wireless Temperature Sensor with OLED Display (PS-4201)
- USB-C cable

Recommended software:

PASCO Capstone, SPARKvue, or chemvue data collection software

Features



1. Temperature probe

Tolerates temperatures between -40 °C and +125 °C.

2. Device ID

Use to identify the sensor when connecting via Bluetooth.

3. Battery Status LED

Indicates the charging status of the sensor's rechargeable battery.

Battery LED	Status
Red blink	Low power
Yellow ON	Charging
Green ON	Fully charged

4. Mounting rod hole

Use to mount the sensor to a 1/4-20 threaded rod, such as the Pulley Mounting Rod (SA-9242).

5. OLED display

Displays the most recent temperature measurement at all times while the sensor is powered on.

6. Bluetooth Status LED

Indicates the status of the sensor's Bluetooth connection.

Bluetooth LED	Status
Red blink	Ready to pair
Green blink	Connected
Yellow blink	Logging data (SPARKvue and Capstone only)

See the PASCO Capstone or SPARKvue online help for information on remote data logging. (This feature is not available in chemvue.)

7. USB-C port

Connect the included USB-C cable here to connect the sensor to a standard USB charging port. You can also use this port to connect the sensor to a computer via a standard USB port, allowing you to send data to SPARKvue, PASCO Capstone, or chemvue without using Bluetooth.

8. Power button


Press to turn the sensor on. Quickly press twice to toggle the measurement units on the OLED display between degrees Celsius (°C), degrees Fahrenheit (°F), and Kelvin (K). Press and hold to turn the sensor off.

Initial step: Charge the battery

Charge the battery by connecting the included USB-C cable between the USB-C port and any standard USB charger. The Battery Status LED is solid yellow while charging. When fully charged, the LED changes to solid green.

Get the software

- You can use the sensor with SPARKvue, PASCO Capstone, or chemvue software. If you're not sure which to use, visit [pasco.com/products/guides/software-comparison](https://www.pasco.com/products/guides/software-comparison).
- A browser-based version of SPARKvue is available for free on all platforms. We offer a free trial of SPARKvue and Capstone for Windows and Mac. To get the software, go to [pasco.com/downloads](https://www.pasco.com/downloads) or search for SPARKvue or chemvue in your device's app store.
- If you have installed the software previously, check that you have the latest update:

- **SPARKvue:** Main Menu  > Check for Updates
- **PASCO Capstone:** Help > Check for Updates
- **chemvue:** See the download page.

Check for a firmware update

SPARKvue

1. Press the power button until the LEDs turn on.
2. Open SPARKvue, then select Sensor Data on the Welcome Screen.



3. From the list of available wireless devices, select the sensor that matches your sensor's device ID.
4. A notification will appear if a firmware update is available. Click Yes to update the firmware.
5. Close SPARKvue once the update is complete.


PASCO Capstone

1. Press the power button until the LEDs turn on.
2. Open PASCO Capstone and click Hardware Setup from the Tools palette.



3. From the list of available wireless devices, select the sensor that matches your sensor's device ID.
4. A notification will appear if a firmware update is available. Click Yes to update the firmware.
5. Close Capstone once the update is complete.

chemvue

1. Press the power button until the LEDs turn on.
2. Open chemvue, then select the Bluetooth  button.
3. From the list of available wireless devices, select the sensor that matches your sensor's device ID.
4. A notification will appear if a firmware update is available. Click Yes to update the firmware.
5. Close chemvue once the update is complete.

Using the sensor without software

- The Wireless Temperature Sensor with OLED Display can be used without data collection software. To do so, simply turn on the sensor, place the probe onto the surface or into the liquid to be measured, and observe the OLED display. The display will record the temperature measurement from the probe, refreshing at one second intervals.
- By default, the OLED display measures temperature in units of degrees Celsius ($^{\circ}\text{C}$). However, if desired, you can change the display units using the power button. Quickly press and release the power button twice in succession to change the units from $^{\circ}\text{C}$ to degrees Fahrenheit ($^{\circ}\text{F}$). From there you can quickly press the button twice more to change the units to Kelvin (K), and then twice more to return the units to $^{\circ}\text{C}$. The display always cycles through the units in this order.

Use the sensor with software

SPARKvue


Connecting the sensor to a tablet or computer via Bluetooth:

1. Turn on the Wireless Temperature Sensor with OLED Display. Check to make sure the Bluetooth Status LED is blinking red.
2. Open SPARKvue, then click Sensor Data.
3. From the list of available wireless devices on the left, select the device which matches the device ID printed on your sensor.

Connecting the sensor to a computer via USB-C cable:

1. Open SPARKvue, then click Sensor Data.
2. Connect the provided USB-C cable from the USB-C port on the sensor to a USB port or powered USB hub connected to the computer. The sensor should automatically connect to SPARKvue.

Collecting data using SPARKvue:

1. Select the measurement you intend to record from the Select measurements for templates column by clicking the check box next to the relevant measurement's name.
2. Click Graph in the Templates column to open the Experiment Screen. The graph's axes will auto-populate with the selected measurement versus time.
3. Click Start  to begin collecting data.


PASCO Capstone

Connecting the sensor to a computer via Bluetooth:



1. Turn on the Wireless Temperature Sensor with OLED Display. Check to make sure the Bluetooth Status LED is blinking red.
2. Open PASCO Capstone, then click Hardware Setup  in the Tools palette.
3. From the list of Available Wireless Devices, click the device which matches the device ID printed on your

sensor.

Connecting the sensor to a computer via micro USB cable:


1. Open PASCO Capstone. If desired, click Hardware Setup  to check the connection status of the sensor.
2. Connect the provided USB-C cable from the USB-C port on the sensor to a USB port or powered USB hub connected to the computer. The sensor should automatically connect to Capstone.

Collecting data using Capstone:


1. Double-click the Graph  icon in the Displays palette to create a new blank graph display.
2. In the graph display, click the <Select Measurement> box on the y-axis and select an appropriate measurement from the list. The x-axis will automatically adjust to measure time.
3. Click Record  to begin collecting data.

chemvue



Connecting the sensor to a computer via Bluetooth:

1. Turn on the Wireless Temperature Sensor with OLED Display. Check to make sure the Bluetooth  Status LED is blinking red.
2. Open chemvue, then click the Bluetooth button at the top of the screen.
3. From the list of available wireless devices, click the device which matches the device ID printed on your sensor.

Connecting the sensor to a computer via USB-C cable:

1. Open chemvue. If desired, click the Bluetooth  button to check the connection status of the sensor.
2. Connect the provided USB-C cable from the USB-C port on the sensor to a USB port or powered USB hub connected to the computer. The sensor should automatically connect to chemvue.

Collecting data using chemvue:

1. Open the Graph  display by selecting its icon from the navigation bar at the top of the page.
2. The display will automatically be set to plot temperature (in °C) versus time. If a different measurement is desired for either axis, click the box containing the default measurement's name and select the new measurement from the list.
3. Click Start  to begin collecting data.

Calibration

The Wireless Temperature Sensor with OLED Display generally does not need to be calibrated, especially if you are measuring a change in temperature rather than absolute temperature values. However, if necessary, it is possible to calibrate the sensor using PASCO Capstone, SPARKvue, or chemvue. For information on calibrating

the sensor, see the Capstone, SPARKvue, or chemvue online help and search for “Calibrate a temperature sensor”.

Temperature probe maintenance

Before storing the sensor, rinse and dry the temperature probe. The probe is made of stainless steel, and the diameter (5 mm, or 0.197”) is compatible with standard stoppers.

Sensor storage

If the sensor will be stored for several months, remove the battery and store it separately. This will prevent damage to the sensor in the event of a battery leak.

Replace the battery

The battery compartment is located on the back of the sensor, as shown below. If needed, you can replace the battery with the 3.7V 300mAh Lithium Replacement Battery (PS-3296). To install the new battery:

1. Use a Phillips screwdriver to remove the screw from the battery door, then remove the door.
2. Unplug the old battery from the battery connector and remove the battery from the compartment.
3. Plug the replacement battery into the connector. Make sure the battery is properly positioned inside the compartment.
4. Place the battery door back in place and secure it with the screw.

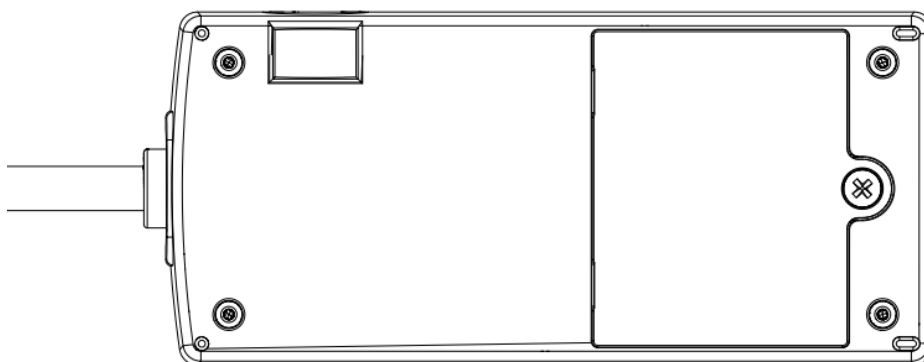


Figure 1: Location of battery compartment.

After replacing the battery, make sure to dispose of the old battery properly per your local laws and regulations.

Troubleshooting

- If the sensor loses Bluetooth connection and will not reconnect, try cycling the ON button. Press and briefly hold the button until the LEDs blink in sequence, then release the button.
- If the sensor stops communicating with the computer software or tablet application, try restarting the software or application.
- If the previous step does not restore communication, press and hold the ON button for 10 seconds, then release the button and start the sensor as usual.
- If the previous steps do not fix a connection problem, turn Bluetooth off and back on for your computer or tablet, then retry.

Software help

The SPARKvue, PASCO Capstone, and chemvue Help provide information on how to use this product with the software. You can access the help from within the software or online.

- **SPARKvue**
 - **Software:** Main Menu > Help
 - **Online:** help.pasco.com/sparkvue
- **PASCO Capstone**
 - **Software:** Help > PASCO Capstone Help
 - **Online:** help.pasco.com/capstone
- **chemvue**
 - **Software:** Main Menu > Help
 - **Online:** help.pasco.com/chemvue

Technical support

Need more help? Our knowledgeable and friendly Technical Support staff is ready to answer your questions or walk you through any issues.

- **Chat** pasco.com
- **Phone**
 - 1-[800-772-8700](tel:800-772-8700) x1004 (USA)
 - +1 916 462 8384 (outside USA)
- **Email** support@pasco.com

Limited warranty

For a description of the product warranty, see the Warranty and Returns page at www.pasco.com/legal.

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Product end-of-life disposal

This electronic product is subject to disposal and recycling regulations that vary by country and region. It is your responsibility to recycle your electronic equipment per your local environmental laws and regulations to ensure that it will be recycled in a manner that protects human health and the environment. To find out where you can drop off your waste equipment for recycling, please contact your local waste recycle or disposal service, or the place

where you purchased the product. The European Union WEEE (Waste Electronic and Electrical Equipment) symbol on the product or its packaging indicates that this product must not be disposed of in a standard waste container.

CE statement

This device has been tested and found to comply with the essential requirements and other relevant provisions of the applicable EU Directives.

FCC statement

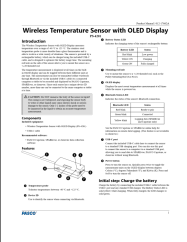
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. this device must accept any interference received, including interference that may cause undesired operation.

Battery disposal

Batteries contain chemicals that, if released, may affect the environment and human health. Batteries should be collected separately for recycling and recycled at a local hazardous material disposal location adhering to your country and local government regulations. To find out where you can drop off your waste battery for recycling, please contact your local waste disposal service, or the product representative. The battery used in this product is marked with the European Union symbol for waste batteries to indicate the need for the separate collection and recycling of batteries.

Documents / Resources

	<p>PASCO PS-4201 Wireless Temperature Sensor with OLED Display [pdf] User Guide PS-4201 Wireless Temperature Sensor With OLED Display, PS-4201, Wireless Temperature Sensor With OLED Display, Temperature Sensor With OLED Display, Sensor With OLED Display, OLED Display, Display</p>
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References

- [P PASCO Capstone Help](#)
- [P Chemvue® Help](#)
- [P SPARKvue Help](#)
- [P PASCO scientific | Science Lab Equipment and Teacher Resources](#)
- [P Popular Downloads | PASCO](#)
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