

# Wireless Temperature Sensor (PS-3201)

PS-3201

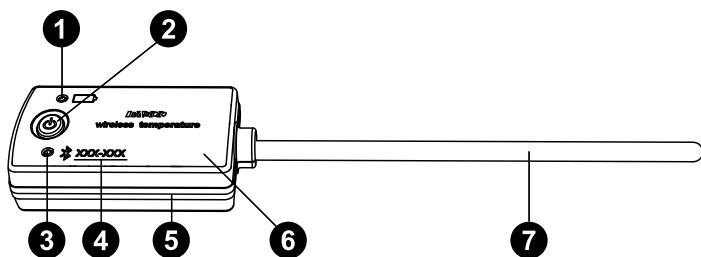
## Introduction

The Wireless Temperature Sensor measures temperature over a range of  $-40\text{ }^{\circ}\text{C}$  to  $125\text{ }^{\circ}\text{C}$ . The stainless steel temperature probe is more durable than a glass thermometer and is able to work in a wide variety of situations. The temperature measurement is transmitted wirelessly through Bluetooth and is recorded and displayed by PASCO Capstone or SPARKvue on a connected tablet or computer. Since each sensor has a unique device ID number, more than one can be connected to the same computer or tablet at a time.

The Wireless Temperature Sensor is powered by a replaceable three volt coin cell battery and is well-suited for continuous recording and discrete measurements. The sensor is designed to optimize the battery usage time.

**NOTE:** The sensor housing is water resistant, but immersing it in water may cause a loss of wireless connection. Only the Temperature Probe should be exposed to the substance being measured. Do NOT immerse the sensor housing in boiling hot water.

## Features



### 1 Battery Status LED

Blinks red when the battery is low on charge.

### 2 ON/OFF button

Press to turn the sensor on. Press and briefly hold to turn the sensor off. Note that the sensor automatically turns itself off after several minutes of inactivity if not connected.

### 3 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

For information on remote data logging, see the PASCO Capstone or SPARKvue online help.

### 4 Device ID

Use this to identify the sensor when connecting via Bluetooth.

### 5 Water-resistant gasket

Protects the sensor from damage if exposed to water.

### 6 Sensor housing

Tolerates temperatures between  $-15\text{ }^{\circ}\text{C}$  and  $+50\text{ }^{\circ}\text{C}$ .

### 7 Temperature probe

Tolerates temperatures between  $-40\text{ }^{\circ}\text{C}$  and  $+125\text{ }^{\circ}\text{C}$ .


## Get the software

You can use the sensor with SPARKvue or PASCO Capstone software. If you're not sure which to use, visit [pasco.com/products/guides/software-comparison](https://www.pasco.com/products/guides/software-comparison).

SPARKvue is available as a free app for Chromebook, iOS, and Android devices. 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** 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

## Check for a firmware update

### SPARKvue

- Press the power button until the LEDs turn on.
- Open SPARKvue, then select **Sensor Data** on the Welcome Screen.
 
- From the list of available devices, select the sensor that matches your sensor's device ID.
- A notification will appear if a firmware update is available. Click **Yes** to update the firmware.
- Close SPARKvue once the update is complete.

### PASCO Capstone

- Press the power button until the LEDs turn on.
- Open PASCO Capstone and click **Hardware Setup** from the Tools palette.
 
- From the list of available wireless devices, select the sensor that matches your sensor's device ID.
- A notification will appear if a firmware update is available. Click **Yes** to update the firmware.
- Close Capstone once the update is complete.


## Set up the software

### SPARKvue

#### Connecting the sensor to a tablet or computer:


1. Turn on the Wireless Temperature Sensor. 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 with the device ID matching the one printed on your sensor.

#### 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:

1. Turn on the Wireless Temperature Sensor. 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.

#### Collecting data using Capstone:

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

## Calibration

Calibration is generally not necessary when using the Wireless Temperature Sensor, especially if you are measuring a change in temperature rather than absolute temperature values. However, it is possible to calibrate the sensor using PASCO Capstone or SPARKvue. For information on calibrating the sensor, see the Capstone or SPARKvue help and search for "Calibrate a temperature sensor".

## Temperature probe maintenance

Rinse and dry the temperature probe before storing the sensor. The probe is 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 to avoid damaging the sensor in case of a battery leak.

## Battery replacement

The Wireless Temperature Sensor is powered by a three volt coin cell battery (CR2032). If the sensor's Battery Status LED blinks red, the battery may need to be replaced.

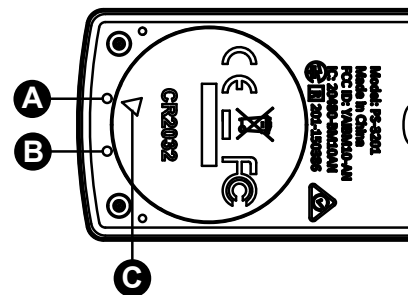


Figure 1. Wireless Temperature Sensor battery compartment. **A:** First mark. **B:** Second mark. **C:** Indicator.

To replace the battery, follow the steps below. The components are labeled in Figure 1 above.

1. Insert a coin into the slot in the battery compartment door. Turn counterclockwise until the indicator (C) is aligned with the second mark (B).
2. Remove the battery compartment door, O-ring gasket, and battery.
3. Insert a new CR2032 battery into the compartment, with the positive (+) side facing upward toward the door.
4. Insert the O-ring gasket into the compartment.
5. Place the door on the sensor, aligning the indicator with the second mark (B). Using a coin, turn the door clockwise until the indicator is aligned with the first mark (A).

## 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 problem persists, press and *hold* the ON button for 10 seconds, then release the button and start the sensor in the usual way.
- If the above steps do not fix a connection problem, turn Bluetooth off and then back on for your computer or tablet, then retry.

## Software help

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

### SPARKvue

**Software:** Main Menu > Help

**Online:** [help.pasco.com/sparkvue](http://help.pasco.com/sparkvue)

### PASCO Capstone

**Software:** Help > PASCO Capstone Help

**Online:** [help.pasco.com/capstone](http://help.pasco.com/capstone)

## Specifications and accessories

Visit the product page at [pasco.com/product/PS-3201](https://www.pasco.com/product/PS-3201) to view the specifications and explore accessories. You can also download experiment files and support documents from the product page.

## Experiment files

Download one of several student-ready activities from the PASCO Experiment Library. Experiments include editable student handouts and teacher notes. Visit [pasco.com/freelabs/PS-3201](https://www.pasco.com/freelabs/PS-3201).

## 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](https://www.pasco.com)
-  Phone 1-800-772-8700 x1004 (USA)  
+1 916 462 8384 (outside USA)
-  Email [support@pasco.com](mailto:support@pasco.com)

### Limited warranty

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