

# Wireless pH Sensor

PS-3204

## About the Product

The Wireless pH Sensor measures the pH of a solution within a range between 0 and 14 pH. The pH measurement is transmitted wirelessly through Bluetooth and displayed in PASCO data collection software. The pH Sensor can also be used with alternative probes, such as Ion Selective Electrodes (ISE) and the Oxidation Reduction Potential Probe.



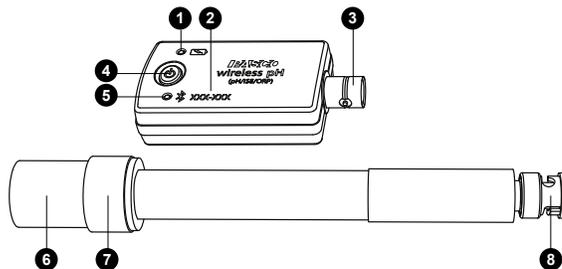
### What's Included

- Wireless pH Sensor
- pH Probe

### Required Items

- **Data Collection Software**  
This product requires either SPARKvue or PASCO Capstone for data collection and analysis.

## Part names and descriptions



- 1 Battery Status Light**   
When the light blinks red, the battery is near the end of its life.
- 2 Device ID**  
Use to identify the sensor when connecting using Bluetooth.
- 3 BNC Connector (Sensor)**  
Use to connect the sensor to the pH probe. Can also be used for connecting various ion selective electrodes, the Oxidation Reduction Potential Probe (PS-3515), and the Flat pH Probe (PS-3514).
- 4 Power Button**   
Press and hold for one second to turn the sensor on or off.
- 5 Bluetooth Status Light**   
Indicates the status of the Bluetooth connection.
 

LIGHT	STATUS
Red, blink	Ready to pair
Green, blink	Paired
Yellow, blink	Remotely logging data
- 6 Storage Bottle**  
Contains pH storage solution to keep the probe hydrated while not in use. Remove the storage bottle from the probe before taking measurements.
- 7 Storage Bottle Cap**  
The cap can remain on the pH probe when the storage bottle is removed. Push the cap to the top of the pH probe when taking measurements.
- 8 BNC Connector (pH Probe)**  
Use to connect the probe to the pH sensor. Push and turn clockwise until the connector locks in place.

 **Note:** When connecting the probe, hold it by the connector and not by the shaft. Twisting the shaft can damage the probe.

## Getting started

Perform the tasks in this section before using this device in the classroom.

### Install or update data collection software

The latest update of PASCO Capstone or SPARKvue is required to use the Wireless pH Sensor. Download and install the software from the PASCO website. Check if an update is available if the software is already installed.

#### SPARKvue

Windows and Mac Computers

Download: Go to [pasco.com/sparkvue](https://www.pasco.com/sparkvue) then click **Downloads**.

Update: Click  then select **Check for Updates**.

Mobile Devices and Chromebooks

Search for SPARKvue in your device's app store. SPARKvue automatically installs updates.



#### PASCO Capstone

Windows and Mac Computers

Download: Go to [pasco.com/capstone](https://www.pasco.com/capstone) then click **Downloads**.

Update: Click **Help** then select **Check for updates**.

### Check for a firmware update

Update the sensor firmware to access the latest features and bug fixes. Sensor firmware is installed using SPARKvue or PASCO Capstone. Connect the sensor to SPARKvue or PASCO Capstone to check for a firmware update.

#### SPARKvue

1. Turn on the Wireless pH Sensor.
2. Open SPARKvue then click **Sensor Data**.
3. Select the sensor that matches the device ID.
4. If a notification appears, click **Yes** to update the firmware. If a notification doesn't appear, the firmware is up to date.

#### PASCO Capstone

1. Turn on the Wireless pH Sensor.
2. Open Capstone then click **Hardware Setup**.
3. Select the sensor that matches the device ID.
4. If a notification appears, click **Yes** to update the firmware. If a notification doesn't appear, the firmware is up to date.

## Using the sensor

Before taking measurements with the sensor, you need to connect the pH probe to the sensor and remove the storage bottle from the pH probe.

### Connect the pH probe to the sensor

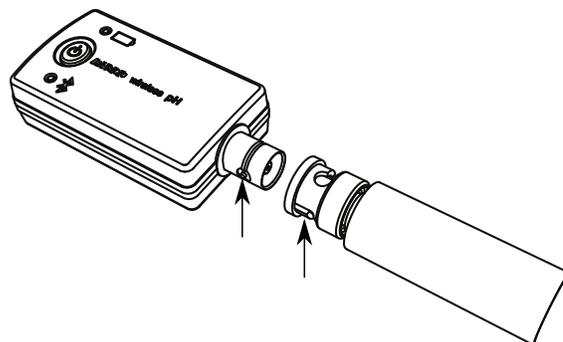


Figure 1. Align the tabs on the sensor's BNC connector with the slots on the pH probe's BNC connector.

1. Align the tabs on the sensor's BNC connector with the slots on the probe's BNC connector (**Figure 1**).

 **Note:** When connecting the probe, hold it by the connector and not by the shaft. Twisting the shaft can damage the probe.

2. Push the probe's BNC connector onto the sensor's BNC connector. Twist the probe's BNC connector clockwise about one-quarter turn to lock it in place.

To disconnect the pH probe, push the pH probe BNC connector towards the pH sensor before turning the connector.

### Alternative electrodes

The Wireless pH Sensor works with several alternative electrodes available from PASCO including various ion selective electrodes, oxidation reduction potential probe, and a flat pH probe. See the **Buying Guide** on the pH Sensor page for additional details.

## Remove the storage bottle

1. Hold the pH Probe vertically so that the solution will not spill out of the bottle.
2. Unscrew the plastic cap and remove the bottle. Keep the storage solution for later use.
3. Push the bottle cap and the rubber washer up the pH probe shaft to keep them out of the way (Figure 2).

## Place the sensor in a solution

Place the end of the pH probe in a solution when taking measurements. Make sure that the bulb at the end of the probe is completely immersed in the solution.

 **Note:** Do not immerse the BNC connectors in the solution. The connectors are not rust proof and can corrode.

To keep the probe in place, it is recommended to use an Electrode Support (PS-3505). The Wireless Drop Counter (PS-3505) can also be used to hold the probe.

## Connect the sensor and collect data

Connect the sensor to SPARKvue or PASCO Capstone to collect data.

### SPARKvue

1. Turn on the sensor.
2. Open SPARKvue then click Sensor Data.



3. Select the Wireless pH Sensor that matches its device ID.
4. Select  the measurements you want to display.
5. Select a Template to display your data.
6. Click Start  to begin data collection.

### PASCO Capstone

1. Turn on the sensor.
2. Open Capstone then click Hardware Setup .
3. Select the Wireless pH Sensor that matches its device ID. Click Hardware Setup  to close the panel.
4. Click **Sensor Data** to display a graph.



5. Click Record  to begin data collection.

## Calibration

Calibration is not always necessary, especially if you are measuring a change in pH rather than absolute pH values. However, the pH Sensor can be calibrated if more accurate measurements are necessary. See the SPARKvue or Capstone online help for instructions on how to calibrate the sensor.



Figure 2.

## Storage and maintenance

### Cleaning the probe

For most applications, you can clean the probe using hot water with a domestic cleaning detergent. The following table contains specific cleaning recommendations for different types of solutions the probe is exposed to.

SOLUTION TYPE	RECOMMENDED CLEANING SOLUTION
lime and hydroxides	5-10% hydrochloric acid
organic fouling agents (fats, oils)	rubbing alcohol or liquid dish soap
algae and bacteria	diluted chlorine bleach

### Storing the sensor and probe

After each use, place the pH probe in the storage bottle filled with the storage solution. The bulb at the end of the probe must be fully immersed in the storage solution. It is not recommended to store the probe dry since the probe will lose responsiveness. If needed, probe restoration instructions are provided online on the Wireless pH Sensor product page.

Replacement pH Storage Solution (SC-3507) can be purchased if any solution is lost due to spillage or evaporation. If you wish to make your own storage solution, instructions are provided online on the Wireless pH Sensor product page.

For long-term storage, remove the battery to avoid damaging the sensor due to battery leakage.

### Replacing the battery

When the battery status light blinks red, the battery will soon need to be replaced.

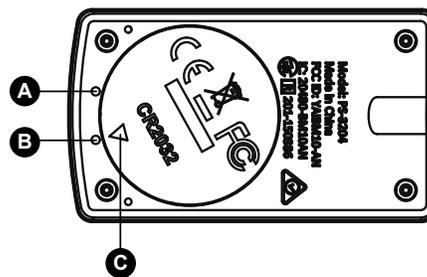


Figure 3. Sensor battery compartment. (A) First mark. (B) Second mark. (C) Indicator.

To replace the battery:

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

## Additional resources

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### Product information

Visit the product web page at [pasco.com/product/PS-3204](http://pasco.com/product/PS-3204) for additional information including:

- Specifications
- Buying Guide
- Experiments
- Documents



### Software help

The SPARKvue and PASCO Capstone Help provide additional information on how to use the Wireless pH Sensor with the software. Access the help within the software or online.



**Software:** Click  then select **Help**.

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



**Software:** In the menu bar, click **Help** then select **PASCO Capstone Help**.

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

### Technical Support

Need more help? Our knowledgeable and friendly Technical Support staff is ready to provide assistance with this or any other PASCO product.

Phone (USA)	1-800-772-8700 (Option 4)
Phone (International)	+1 916 462 8384
Online	<a href="http://pasco.com/support">pasco.com/support</a>

## Regulatory information

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### Warranty, Copyright, and Trademarks

#### Limited Warranty

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

#### Copyright

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### Product end of life disposal instructions

 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.

### Battery disposal instructions

 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.

### 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.