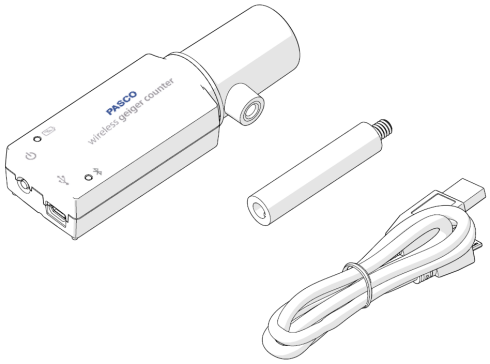
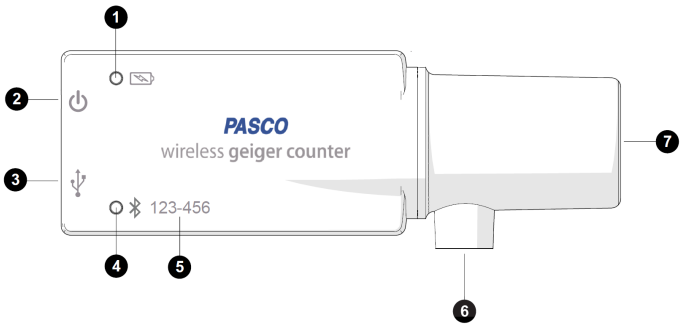
Wireless Geiger Counter (PS-3238)



What's Included

- Wireless Geiger Counter
- Threaded handle
- USB cable

Features



1 Battery status light
Indicates the status of the Bluetooth connection.

Light	Status
Red, blink	Low battery level
Yellow, solid	Charging
Green, solid	Fully charged

IMPORTANT: Connect the sensor to the charger when the battery status light blinks red. When the battery is low on charge, the tube voltage may become too low to measure counts and return zero values. For long-term experiments, connect the Wireless Geiger Counter directly to the charger or fully charge the battery before data logging.

2 Power button
Turn the sensor on or off by pressing the power button until the lights turn on. Turn the audible count indicator beep on or off by pressing the power button for a half-second; two beeps indicate that the audible count indicator beep is turned off, and one beep indicates that it is turned on.

3 USB port
Charge the battery by connecting the USB port to a USB wall charger using the USB cable. You can also use the USB cable to connect the Wireless Geiger Counter to a PC, Mac, Chromebook, or Android device.

4 Bluetooth status light
Indicates the status of the Bluetooth connection or remote logging. See the SPARKvue or PASCO Capstone help for instructions on using remote logging.

Light	Status
Red, blink	Ready to pair
Green, blink	Paired
Yellow, blink	Remotely logging data

5 Device ID
Use the device ID to identify the sensor when connecting using Bluetooth.

6 Threaded hole
Attach the threaded handle to the hole for mounting the sensor to a rod stand.

7 Sensor window
Place a radioactive sample in front of the window to detect alpha, beta, and gamma particles. A built-in metal mesh screen protects the mica window in front of the Geiger-Müller detector tube.

First use tasks

Perform the tasks in this section before using the sensor with students. You should also perform these tasks at the beginning of each semester to minimize disruptions.

Charge the battery

Charge the battery by connecting the USB port to any standard USB charger. The battery status light is solid yellow while charging. When fully charged, the light changes to solid green.

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.

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 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
Go to Main Menu > **Check for Updates**

PASCO Capstone
Go to **Help** > **Check for Updates**.

Check for a firmware update

SPARKvue

1. Press the power button until the lights turn on.
2. Open SPARKvue.
3. Select **Sensor Data** on the Welcome Screen.

4. Select the sensor that matches its device ID.
   A notification appears if a firmware update is available.
   Click **Yes** to update the firmware.
5. Close SPARKvue

PASCO Capstone

1. Press and hold the power button until the lights turn on.
2. Open PASCO Capstone.
3. Click **Hardware Setup**.

4. Select the sensor that matches its device ID.
   A notification appears if a firmware update is available.
   Click **Yes** to update the firmware.
5. Close Capstone.

Getting started

Follow these procedures to begin collecting data from the Wireless Geiger Counter using SPARKvue or PASCO Capstone.

SPARKvue

1. Turn on the Wireless Geiger Counter.
2. Launch SPARKvue, then select **Sensor Data**.
3. From the list of devices on the left, select the Geiger Counter with the ID number that matches the device ID (XXX-XXX) printed on your sensor.
4. Select the Digits template from the **Templates** list on the right to enter the Experiment Screen.
5. *Optional:* By default, this template will display Count Rate on the left and Interval Count on the right, as seen in Figure 1. If desired, you can click one of the boxes listing the measurement name to select a different name. (See "Count Types" for an explanation of the different measurements offered by the Wireless Geiger Counter.)
6. Click **Start** to begin recording data.
7. Once you have finished, click **Stop** to end data recording.

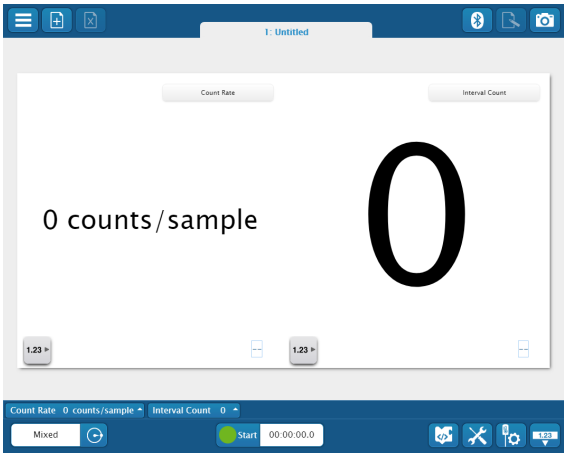


Figure 1. The default digits template for the Geiger Counter in SPARKvue.

PASCO Capstone

1. Turn on the Wireless Geiger Counter.
2. Launch Capstone, then select **Hardware Setup** from the **Tools** palette.
3. From the list of devices, select the Geiger Counter with the ID number that matches the device ID (XXX-XXX) printed on your sensor.
4. Click **Hardware Setup** again to close the Hardware Setup menu.
5. Double-click the Digits 1.23 icon in the Displays palette to create a **Digits** display.
6. Click "**<Select Measurement>**" in the top left, then select the desired measurement from the dropdown list. One of the Live Count Sensor measurements is preferable, as these readings update continuously instead of only at the end of each sample. (See "Count Types" for an explanation of the different measurements offered by the Wireless Geiger Counter.)

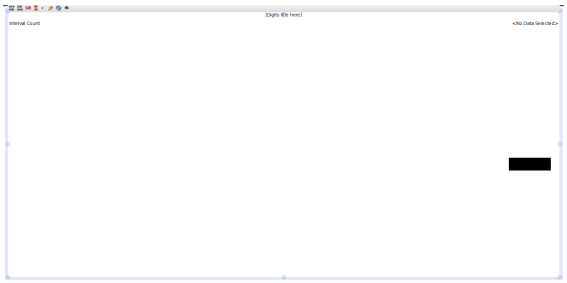


Figure 2. The digits display in Capstone, set up to read Count Rate.

7. Click **Record** to begin recording data.
8. Once you have finished, click **Stop** to end recording data.

Further usage information

For more information on using the Wireless Geiger Counter, including step-by-step instructions on using the sensor with the software, see the SPARKvue or PASCO Capstone help:

SPARKvue

Software	Main Menu > Help
Online	help.pasco.com/sparkvue

PASCO Capstone

Software	Help > PASCO Capstone Help
Online	help.pasco.com/capstone

Search for the **bold** terms below to learn more about the following features:

- Analyze the data using the tools in the **Graph** display.
- **Control the Wireless Geiger Counter**, including varying the G-M tube voltage for Geiger plateau experiments.
- Collect data long-term by using **remote data logging**.
- Visualize data in a **Histogram** display (Capstone only).

Count Types

The Wireless Geiger Counter offers three options for measuring and displaying the count of radioactive particles detected. Two of these quantities are related to the **sample interval**, an amount of time specified by the user in place of a sample rate. Once data recording begins, Capstone waits the length of the sample interval, measuring the number counts detected during that time. At the end of the interval, it then records that measurement as a data point and begins a new sample interval with a separate measurement.

The different measurement options are as follows:

Count Rate
A measurement of the number of counts which were recorded during the last complete sample interval. This value only updates at the end of each sample interval and is measured in units of counts/sample.

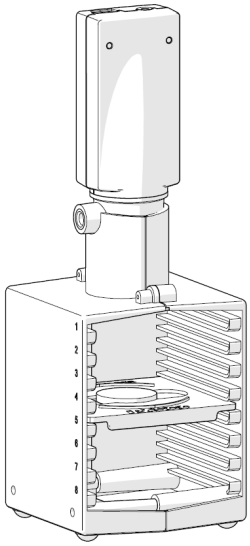
Interval Count
An ongoing measurement of the number of counts recorded in the current sample interval. This measurement resets to 0 whenever the current interval is completed. The value updates at a fixed rate of 10 Hz and does not include units.

Running Count
An ongoing measurement of the number of counts recorded since data collection started. This measurement does not reset after the software completes a sample interval. The value updates at a fixed rate of 10 Hz and does not include units.

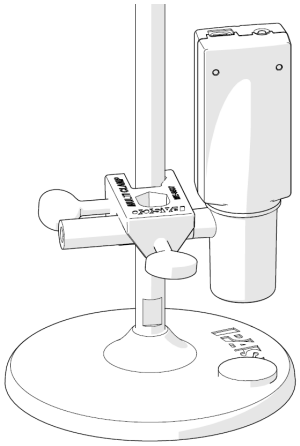
Mounting the sensor

The sensor can be mounted in the following ways:

- Insert the sensor into the Geiger Counter Sample Holder (NU-3344). This option provides superior position control for inverse square law and radiation shielding labs.



- Attach the threaded handle to the sensor, then attach the handle to a rod stand.



Specifications and accessories

Visit the product page at pasco.com/product/PS-3238 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-3238.

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 x1004 (USA) +1 916 462 8384 (outside USA)
Email	support@pasco.com

Regulatory Information

Limited Warranty

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

Copyright

Trademarks

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.

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.

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.