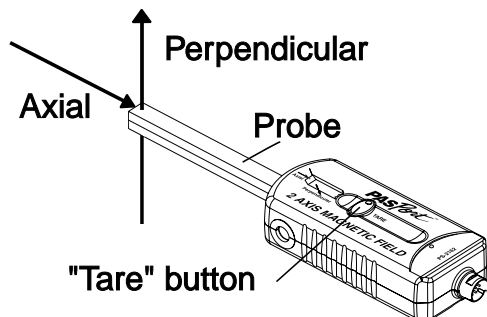


2-Axis Magnetic Field Sensor (PS-2162)

Introduction

The PASPORT 2-Axis Magnetic Field Sensor can be used in conjunction with a PASPORT interface to measure magnetic field strength simultaneously along two perpendicular axes. The sensing elements are two Hall Effect devices oriented perpendicularly to one another and located at the end of the sensor's probe. The sensor measures the magnetic field in the **Axial** and **Perpendicular** directions, as illustrated below. Two white dots on the probe mark the position of the sensing elements.



Equipment

Included equipment:

- 2-Axis Magnetic Field Sensor (PS-2162)
- PASPORT Sensor Extension Cable (PS-2500)
- Sensor handle

Required equipment:

- PASPORT interface, such as 850 Universal Interface (UI-5000) or 550 Universal Interface (UI-5001)
- PASCO Capstone or SPARKvue data collection software

Recommended equipment:



- Zero Gauss Chamber (EM-8652)

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

Setup

Connect the sensor to the software

Follow these steps to connect the sensor to PASCO Capstone or SPARKvue.

SPARKvue:

1. Turn on SPARKvue, then click **Sensor Data**.
2. Connect your PASPORT interface to the program. For information on doing so, see the manual for the interface and the SPARKvue online help.
3. Plug the 2-Axis Magnetic Field Sensor into a PASPORT port on the interface. The program should automatically detect and identify the sensor.

PASCO Capstone:

1. Turn on Capstone, then click **Hardware Setup** from the **Tools** menu.
2. Connect your PASPORT interface to the program. For information on doing so, see the manual for the interface and the Capstone online help.
3. Plug the 2-Axis Magnetic Field Sensor into a PASPORT port on the interface. The program should automatically detect and identify the sensor.

Taring the sensor

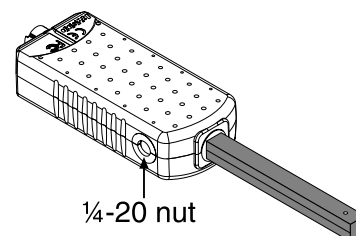
If you have a Zero-Gauss Chamber (EM-8652), you can use it to tare the 2-Axis Magnetic Field Sensor. Insert the sensor probe into the chamber and press the **Tare** button on the sensor's casing to set both measurements to zero. For greatest accuracy, perform this process after the sensor has been connected to a powered interface for a few minutes.



NOTE: If you do not have a Zero-Gauss Chamber, pressing the Tare button may cause a small offset in subsequent measurements due to Earth's magnetic field. To undo the tare, briefly disconnect the sensor from the interface and then reconnect it.

Hardware mounting


The sensor includes a captured 1/4-20 nut, as shown below. This can be used to fasten the sensor to the included sensor handle, or to a rod or other apparatus. The sensor handle can be used to mount the sensor to a rotary motion sensor, such as the PASPORT Rotary Motion Sensor (PS-2120A). When the sensor is mounted in this way, you may need use the included extension cable to connect it to the interface.




Measuring magnetic fields

In PASCO Capstone or SPARKvue, after connecting the sensor to the interface, follow the step below to create a graph display and record magnetic field data:

SPARKvue:

1. In the **Select measurements for templates** column, click the checkbox next to the measurement(s) you wish to display.
2. Select **Graph** from the **Displays** column to enter the Experiment Screen.
3. Position the sensing elements, marked by white dots, at the location to be measured and orient the sensor with the field lines.
4. Click **Start**  to begin collecting data.

PASCO Capstone:

1. Double-click the **Graph** icon in the **Displays** palette.
2. On each axis, click the **<Select Measurement>** box to choose an appropriate measurement for that axis from the list.
3. Position the sensing elements, marked by white dots, at the location to be measured and orient the sensor with the field lines.
4. Click **Record**  to begin collecting data.

Resolution and sample rate

The sensor uses dynamic variable over-sampling to achieve the best possible resolution for a given sample rate. At the default sample rate of 10 Hz, the resolution is 0.01 G. To improve the resolution, set a lower sample rate in the software or on the interface. The best resolution will occur when sampling at 1 Hz or slower.

Software help

The SPARKvue and PASCO Capstone Help provide additional 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

PASCO Capstone

Software: Help > PASCO Capstone Help

Online: help.pasco.com/capstone

Specifications and accessories

Visit the product page at pasco.com/product/PS-2162 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-2162.

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.

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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.