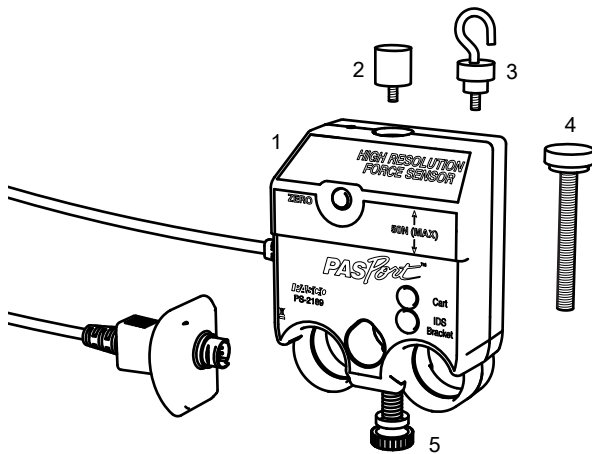


High Resolution Force Sensor

PS-2189



Included Parts

1. High Resolution Force Sensor
2. Bumper attachment
3. Hook attachment
4. Cart/Bracket thumbscrew (M5 × 45 mm)
5. Rod clamp thumbscrew (1/4-20 × 0.75 inch)

Additional Items Required

- PASPORT interface
- PASCO Data Collection Software

See the PASCO catalog or the PASCO web site for more information.

www.pasco.com

Quick Start

1. Connect the High Resolution Force Sensor to your PASPORT interface.
2. Connect the PASPORT interface to the computer and start the data collection software.
3. Screw the hook attachment into the sensor.
4. Press or click the start button to begin recording data.

5. Push or pull the hook. The sensor measures the applied force.

Introduction

The High Resolution Force Sensor connects to a PASPORT interface and records force in the range of -50 N to $+50\text{ N}$ at a rate of up to 1000 samples per second. High resolution, dynamic over-sampling, and a low drift rate make the sensor well suited for measuring very small changes

Set-up

Connecting the Sensor to an Interface

1. Connect the sensor's plug to any port of a PASPORT interface.
2. If you are using a computer, connect the PASPORT interface to it and start the data collection software.

Software Setup

See the SPARKvue Help or PASCO Capstone Help for information about collecting, displaying, and analyzing data.

- In SPARKvue, select the **HELP** button (?) in any screen including the Home Screen.
- In PASCO Capstone, select **PASCO Capstone Help** from the **Help** menu, or press **F1**.

Zeroing the Sensor

Press the **ZERO** button on the sensor. The sensor's output is adjusted to read zero.

SPARKvue

Collect Data

- In the SPARKvue **Home Screen**, select a measurement from the list under the sensor's name. A graph of the measurement versus time opens.
- In SPARKvue, select the **Start** button (▶) to begin collecting data.

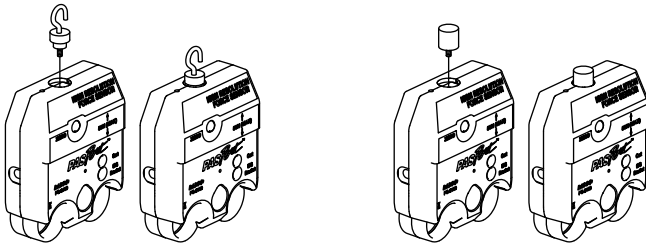
PASCO Capstone

Collect Data

- In PASCO Capstone, select a display in the main window or from the **Display** palette. In the display, use the **<Select Measurement>** menu to pick a measurement to be shown.
- Select **Record** to begin collecting data.

Connecting Bumper and Hook Attachments

Screw the bumper or hook into the sensor as illustrated.



About the Force Measurement

Dynamic Over-sampling

To increase the degree of dynamic over-sampling, lower the sample rate.

Over-sampling reduces noise, produces smoother data, and improves the measurement resolution. This effect is especially noticeable when very small force changes are measured. The degree of over-sampling depends on the sample rate. Maximum over-sampling occurs at sample rates of 20 Hz and slower.

Sample Rate

By default, the sensor collects 10 samples per second. It can collect data as fast as 1000 samples per second and as slow as one sample every four hours. Change the sample rate in the data collection software.

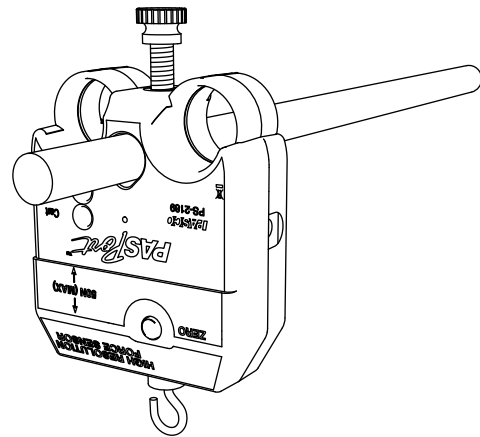
Inverted Output

By default, the sensor registers pushing as a positive force and pulling as a negative force. To register pulling as positive and pushing as negative, select the **Force (Inverted)** measurement in the data collection software.

Sensor Mounting

Mounting the Sensor on a Rod

Slide the sensor onto a rod and secure it with the thumbscrew as illustrated.



Mounting the Sensor on a PASCO Cart

1. Insert the included Cart/Bracket thumbscrew through the hole in the sensor labeled **Cart**.
2. Screw the thumbscrew into the threaded hole on the top of the cart.

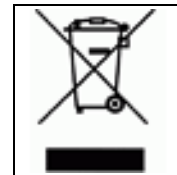
Mounting the Sensor on an IDS Bracket

1. Insert the included Cart/Bracket thumbscrew through the hole in the IDS Force Accessory Bracket (PASCO part CI-6545).
2. Screw the thumbscrew into the hole in the sensor labeled **IDS Bracket**.

Specifications

Range	±50 N
Resolution	0.002 N
Maximum Sample Rate	1000 samples/s

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



Technical Support

For assistance with any PASCO product, contact PASCO at:

Address:	PASCO scientific 10101 Foothills Blvd. Roseville, CA 95747-7100
Phone:	916-786-3800 (worldwide) 800-772-8700 (U.S.)
Web:	www.pasco.com
Email:	support@pasco.com

For more information about the High Resolution Force Sensor and the most up-to-date version of this Instruction Sheet, visit:

www.pasco.com/manuals

Limited Warranty

For a description of the product warranty, see the PASCO catalog.

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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/disposal service, or the place where you purchased the product.