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PASCO ®

PASCO ME-1249 Smart Cart Trigger Dropper

PASCO ME-1249 Smart Cart Trigger Dropper Owner's Manual

Contents

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PASCO ME-1249 Smart Cart Trigger Dropper

Specifications:

- Product Name: Smart Cart Trigger Dropper
- Model Number: ME-1249
- Compatibility: Designed for use with PASCO's Smart Cart (ME-1240 or ME-1241)

Product Usage Instructions

Mounting the Trigger Dropper:

1. Store the mounting thumbscrew in the thumbscrew storage when not in use.
2. To mount in dropping position, insert the mounting thumbscrew into the dropper mounting hole.
3. For triggering position, insert the mounting thumbscrew into the trigger mounting hole.

Using the Trigger Dropper:

1. Insert a plastic ball in the ball holder for the ball dropping function.
2. Connect the provided charging cable to the charging port to charge the Trigger Dropper.
3. Press the trigger button to manually trigger the plunger or drop the ball with a one-second delay.
4. Connect the Trigger Dropper to a Smart Cart using the Smart Cart connection port.

Resetting and Battery Status:

1. Press and briefly hold the reset button to turn the Trigger Dropper on or off. Hold for 10 seconds for a full reset if malfunctioning.
2. The Battery Status LED blinks red when low, yellow when charging, and green when fully charged.

Software Compatibility:
The Trigger Dropper can be controlled via PASCO Capstone or SPARKvue data collection software.

Charging Instructions:

1. Charge the battery by connecting the micro USB port to a standard USB charger.
2. The Battery Status LED will be solid yellow while charging and change to solid green when fully charged.

Frequently Asked Questions (FAQ):

- **Q: Can I use the Trigger Dropper with other PASCO carts?**

   A: No, the Trigger Dropper is only compatible with PASCO's Smart Carts (ME-1240 or ME-1241).
- **Q: How do I know when the Trigger Dropper is ready to be activated?**

   A: The Trigger Status LED blinks yellow when ready and lights up solid yellow when activated.

Introduction

The Smart Cart Trigger Dropper is an accessory for PASCO's Smart Cart (ME-1240 or ME-1241). The Trigger Dropper can be used for two purposes: to trigger the plunger on the cart, or to drop a ball from the built-in circular slot. The former function is used to explode two carts apart in a conservation of momentum experiment by releasing the plunger of one cart while it is pressed against the other cart. The latter function is useful for studying the projectile motion of a ball dropped from a moving cart. Both of these functions can be controlled via PASCO Capstone or SPARKvue data collection software.

NOTE: The Trigger Dropper is not compatible with other PASCO carts.

Components

Included components:

- Smart Cart Trigger Dropper
- 2× plastic balls
- Smart Cart connection cable
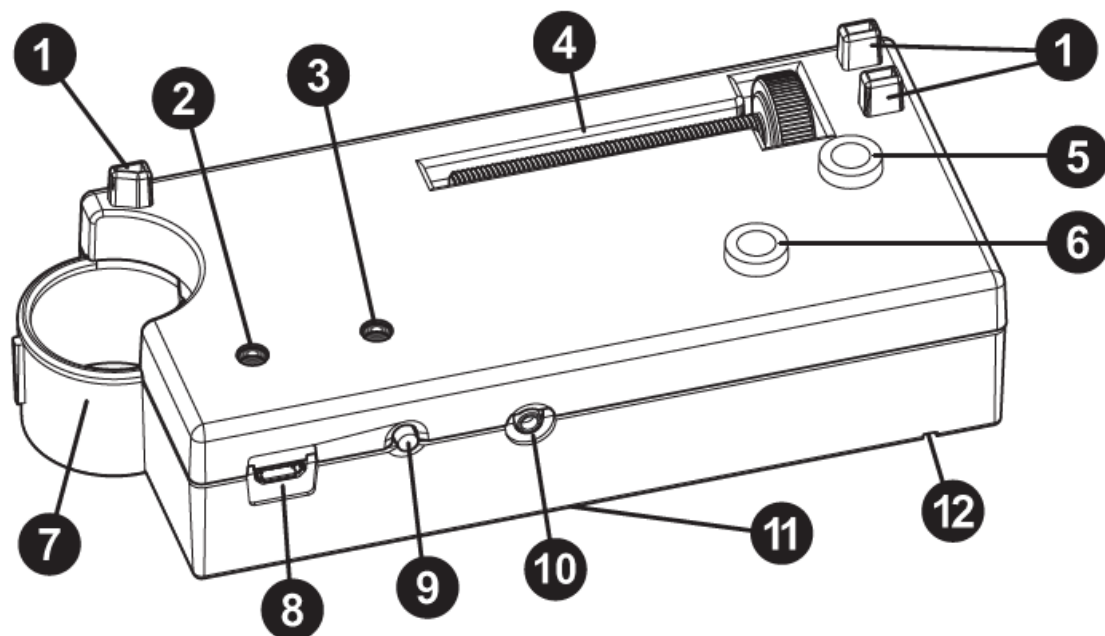- Charging cable
- Mounting thumbscrew

Required equipment:

- Smart Cart (ME-1240 or ME-1241)
- PASCO Capstone or SPARKvue data collection software

Recommended equipment:

- Cart Mass (ME-6757A)

Features

1. Cart mass mounting points

   Use to attach a Cart Mass (ME-6757A) to the Trigger Dropper while the device is mounted in the triggering position.

2. Battery Status LED

   Blinks red to indicate that the battery is low and needs to be recharged. Lights up yellow to indicate that the battery is charging. Lights up green to indicate that the battery is fully charged.

3. Trigger Status LED

   Blinks yellow when the Trigger Dropper is ready to be activated. Lights up solid yellow when the Trigger Dropper has been activated and is preparing to trigger the plunger or drop a ball.

4. Mounting thumbscrew storage

   Store the mounting thumbscrew here when it is not in use.

5. Dropper mounting hole

   Insert the mounting thumbscrew here when mounting the Trigger Dropper in the dropping position.

6. Trigger mounting hole

   Insert the mounting thumbscrew here when mounting the Trigger Dropper in the triggering position.

7. Ball holder

   Insert the plastic ball here when using the ball dropping function.

8. Charging port

   Connect the provided charging cable to this port to charge the Trigger Dropper.

9. Trigger button

   Press to manually trigger the plunger or drop the ball with a one second delay.

10. Smart Cart connection port

    Plug the provided connection cable into this port to connect the Trigger Dropper to an attached Smart Cart.

11. Reset button

    Press and briefly hold to turn the Trigger Dropper on or off. If the device is malfunctioning, press and hold for 10 seconds for a full reset.

12. Alignment notch

    Use to properly orient the Trigger Dropper on the cart.

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**. A browser-based version of SPARKvue is available for free on all platforms. 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 or chemvue 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

Initial step: Charge the battery

Charge the battery by connecting the micro USB port to any standard USB charger. The Battery Status LED is solid yellow while charging. When fully charged, the LED changes to solid green.
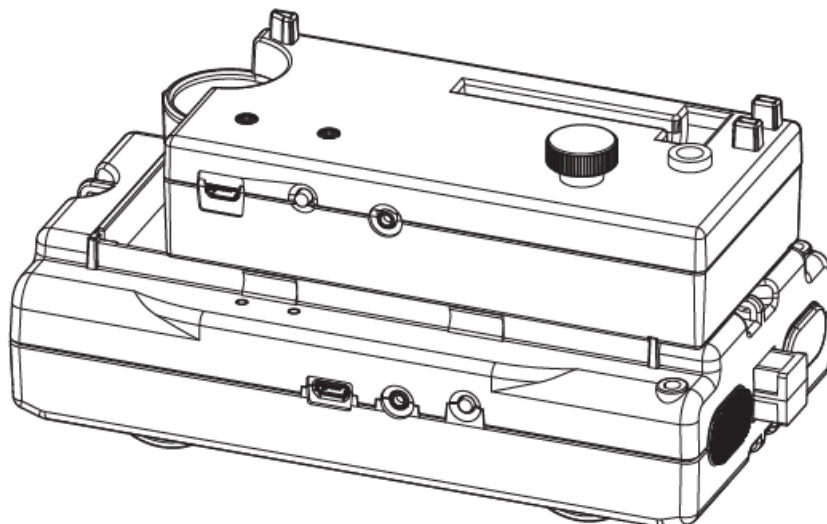
Setup

Mount on cart

Mount in the triggering position:

NOTE: When mounting the Trigger Dropper in this position, make sure the Smart Cart's plunger is not pressed in to the fourth position, as this will prevent it from being triggered properly. The plunger cannot be pushed to this position while the Trigger Dropper is mounted.

1. Place the Trigger Dropper into the accessory tray of the Smart Cart. Make sure that the device is oriented so that the ball holder faces away from the plunger. The alignment notches on the Trigger Dropper's longer sides should fit over the edge of the tray nearest to the plunger, as shown below.
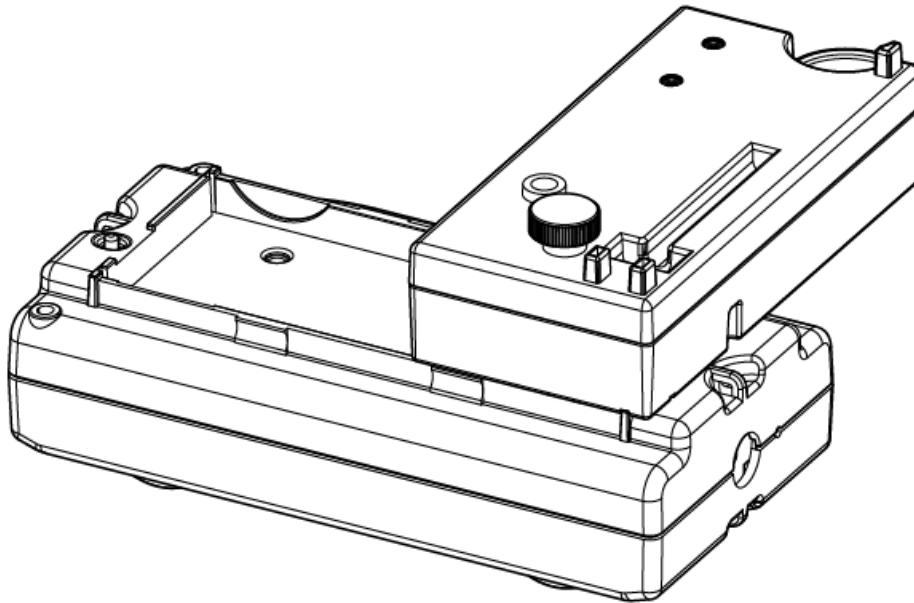

2. Remove the mounting thumbscrew from its storage slot and insert it into the trigger mounting hole. Tighten to secure the Trigger Dropper in place.

3. Press the plunger in to the first, second, or third position.

4. Plug one end of the provided connection cable into the Smart Cart connection port on the Trigger Dropper. Plug the other end into the accessory port on the Smart Cart.

Mount in the dropping position:

1. Place the Trigger Dropper on top of the Smart Cart so that it sits perpendicular to the accessory tray at the end opposite the plunger, with the ball holder protruding over the side of the cart with the power button. The alignment notch on the Trigger Dropper's shorter side should fit over the edge of the tray farthest from the plunger, as shown below.

2. Remove the mounting thumbscrew from its storage slot and insert it into the dropper mounting hole. Tighten to secure the Trigger Dropper in place.
3. Insert the provided plastic ball into the ball holder.
   IMPORTANT: Do NOT use metal balls with the Trigger Dropper. The dropping mechanism will not support the additional weight of a metal ball.
4. Plug one end of the provided connection cable to the Smart Cart connection port on the Trigger Dropper. Plug the other end into the accessory port on the Smart Cart.

Set up the software

 SPARKvue:

1. Start SPARKvue, then select Sensor Data from the main menu.
2. Connect the Smart Cart to SPARKvue. For detailed instructions, see the Smart Cart manual and the SPARKvue online help.
3. Select Trigger Dropper in the Quick Start Experiments column.
4. In the Experiment Screen, select either Position Based or Time Based for the Trigger Type, based on whether you want the trigger condition to be based on distance traveled or time elapsed.

5. Enter a value in centimeters (for a position-based trigger) or seconds (for a time-based trigger) into the Trigger Value box.

6. Adjust the measurements and display properties of the graph display as needed for your experiment.

7. Select Start to begin recording data. When the trigger condition is fulfilled, the Trigger Dropper will automatically trigger the plunger or drop the ball, depending on the setup.

 PASCO Capstone:

1. Start PASCO Capstone.

2. Connect the Smart Cart to Capstone. For detailed instructions on this process, see the Smart Cart manual and the Capstone online help. Once this is done, the program should automatically detect and recognize the Trigger Dropper.

3. Select Trigger Dropper from the Tools palette.

4. In the Trigger Dropper tool, select either Position Based or Time Based for the Trigger Type, based on whether you want the trigger condition to be based on distance traveled or time elapsed.

5. Enter a value in centimeters (for a position-based trigger) or seconds (for a time-based trigger) into the Trigger Value box.

6. Create a graph or other appropriate display to track any sensor measurements relevant to your experiment. For more details on doing so, see the Capstone online help.

7. Select Record to begin collecting data. When the trigger condition is fulfilled, the Trigger Dropper will automatically trigger the plunger or drop the ball, depending on the setup.

Trigger at zero
If the Trigger Dropper is set up with a position-based trigger with a value of 0 cm, the procedure for triggering the device is slightly different. In this case, when data recording begins, the Battery Status LED on the Smart Cart will rapidly begin flashing red. Roll the cart away from this position until the LED begins to flash green, indicating that the Trigger Dropper will now activate upon returning to the starting point. From here, proceed as described in the previous section.

Manual triggering
In addition to creating a trigger condition in SPARKvue or Capstone, you can also trigger the plunger or drop the ball manually without connecting the cart to the software. To do this, press the trigger button on the side of the Trigger Dropper. After a delay of one second, the Trigger Dropper will activate, triggering the plunger or dropping the ball. This procedure is useful when designing quick experiments that require minimal setup.

Turn off the Trigger Dropper
The Trigger Dropper automatically turns off if it is unplugged from the Smart Cart. If the Trigger Dropper remains plugged into the Smart Cart but is not connected to data collection software, the device will turn off after five minutes of inactivity. In both cases, the Battery Status LED will flash red before the Trigger Dropper turns off.

Software help

The SPARKvue and PASCO Capstone Help provide information on how to use this product with the software. You can access the help from 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/ME-1249** 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/ME-1249**.

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**

Limited warranty

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

and in other countries. All other brands, products, or service names are or may be trademarks or service marks of, and are used to identify, products or services of, their respective owners. For more information visit **www.pasco.com/legal**.

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.

Documents / Resources

PASCO ME-1249 Smart Cart Trigger Dropper [pdf] Owner's Manual
ME-1249, ME-1240, ME-1241, ME-1249 Smart Cart Trigger Dropper, Smart Cart Trigger Dropper, Cart Trigger Dropper, Trigger Dropper, Dropper

References

- **P** **PASCO Capstone Help**
- **P** **SPARKvue Help**
- **P** **PASCO scientific | Science Lab Equipment and Teacher Resources**
- **P** **Popular Downloads | PASCO**
- **P** **Lab Experiment Library - Resources | PASCO**
- **P** **Product Guides | PASCO**
- **P** **Privacy Policies | PASCO**
- **User Manual**