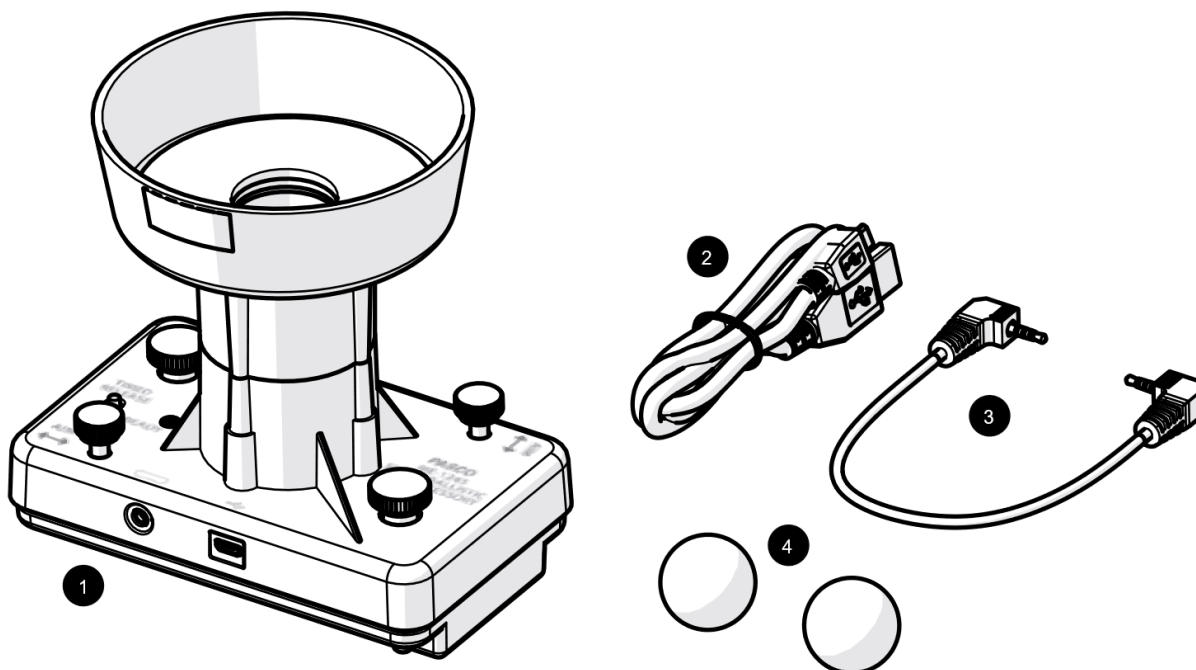


## Smart Ballistic Cart Accessory

ME-1245



### Included Equipment

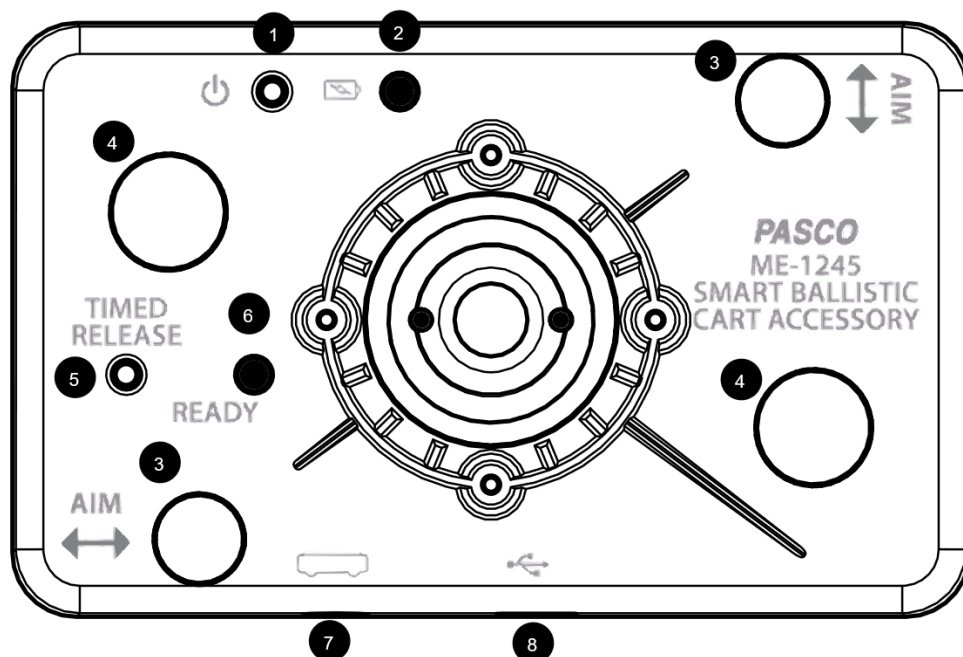
- |   |   |
|---|---|
| <p><b>1 Smart Ballistic Cart Accessory</b></p> <p><b>2 Micro USB cable</b><br/>For connecting the accessory to a USB charger.</p> | <p><b>3 Smart Cart Accessory Cable</b><br/>For connecting the accessory to a Smart Cart.</p> <p><b>4 Plastic Ball (2)</b><br/>For use as a projectile. A spare is included.</p> |
|---|---|

### Required Equipment

The following table lists the equipment required to perform experiments with the Smart Ballistic Cart Accessory. Only one of the options provided for each item is required.

Item	Options	Item	Options
Cart	ME-1240 Smart Cart (Red)*	Track	ME-9493 1.2 m Aluminum Track
	ME-1241 Smart Cart (Blue)*		ME-9779 2.2 m Aluminum Track
	ME-9454 Collision Cart		ME-6960 PAStrack
	ME-9430 Plunger Cart	Software*	PASCO Capstone
	ME-6934 PAScar Blue		SPARKvue
	ME-6933 PAScar Red		
	ME-6951 GOcar		

\*A Smart Cart and software are only required if controlling the accessory remotely.



## Components

- |  |  |
|--|--|
| <p><b>1 Power button</b><br/>Press and hold to turn the power on or off.</p> <p><b>2 Battery status LED</b><br/>Red blink      Battery needs to be recharged soon.<br/>Green solid    Battery is fully charged.<br/>Yellow solid   Battery is charging.</p> <p><b>3 Aim adjustment knob (2)</b><br/>Turn the knob to adjust the aim of the projectile.</p> <p><b>4 Mounting thumbscrew (2)</b><br/>For mounting the accessory to a cart.</p> | <p><b>5 Timed release button</b><br/>Press and hold to launch the projectile.</p> <p><b>6 Ready status LED</b><br/>Yellow blink   Ready to launch.<br/>Yellow solid   Launch mechanism is recharging.</p> <p><b>7 Smart Cart port</b><br/>For connecting the accessory to a Smart Cart.</p> <p><b>8 Micro USB port</b><br/>For connecting the included USB cable to a charger to charge the battery.</p> |
|--|--|

### WARNING

Wear safety glasses. Do not look down the barrel.

## Getting Started

Before using the device with students for the first time, perform the following tasks:

1. Charge the battery.

If using the accessory with a Smart Cart:

2. Update your PASCO data collection software.
3. Update the firmware of your Smart Cart.

### To charge the battery

1. Connect the USB cable to the USB port on the Smart Ballistic Cart Accessory. Connect the other end of the cable to a USB charger or port.
2. Allow the battery to charge for at least three hours. The battery status LED will turn green when fully charged.

Charging automatically stops when the battery is fully charged. The device can remain connected to a power source when fully charged without damaging the battery.

## To update PASCO data collection software

1. Open the PASCO data collection software.
2. The software will display a message if an update is available. Follow the instructions on the screen. If you do not receive a message, the software is up to date.

You can also check for an update by doing the following:



Go to the **Help** menu then click **Check for Updates**.



Select the menu icon  and select **Check for Updates**.

## To update the Smart Cart firmware

The Smart Cart contains firmware that controls how the device functions and works with accessories. It is important to make sure that your Smart Cart has the latest version of the firmware installed.

1. Connect the Smart Cart to your software. It is recommended to use a USB connection since this will result in a faster update.
2. The software will display a message if a firmware update is available. Follow the instructions on the screen. If you do not receive a message, the firmware is up to date.

## Using the Equipment

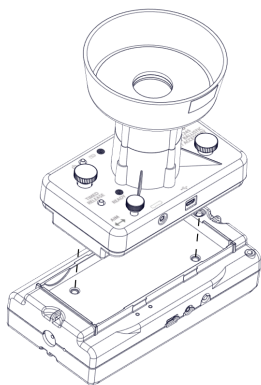


Figure 1. Placing the Smart Ballistic Cart in a Smart Cart.

## Mounting to a cart

1. Place the Smart Ballistic Cart Accessory in the accessory tray of the cart. For a Smart Cart, make sure that the ports on the accessory are on the same side as the ports on the cart (Figure 1).

2. Turn each mounting thumbscrew until finger-tight to secure the accessory to the cart.



## Launching a projectile remotely



1. Connect the Smart Cart to Capstone.
2. Connect the Smart Ballistic Cart Accessory to the Smart Cart using the Smart Cart accessory cable (Figure 2).
3. Under the Tools palette, click the Ballistic Cart tool.
4. Place the ball in the barrel and push down until it locks in place.
5. Launch the projectile by pressing the Trigger Now button in the Ballistic Cart panel.

The accessory can also be triggered by setting distance or time based conditions in the Ballistic Cart panel. These conditions will only trigger the cart while recording or monitoring data.



1. Connect the Smart Cart to SPARKvue.
2. Connect the Smart Ballistic Cart Accessory to the Smart Cart using the Smart Cart accessory cable (Figure 2).
3. Select  to build a new page.
4. Select the full screen template.
5. Select the Ballistic Cart tool .
6. Place the ball in the barrel and push down until it locks in place.
7. Launch the projectile by pressing the Trigger Now button in the Ballistic Cart panel.

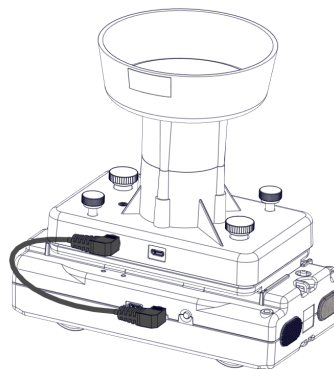


Figure 2. Smart Ballistic Cart Accessory connected to a Smart Cart.

## Launching a projectile manually

1. Press and hold the power button until the battery status LED turns on.
2. Place a ball in the barrel and push down until it locks in place.
3. Press the TIMED RELEASE button. The ball will launch after one second.

## Adjusting the Aim

The projectile should land back in the cup of the Smart Ballistic Cart Accessory after being launched. If the projectile consistently misses the cup, perform the following adjustments:

- Level the track.
- Turn the aim adjustment knobs to adjust the direction the projectile is launched. One knob tilts the barrel parallel to the track and the other tilts the barrel perpendicular to the track.

## Experiments

Copy-ready experiment worksheets for classroom use are available on the PASCO website. Download the experiments for free at:

[www.pasco.com/resources/lab-experiments](http://www.pasco.com/resources/lab-experiments)

## Replacement Parts

Replacement parts can be purchased from the PASCO website. Contact Technical Support if the part you need is not listed.

- ME-6822 Plastic Balls (10 Pack)
- PS-3584 Micro USB Cable

## Specifications

Property	Value
Timed release	1 s
Maximum launch height	>0.5 m

## Technical Support

For assistance with PASCO products, contact PASCO Technical Support at:

Address: PASCO scientific  
10101 Foothills Blvd.  
Roseville, CA 95747-7100

Phone: 916-462-8384

Web: [www.pasco.com](http://www.pasco.com)

Email: [support@pasco.com](mailto:support@pasco.com)

## FCC Statement

This digital 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.

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

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.



## Warranty, Copyright, and Trademarks

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

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