

Photogate Port

PS-2123/PS-2123A¹



Specifications:	
Timing Resolution	2 μ s
Timing Accuracy	0.01%

¹The PS-2123 and PS-2123A are interchangeable; however the PS-2123A may give improved results where many events are being recorded in a short time period of time.

Photogate Port Quick Start

The Photogate Port can be used with the Photogate Head (ME-9498A), the Accessory Photogate (ME-9204B), Smart Pulley, and various other PASCO timing devices.

Additional Equipment Needed

- PASPORT™ interface (PowerLink, USB Link, Xplorer, etc.)*
- DataStudio® software (version 1.7 or later)
- Photogate Head (ME-9489A), Accessory Photogate (ME-9204B), or other timing device

Equipment Setup

1. Connect a PASPORT interface to a USB port on your computer or to a USB hub.
2. Insert the stereo plug from the photogate into either input on the Photogate Port.
3. Connect the Photogate Port to the PASPORT interface.



Note: For each Photogate Port that you use, a PASPORT interface (USB Link, Xplorer, etc.) is required. However, if you are using a PowerLink (PS-2001), you will need one PowerLink for every three photogates you plan to use.

Timing Sequences

For most applications, it is not necessary to create a custom timing sequence. An extensive pre-defined list of timing sequences is available in DataStudio. After plugging a photogate into either input 1 or 2, a Timer Selection Window will appear. See table (right) for a brief description of each timing sequence.

Choose the timing mode needed by highlighting the mode with a single click; then click OK. Note that multiple timer selection windows will appear until all timing devices have been assigned a timer.

After choosing a timing mode, prompts may appear for input of the constants necessary to report values for velocity and acceleration. All constants have a default value associated with various PASCO devices. Click OK to accept the value or enter another value, then click OK.

Each timing mode has default displays and measurements that appear after the constants are identified. Default displays, measurements, and timing constants can be changed in the Setup window (To open the Setup window, click the **Setup** button on the main toolbar.)

Record a Customized Timing Sequence (Optional):

1. Place the photogate(s) in the desired experimental configuration.
2. When the Timer Selection Window Appears, choose Recordable Timer.
3. In the Setup window, click the **Record Sequence** button.
4. Click the **Start** button in the Record Timer Sequence dialog box.
5. Pass the objects through the photogate(s) in the desired sequence.
6. Click the **Stop** button. The sequence will appear in the dialog box.
7. To replace the sequence, simply record the sequence again.
8. To edit the sequence, highlight an item in the sequence and click the **Delete** button.
9. To accept the sequence, click **OK**. The Recordable Timer icon will appear in the Data window.

* For best accuracy, when using two photogates with the Time of Flight Accessory, plug both photogates into the same Photogate Port.

Timing Sequence	Description	Device(s) Required
Photogate and Picket Fence	Use any time a picket fence will be used to measure motion.	Photogate
Smart Pulley (linear)	Reports linear position, velocity, and acceleration	Smart Pulley
Smart Pulley (rotational)	Reports angular position, velocity, and acceleration	Smart Pulley
Collision Timer	Use to find the velocity of two objects involved in a collision.	Photogate (2)
Free Fall Adapter	Find the time of fall and acceleration using PASCO's Free Fall Adapter.	Free Fall Adapter
Photogate and Pendulum	Reports the period and velocity of a pendulum as it swings through a photogate	Photogate
Time of Flight	Measures the initial velocity and time of flight for an object fired from a PASCO Projectile Launcher	Photogate (1 or 2)* Time of Flight Accessory
Photogate Timing	General photogate timing for time in gate and time between gates	Photogates (1-8)
General Counting	Reports the number of counts per second from a device such as a GM tube	GM Tube (SN-7927) Nuclear Sensor (SN-7928)
Recordable Timer	Use this mode to define a custom timing sequence.	Photogates (1-8)