

# Photogate Bar Tape Kit

(Order Code TAPE-VPG)



The Photogate Bar Tape Kit contains a flexible plastic tape called Bar Tape and a guide that allows the tape to be used with a Vernier Photogate. The tape is 3 m long, and it has alternating opaque and transparent bars with spacing of 1.524 cm. The tape can be attached to objects and pulled through the photogate. This allows you to perform experiments much like what you would do with a “ticker tape timer”.

This includes the following experiments:

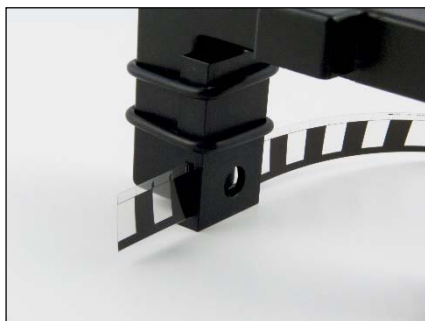
- Study the motion of a toy car.
- Study the motion of air powered rockets and other toys.
- Study the motion of a person as they hold the tape and walk away from the photogate.

## What Is Included with the Photogate Bar Tape Kit?

- 3 m section of Bar Tape (1)
- Bar Tape Guide (1)
- 1 3/8 in outside diameter O-rings (2)
- 1 3/16 in outside diameter O-rings (for pre-2004 photogates) (2)

## Using the Guide and Bar Tape with a Vernier Photogate

The Bar Tape Guide is attached to the detector side of the photogate (the side with the smaller opening). Place the guide on the inside of the photogate and secure it with two O-rings. Thread the Bar Tape through the Bar Tape Guide. Attach the Bar Tape to the object.



## Setting up the Data Collection Software

The details of photogate timing settings will depend on the software you use. The Bar Tape is most often used with the Linear Motion/Motion Timing photogate mode with the Bar Tape selected as the object.

## Using Bar Tape Like a Ticker Tape Timer

Attach the Bar Tape Guide to the detector side of the photogate as described in the previous section. Thread the Bar Tape through the guide and attach it to the object whose motion you are studying, e.g. toy car. The tape can be secured to the object with a piece of cellophane or double-sided tape. You will probably want to trim the Bar Tape to a shorter length as appropriate for your experiment.

## Using the Bar Tape Like a Small Picket Fence

- Cut off a short section of the Bar Tape (about 9 cm) and attach it to a piece of clear plastic. The miniature picket fence will produce very nice motion graphs when dropped through a photogate.



- Attach a short section of the Bar Tape (10–20 cm) to a piece of clear plastic and mount it horizontally at the top of an air track glider. Mount your photogate so that the Bar Tape interrupts the beam as the glider passes. This will allow you to produce motion graphs of the glider motion.

## Additional accessories for motion timing with Photogates

- Picket Fence (order code PF) is 38 cm long and has opaque bars every 5.00 cm. It is designed specifically for free fall experiments.
- Cart Picket Fence (order code PF-CART) has two sides: A single 5 cm wide bar and a set of 13 bars with 1 cm spacing.
- Extra Bar Tape can be ordered (order code TAPE).



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