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Timer with Photogates #TMRPG-1

Warning:

- Not a toy; use only in a laboratory or educational setting.
- California Proposition
 65 Warning: This product
 may contain chemicals
 known to the State of California to cause cancer
 and birth defects or other reproductive harm.

Introduction

Accurate timers are essential in the lab. This timer uses photogates to measure the time it takes for an object to pass through the gates, the object's speed, and the object's acceleration. It can store up to 10 sets of results. Just set the distance between your photogates and start experimenting!

Parts and Buttons

9. Power Switch

10. Fuse Box

Store Memory Button
 Port for Power Cord
 Result Button
 Power Cord
 Reset Button
 Two Photogates

4. Mode Button

Display

2.

3.

5. Set Distance Button

1. Port for Photogate 1

Port for Photogate 2





[1]

How to Use

- 1. Plug your photogates and power cord into the timer. Flip its power switch to the ON position.
- 2. Press MODE once. From here you will be able to set the distance between your photogates. Using 100mm increments, you can choose distances anywhere from 100mm to 9900mm.
- 3. Press MODE again. The display should now read "TIME=000.00s."
- 4. Perform whatever measurement you are intending to take. Make sure the item that you are timing passes through the photogate plugged into GATE 1 first. The timer will continue counting the seconds until your item passes through the photogate plugged into GATE 2.
- 5. Press MODE again. The timer will now calculate your object's **speed**. Speed is calculated by dividing the distance you set by the time it took your object to pass through the gates.
- 6. Press MODE again. The timer will now calculate your object's **acceleration**. Acceleration is calculated by dividing the speed found in the previous step by the time it took your object to pass through the photogates.
- 7. From the ACCELERATION screen, press STORE MEMORY. The timer will now store your object's time, speed, and acceleration.
- 8. Press RESTART to return to the timer's start screen.
- 9. Repeat steps 2 through 7 to gather more data.
- 10. To view your stored memory, press RESULT. This timer can store up to 10 sets of data.
- 11. To clear your stored memory, press and hold STORE MEMORY until the screen reads "DELETING..." The screen will read "MEMORY DELETED!!" once it has been cleared. Press RESET to return to the start screen.

Tips and Maintenence

- This timer can store results even when it is turned off and unplugged. You may want to clear your stored memory (Step 11) each time you begin a new experimenting session with your timer.
- If you press STORE MEMORY before cycling through with the MODE button to calculate your object's speed and acceleration, you will only collect the time that was measured. You must hit MODE twice after each measurement of time if you wish to save a full set of data.
- The memory system of this timer does not record the distance that was used to take your measurements. We suggest keeping the same distance setting for each stored set of data. If you do choose to alter your distance setting between sets of data, we suggest keeping track of that information in a table by hand.
- There is a small 0.5A fuse on the back panel of this timer between the port for the power cord and the power switch. Replace this if it blows.

