

# SensorDisc™

Wireless compact data logger with built-in sensors for school science

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## Photogate Sensor for SensorDisc™ Data Logger

### Specification:

1. Photogate rise/fall time: 1 ms
2. Max sampling speed (one or two photogates): 1000/s
3. Detector-Transmitter distance (gate width): 76.6mm
4. Light source: Infrared
5. Equipped with LED indication (green)

### What's in the pack:

Photogate Sensor only



Find out more about SensorDisc™ at [www.philipharris.co.uk/SensorDisc](http://www.philipharris.co.uk/SensorDisc)

## Preparing the Photogate Sensor

1. Connect the Photogate cable to the Micro-USB external probe socket on the SensorDisc Data Logger. Make sure that the USB sign on the adapter cable connector is facing up.





2. You may only connect one Photogate to the SensorDisc Data Logger, but there is a dual mask option to measure acceleration.

## Using the Photogate with the SensorDisc Data Logger

1. Turn on the SensorDisc Data Logger.

2. The SensorDisc Data Logger reads the Photogate level. The SensorDisc Data Logger will show 0V - when no object is blocking the Detector-Transmitter line, or 5V when the line is blocked.

3. Click on the probe key  located above the external probe socket where the Photogate is plugged in. The display should say 'external sensor' and display a voltage of 0.00V. If the display shows 'light Lx', press the  key again.

4. The SensorDisc Data Logger shows the Photogate reading in voltage units.

5. You may use the SensorDisc Data Logger plastic rod and connect it to the Photogate, enabling the Photogate to be mounted on a retort stand.



## Using the Photogate with the SensorDisc Data Logger Software

1. Open the SensorDisc Data Logger software.

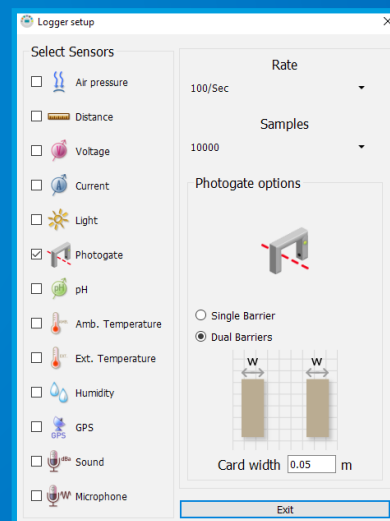
2. Make sure it is connected to the SensorDisc Data Logger via USB or Bluetooth communication.

3. Click the  SETUP icon to open the Logger setup dialog box.

4. The Photogate is automatically identified by the software.

5. To select this probe, simply click on selection button to the left of the Photogate icon.

6. A single (velocity) or dual (acceleration) mask may be selected. Please enter the width of the mask in meters. For a dual mask, both masks must be the same width.



## Speed and Acceleration calculation

1. Observe the two photogate pulses on the screen.

2. The SensorDisc Data Logger software will automatically calculate the time duration and average velocity.

3. If the dual barrier option is chosen, the SensorDisc Data Logger software will automatically calculate the velocity of both barriers and determine the change in velocity and hence calculate the acceleration using the formula  $a = (V2-V1)/(T2-T1)$ .

