

## PHOTOGATE KIT - (2 gates for linear air track)

Cat: MF0138-001 (Air Track Photogate kit)

### 2x Photogates and set of connecting cables for timer and power source.

Recommended IEC Timers: LB4064, LB4057, LB4063, LB4071

### DESCRIPTION:

The IEC Photogate is a self contained LED light source and photo detector mounted and aligned in a slim 'U' shaped housing. This housing accepts special plug-in legs to extend downwards to 'click' on to the edge of the late model IEC Linear Air Tracks for the measurement of glider times, however it can be used also for any other Photogate application. One side of the gate is the LED light source which runs from an 8 to 12V.AC/DC power source. Connection is by 4mm banana sockets or by a standard 12V.AC/DC mains plug pak socket (2.5mm pin). Two photogate lights may be paralleled by banana plug connection with one plug pak feeding either photogate.

The photo cell is an electronic switch which  **closes**  when the light beam is  **broken** . Normally a clock or timer is connected to the positive and negative (red and black) 'CELL' sockets. There is no voltage present on these sockets because the voltage is supplied by the Timer or Clock circuit and the gate photocell behaves as a switch to turn the Timer ON when short circuited (light beam broken) and OFF when open circuited (light beam unbroken).

### MF0138-001 pair of Photogates for Air Track



Physical size:

Weight: kg

**CAUTION:** *The unit is designed to run with Timers and Clocks, so:*

- Do not connect any other power source to the 'CELL' sockets.
- Observe the polarity of the 'CELL' sockets.

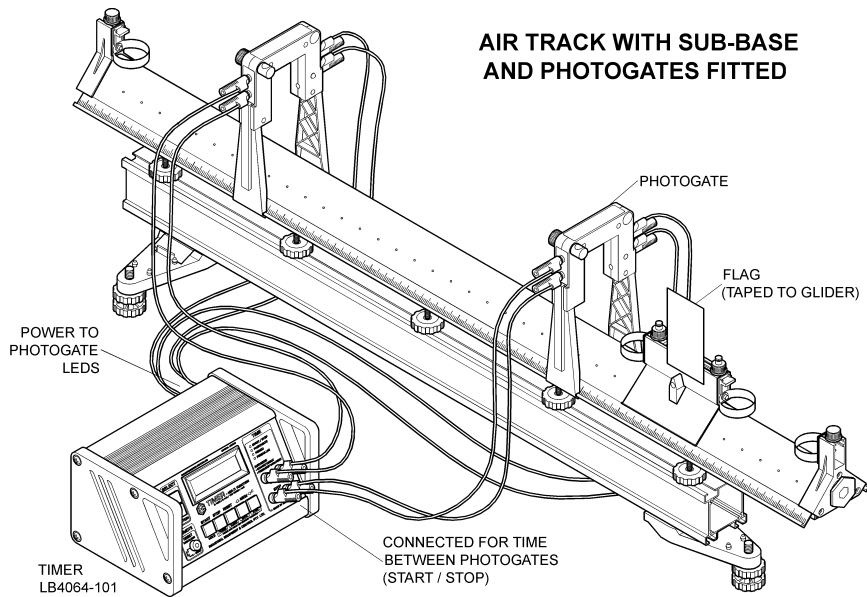
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### **USING THE PHOTOGATE:**

'Click' the legs of the gate over the edge of the Linear Air Track at the desired position. Using adhesive tape, attach a cardboard 'flag' perhaps 100mm long the side of a glider and permit the flag to break the light beam as the glider passes through the gate.

**NOTE:** For the sharpest light beam cut-off which provides the best accuracy, the flag should be taped to the glider on the side further from the LED light source.

When used with any 'IEC' Timer or Timer/Counter, the cell connects directly to the timer sockets. For correct operation observe polarity colours, however reverse polarity connections will not damage the gate. See rear of this page for connection information when using the various IEC timers.

**NOTE:** Most 'IEC' timers have a very useful time-saving feature called 'AutoMode'. When the external circuit is connected to the Start and Stop sockets, press the 'STOP' then the 'RESET' press buttons of the timer to set the switching 'Mode'. The timer will start timing when the status of the circuit changes and will cease timing when the status reverts to its original state. With this handy feature, the user need not be concerned about the open or closed switching actions of any devices connected to the Timer.

### **HOW TO USE THE 'IEC' PHOTOGATES:**

**Push the reinforced extension legs firmly into the slots provided in the body of the Photogates. Spread the extension legs apart slightly to 'click' them over the edges of the IEC Air Track and slide them so the gates are in the desired positions on the track.**

### **PHOTOGATE CONNECTIONS:**

Connect either a 12V.AC or DC power source or a 12V.AC or DC plug pak to the lamp side of the photogate. The light from the LED can easily be seen. Connect the CELL side of the Photogates as described below.

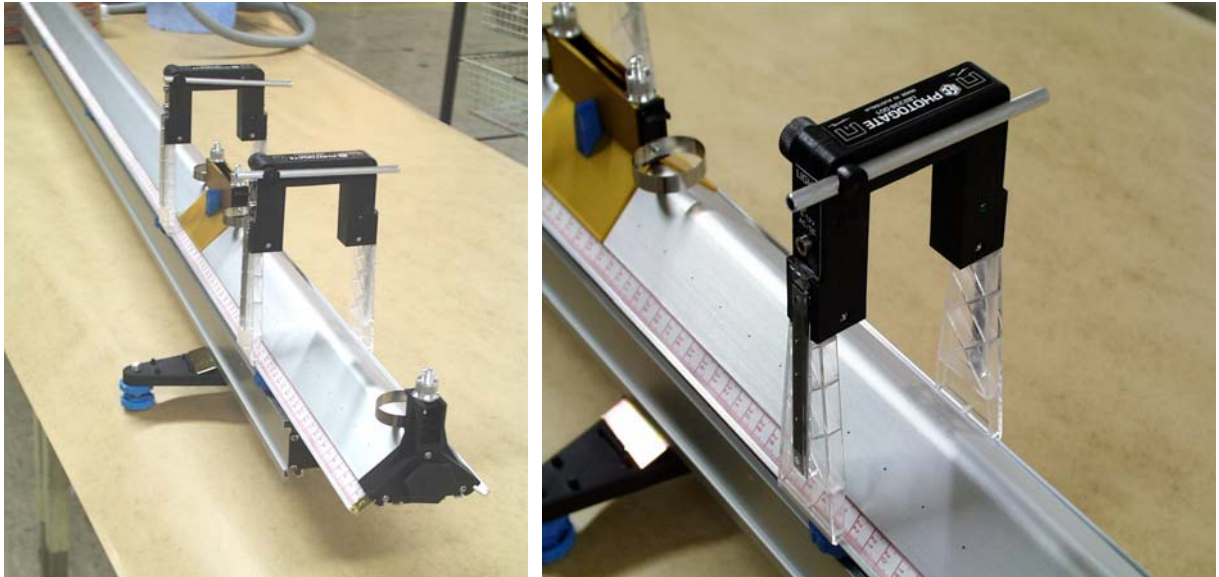
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**TO MEASURE TIME THE FLAG TAKES TO PASS THROUGH ONE GATE:**

Using the IEC LB4057 or LB4059 series LCD timers, connect the cell side of the gate to the Maintain- RUN/STOP sockets. Press Stop then Reset to set 'Mode'. As the flag breaks the light beam the timer will start and as the flag passes from the light beam the timer will stop.

Using the IEC LB4063, LB4064 or LB4071 series LED timers, connect the cell side of the gate to the START sockets and select 'Photogate' function on the timer. Press Stop then Reset to set 'Mode'. As the flag breaks the light beam the timer will start and as the flag passes from the light beam the timer will stop.

**TO MEASURE TIME THE FLAG TAKES TO PASS BETWEEN TWO GATES:**

Using the IEC LB4057 series LCD timer, connect one cell to the START sockets and the other cell to the STOP sockets.

Using the IEC LB4063, LB4064 or LB4071 series LED timers, connect one cell to the START sockets and the other cell to the STOP sockets then select the Start/Stop function on the timer.

If external connections have been changed, always press Stop then Reset to set 'Mode'.

As the flag breaks the first light beam the timer will start and as the flag breaks the second light beam the timer will stop.

**KIT CONTAINS:**

2x Photogates LB2336-001

4x Extension legs to 'click' to the edge of the IEC linear Air Tracks. PA2336-010

4x Pairs of cables, 1500mm long, for connection to timer and power source. PA0710-004

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