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# IPC Irwin Photo Timing Gate

Part Number IPC-3210-T

## User Instructions



### INTRODUCTION.

The IPC Irwin Photo Timing Gate offers a light operated timing gate to provide both 'start' and 'stop' electrical switch outputs, ideal for triggering a large range of electronic timing and counting equipment. The Timing Gate has an extremely fast switching light beam therefore completely removing the problem of 'switch bounce' experienced when using mechanical switches. The Photo Timing Gate has been designed to work perfectly with both the IPC Irwin Millisecond Timer (IPC-3834-T) and Timer Scaler & Frequency Meter (IPC-3342-T).

### DESCRIPTION.

The Photo Timing Gate incorporates an LED light source and photodetector aligned to each other and spaced 40mm apart via a plastic support rod. The LED light source is housed in a robust ABS case which is also used to incorporate the PP3 9V battery supply as well as an on/off switch. The photodetector is also housed in a robust ABS case, incorporating the two 4mm output red & black sockets.

When the Timing Gate is switched on it creates an electrical short-circuit between the two output sockets (this is polarity conscious), this then becomes an open-circuit each time the light beam is broken. Consequently, the timing gate can be used as a remote switching device in a wide range of dynamics experiments.

### INSTRUCTIONS.

Simply connect your 4mm test leads to the two output sockets on the Timing Gate and then to the switching gate sockets (making note of the polarity) of a suitable electronic timing or

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counting equipment. Then switch on the Timing Gate and make sure red LED beam is visible and falls upon the Photodetector receiving window. Finally check that the gate is operating the equipment correctly by passing your hand between the LED beam.

#### **'g' by Freefall Experiments.**

A document containing descriptions and diagrams of how to setup the 'g' by freefall experiments using the IPC Irwin Photo Timing Gate with either the IPC Irwin Millisecond Timer or Timer Scaler & Frequency Meter can be found on the IPC Irwin website: [www.ipcel.co.uk](http://www.ipcel.co.uk) under the heading Experiments/Video.

#### **Battery Fitting.**

To fit the PP3 9V battery open the back of the LED, on/off switch case (ie. by removing the four screws), then clip the connector found inside to the battery, finally refit the back of the case.

#### **SPECIFICATIONS.**

|                   |                                                            |
|-------------------|------------------------------------------------------------|
| Electrical Supply | = 9V Battery, type: PP3                                    |
| Dimensions        | = Each case: 27 x 55 x 110mm overall, Rod: 120 x 12mm dia. |
| Mass              | = 0.15kg (including battery)                               |

**Please Note:** This Equipment is for Education, Training, or research Purposes Only.

Thank you for choosing this IPC Irwin product, which has specifically been designed for education and we know it will bring you good service long into the future. This is just one product of a wide range of UK designed and manufactured products to enhance a STEM education. Please see [www.ipcirwin.com](http://www.ipcirwin.com) website for more details on the products and service we provide to support teaching and learning in science and technology.

IPC Irwin also provide Portable Appliance Testers and a Calibration service, for more details please go to [www.ipcirwin.com](http://www.ipcirwin.com) or call our sales and technical support line on 015395 58555.



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