

Photogate

'U' Shaped, with Support Rod



LB2200-101

Description:

The IEC Photogate is a self contained light source and photo detector mounted and aligned in a plastic 'U' frame. It is complete with an 8mm diameter x 200mm long mounting rod which can be clamped in a bosshead to allow the Gate to be adjusted to any angle in any direction.

One side of the gate contains the solid state LED visible light source which operates from an 8-12V.AC or DC power source. The power to run the light source is via 4mm banana sockets or by 240/12V.AC mains adaptor (Plug Pak). A socket for the Plug Pak is provided on the side of the housing.

The opposite side of the housing is the photo detector which behaves as an electronic switch that closes when light beam is broken. A monitor LED on the side of the housing lights indicates that the gate has switched and this monitor feature is very useful when setting up for an experiment.

The 4mm connection sockets are polarised positive and negative. Normally a clock or digital timer is connected to these sockets and the clock or timer itself provides the power to run the photo detector circuit. If connections are backwards, the Gate will appear to be permanently switched on.

The IEC Photo Gate is held by a bosshead for general use. Special legs are available for clipping to the IEC Air Track.

Length: 95mm	Width: 36mm	Height: 77mm	Weight: 100g
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Technical:

When the light beam from the LED is free to cross the gate to be seen by the photo sensor, the output sockets of the photo gate have the equivalent of an open circuit between them. This condition should not run the timer.

When the light beam is obstructed, the output sockets of the photo gate have the equivalent of about 20 ohms resistance (almost a short circuit) between them. The timer should run.

This 'resistance' value is an equivalent value and it cannot be measured by an ohm meter.

Maximum Voltages permitted:

- LED light source supply: Normal: 12V.AC or DC. Maximum: 18V.DC or 12V.AC.
- Sockets to timer: The timer itself provides the voltage to these sockets and this voltage is usually very small. If other types of circuits are to be switched, the maximum voltage to be applied to these sockets is 20V.DC. max.

Caution:

Be careful of connections. If a power source is applied to the sockets that are used for controlling the timer, the instrument may be damaged.

Connections:

When used with any of IEC's Timers or Timer/Counters, the photo gate may be connected directly to the START or STOP sockets. It will operate correctly on either the MAINTAINED (PHOTOGATE) or the MOMENTARY (START/STOP) connections. For correct operation, observe the polarity markings, however it is protected so that reverse polarity will not damage the instrument.

In the MAINTAINED or PHOTOGATE mode of operation, the timer runs only while the timer sockets are joined. Therefore, the timer will start while the light beam is obstructed and will stop when the light beam is restored.

In the MOMENTARY or START/STOP mode of operation, the timer runs when the START contacts are momentarily or continuously joined and continues to run until the STOP contacts are momentarily or continuously joined. Normally two gates are connected to the timer with one connected to the START sockets and the other connected to the STOP sockets. When the light beam of the first Gate is obstructed the timer begins timing and when the light beam of the second Gate is obstructed, the timer will stop.

Using the "Auto-Mode" Feature of the IEC Timers:

Later model 'IEC' Timers have a very useful time-saving feature called 'AUTO-MODE'. When the Photogates (or any other circuits) are connected to the Timer, press the 'STOP' then the 'RESET' buttons of the timer to set Auto-Mode. The display will be zeroed and from that moment, the timer will start timing when the START gate changes status (whether the light beam is initially broken or not) and will cease when the STOP switching status changes. With this feature, the timer operation is automatic and the user need not be concerned about the open or closed switching actions of the devices connected to the timer.

Designed and manufactured in Australia.

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