



## Light Gate

### XLS1023



#### Technical Specifications

Power requirement: 5V DC ( $\pm 5\%$ ) 20mA (through USB link)

##### Internal Gate:

Infrared source peak wavelength: 880nm

Rising time: 2.5 $\mu$ s

Falling time: 3.8 $\mu$ s

##### External Gate:

Infrared source peak wavelength: 880nm

Spectrum sensitivity: 500-1050nm

Rising time: 8 $\mu$ s

Falling time: 10 $\mu$ s

#### Description

The XLlogger Light Gate is a digital switch-type sensor that has two states – low (ON condition) and high (OFF condition). The light gate comprises an infrared transmitter and a receiver mounted and aligned in a plastic frame. A switch is used to block the internal gate and switch the device to external gate mode. The external gate mode requires a visible pen laser (not supplied). A single light gate measures the time for which the beam is broken. Two light gates can be daisy chained together to measure the time between the two light gates being broken.

#### Instructions

- The light gate operates in two modes. A slide switch position determines the operating mode. The left position selects the internal gate mode and the right position the external gate mode. The external gate mode requires a separate pen laser, which is not supplied.



- For single gate operation connect port B on the light gate to the USB port the computer or USB hub.
- For dual gate operation connect port B on the first gate to the USB port the computer or USB hub and connect port B on the second gate to port A on the first gate using the lead provided.
- Use timing mode on the XLlogger add-in to Excel to select the type of experiment, eg speed or acceleration using one or two gates. Follow the instructions to cut a suitably shaped piece of card to block the beam and enter relevant information as requested depending on the type of experiment.
- A green LED on the light gate comes on when the beam is blocked.
- For external gate operation, good results can be expected using a typical Class IIIa type laser pointer with a power of less than 5mW. Align the laser so that the beam enters the external sensor and turns on the green LED on the light gate. Blocking the beam at any point in its path should turn the LED off again.
- **Safety Note:** When using the light gate in external mode **do not** align the laser beam by eye and follow all standard laser safety precautions.