

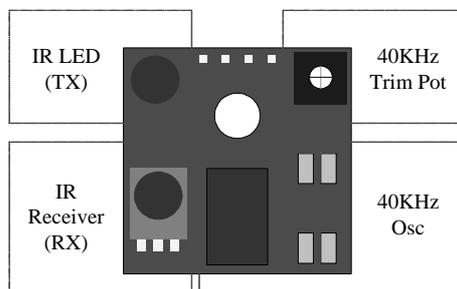
PROXIR

Infrared Proximity Obstacle Detector

The PROXIR is near-infrared proximity obstacle detector board for near object detection. The board has a 40 kilohertz oscillator circuit, IR LED and IR receiver. The IR receiver responds to a modulated carrier put out by IR LED. This modulated carrier protocol increase the signal-to-noise ratio. The IR LED transmit 40 kilohertz signal to the object. The IR receiver detects reflected power emitted from the IR LED. The PROXIR requires two I/O from microcontroller to operate the unit. It is easily used for near object detection up to a distance about 10 cm or more. It can not be used for distance measurement.

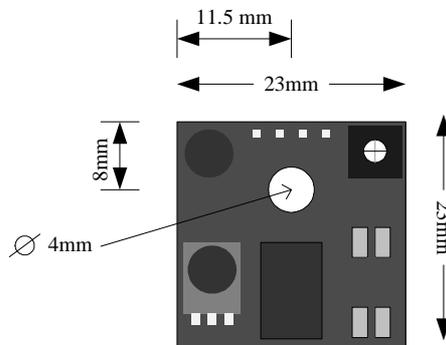
Board Component

The board has 3 sections IR LED, IR receiver and a 40KHz oscillator. IR LED is transmitter that transmit the infrared to object. IR receiver is infrared receiver. It receive reflected infrared. The 40KHz oscillator is a oscillator circuit that drive the IR LED. Trim pot is used for 40KHz oscillator adjustment.



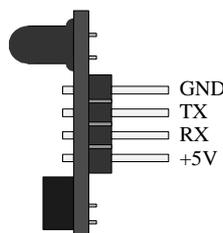
Board Dimension

The board dimension is 23 mm x 23 mm and a hole size for screw is 4 mm



Board Signals

Board composed of 4 signals, +5V, RX, TX and GND. Board use +5V and GND signals for power supply pin. The TX is used for enable transmitted signal and RX for detected object signal.

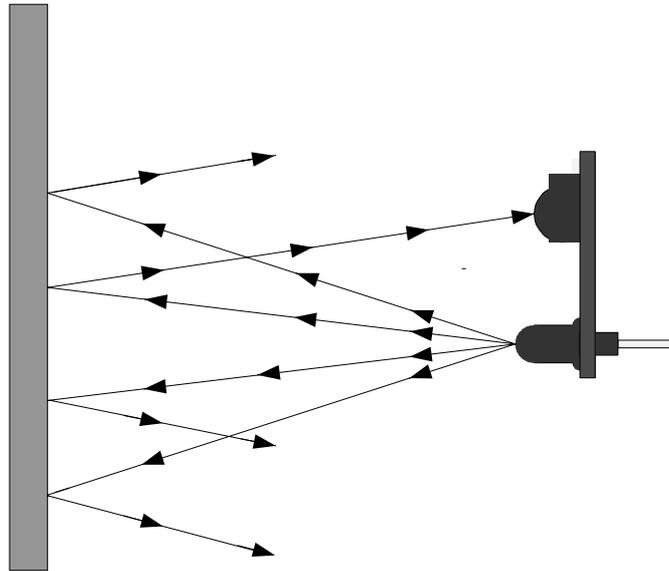


* Power Requirements : +5Vdc , ~3 mA

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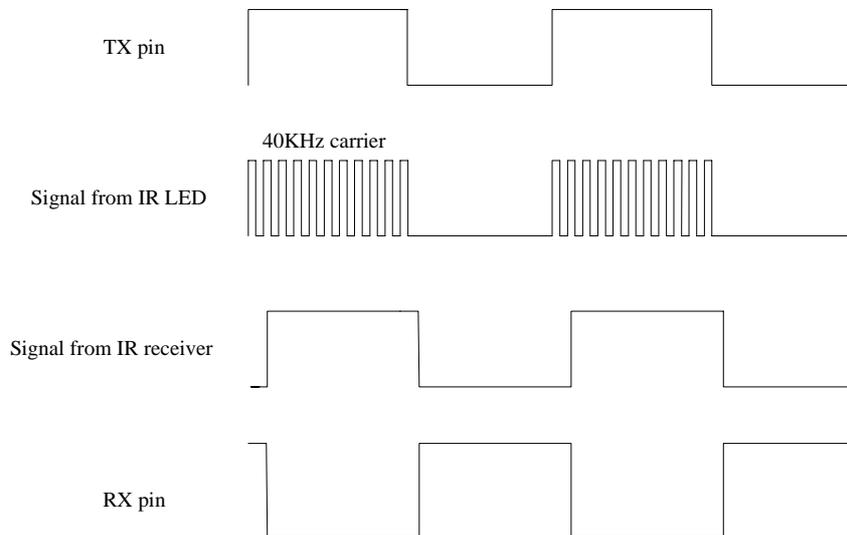
Board Active

Board transmit infrared signals to object when TX pin is high logic and IR receiver receive reflected infrared signals. The RX pin is low logic when the board can receive reflected infrared.



Signal Description

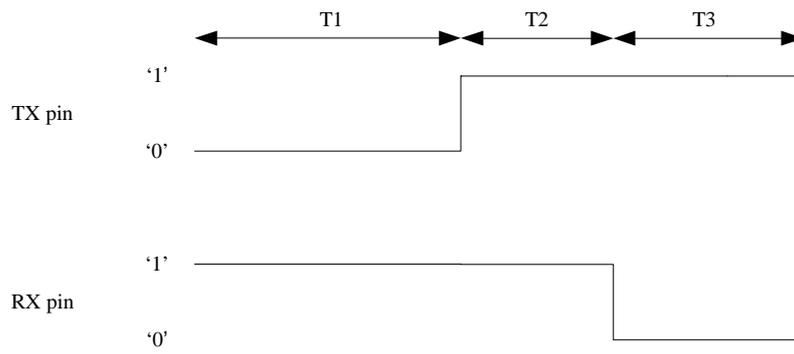
Where the TX pin is high logic, The IR LED is turn-on and transmits infrared light with 40 KHz carrier signal. When the TX pin is low logic, The IR LED is turn-off. Where the board can detect reflected infrared, The IR receiver demodulate the 40 KHz carrier signal. Signal from RX pin is inverted signal from IR receiver.



*Above image, Where the board can detect object. If the board can't detect object, RX pin is high logic.

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TX and RX Signal Pins



- T1 : Turn off IR LED
- T2 : Turn on IR LED , Infrared receiver can't detect object
- T3 : Turn on infrared , Infrared receiver can detect object

- * TX pin active high logic
- * RX pin active low logic