ST-00031

SimplyTronics PIR sensor

Overview

The PIR(Passive Infra-Red) Sensor is a pyroelectric device that detects motion by sensing changes in the infrared(radiant heat) levels emitted by surrounding objects.

Product Features

- Single bit output
- Small size
- On-board LEDs
- Power 3V to 6VDC operation 150uA idle, 3mA active(no load) current draw
- 30mA active (0 ohm resistor) high current draw
- Detect a person up to 30 ft away
- Sensitivity adjustable
- 90˚ detection angle
- On-board light sensor, night enable mode
- 4-pin SIP header with breadboard-friendly 0.1” spacing

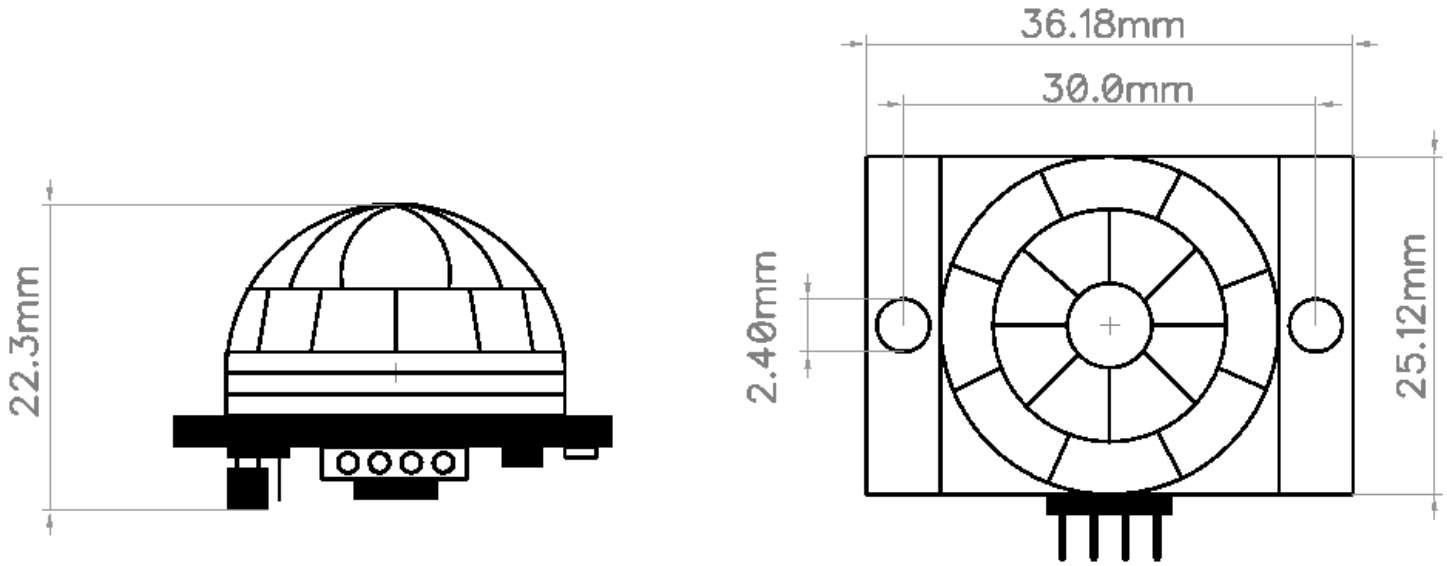
Technical Details

Application Ideas

Warning: Voltage- and Static-sensitive Device

- PIR Sensor is a delicate, static-sensitive device requiring proper voltage
- Observe proper anti-static techniques when handling them.
- Disconnect all power before connecting or disconnecting the module to a circuit.
- Do not reverse polarity of the power connections, it could destroy the device.

Module Dimensions



Pin Definitions

Pin	Symbol	Type	Function
1	GND	Ground	Ground(0V)
2	VCC	Power	Power supply
3	OUT	Output	PIR signaling; HIGH = movement/ LOW = no movement
4	EN (Optional)	Input	PIR enable(default); HIGH = Enable / LOW = Disable [can be left unconnected]

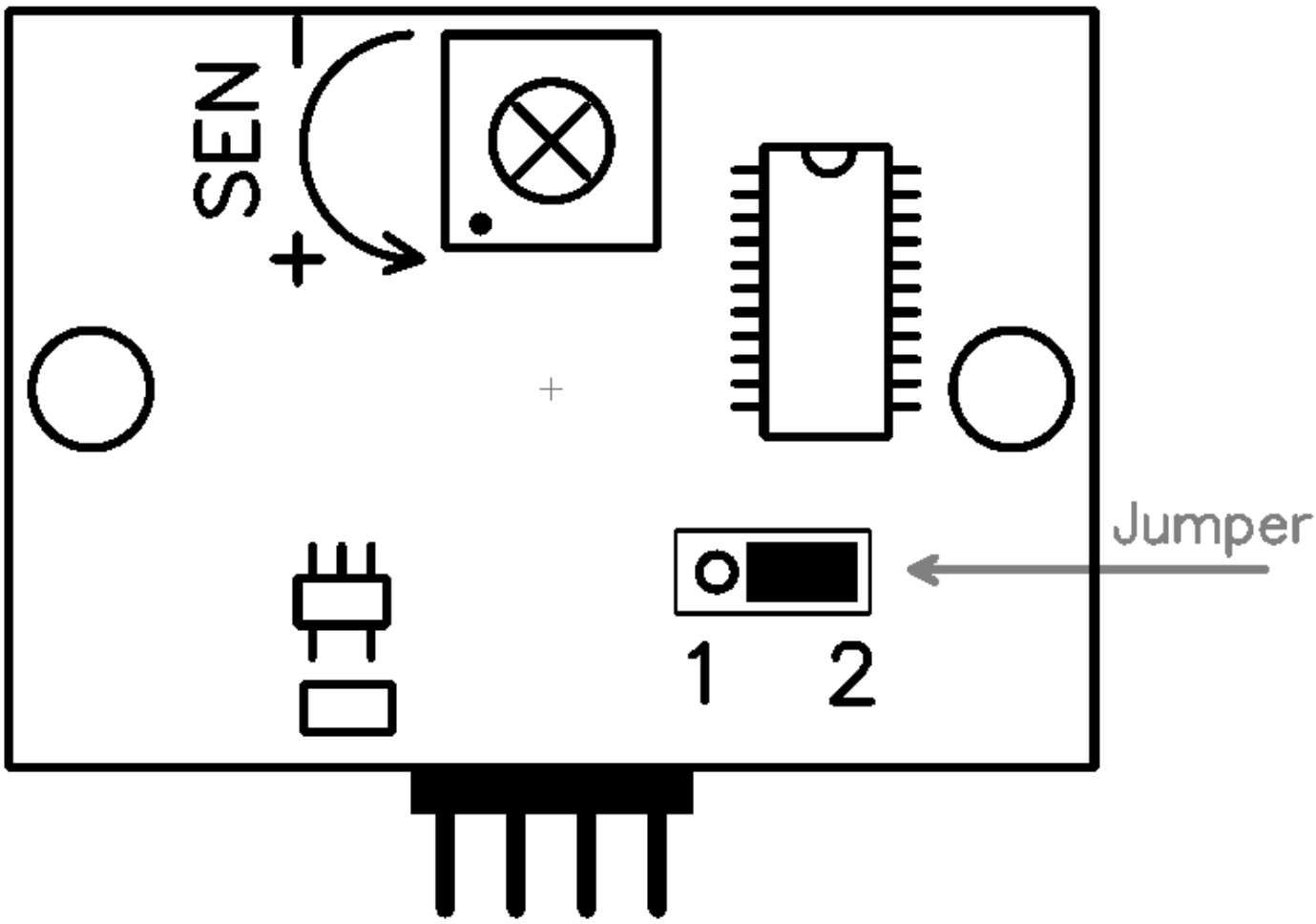
Indicator LED

Status	Detail
On	Power on warm-up Movement detected
Off	No movement detected

Specifications

Symbol	Description	Minimum	Typical	Maximum	Units
VCC	Supply Voltage	3.3	5.0	6	V
ICC	Supply Current(No load)	2.8	3	3.2	mA
GND	Ground reference connection	-	0	-	V
VIH	Signal high (input)	2.4	3.3	5.0	V
VIH	Signal low (input)	-0.3	GND	0.3	V
VOH	Signal high (output)	2.4	VCC	-	V
VOL	Signal low (output)	-0.3	GND	0.3	V

Setting

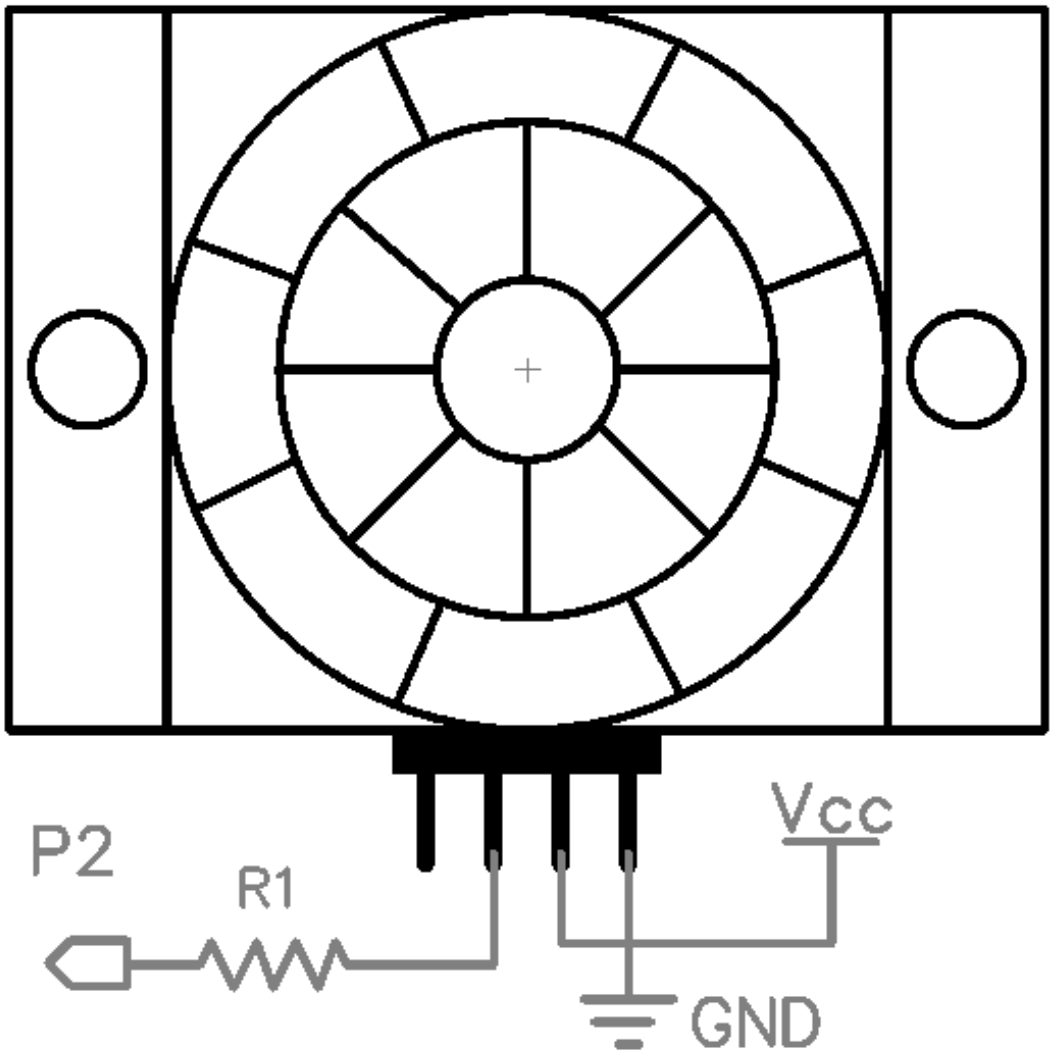


Symbol	Mode	Description
1	Night	Only activated at night(Depends on the lightness of the environment)
2	All time	Activated all the time(Disable the light sensor option)

Direction	Description
Counterclockwise	Increase the trigger sensitivity
Clockwise	Decrease the trigger sensitivity

Typical Application

Connect to 3.3V or 5V microcontroller. EN can be left disconnected (so you can use a 3-wire cable). Only use EN to turn off the sensor remotely for saving power.



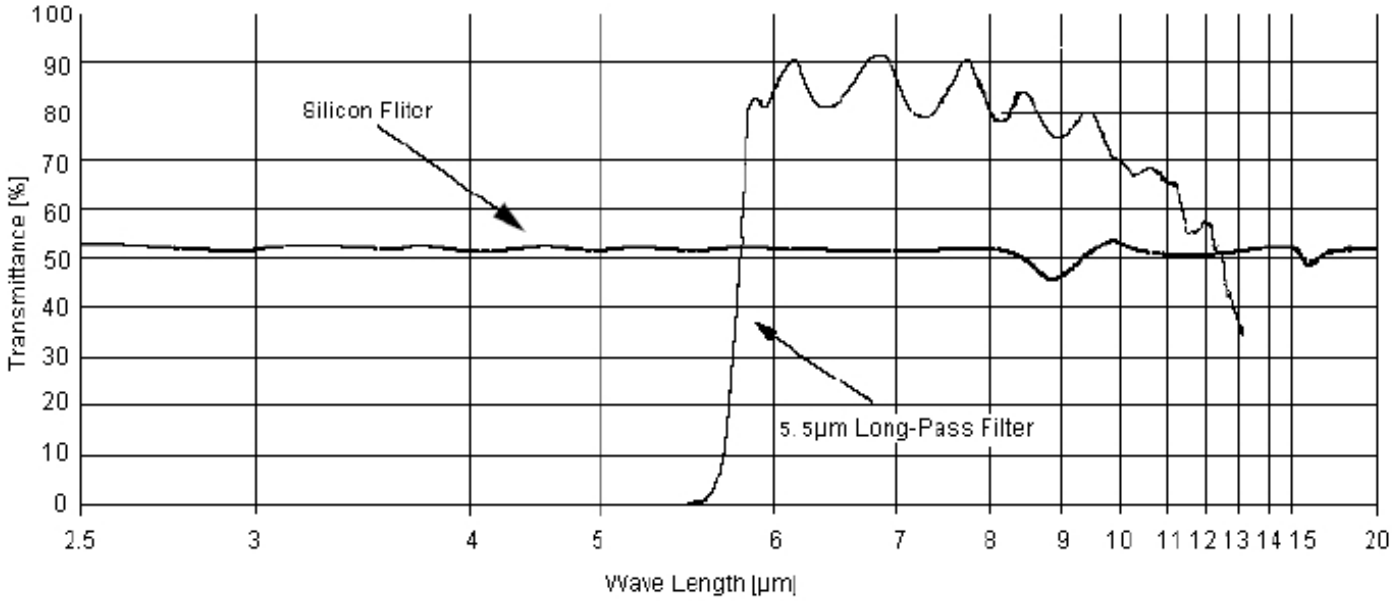
R1 = 0~4.7K

Spectral Response

In most cases the PIR plastic lens will be exposed directly to the area that should be sensing so almost nobody would care about the spectral response of this PIR sensor. A couple of customers mentioned that they will have to enclose their whole projects behind some translucent material and they needed to know which kind of infrared (which wavelength) should be able to pass through their material.

This PIR sensor and the lens are optimized to work with IR light wavelength from 5.5 to 14 um. The graphic below shows the information in a graphic.

■ Spectral Response of Window Materials



Resources and downloads