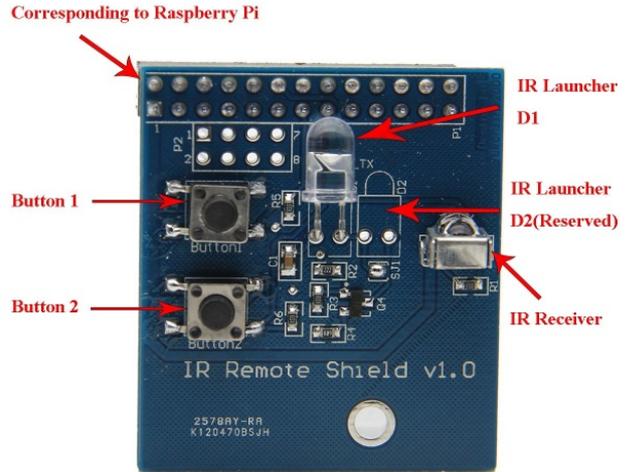


# Raspberry Pi IR Control Expansion Board

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## Introduction

It is specific for Raspberry Pi IR control expansion board, you can use Pi 3B+/3B/2B/ B+ expansion board to realize the IR control function.

Raspberry Pi IR Control Expansion Board sku:449981

## Dimensions



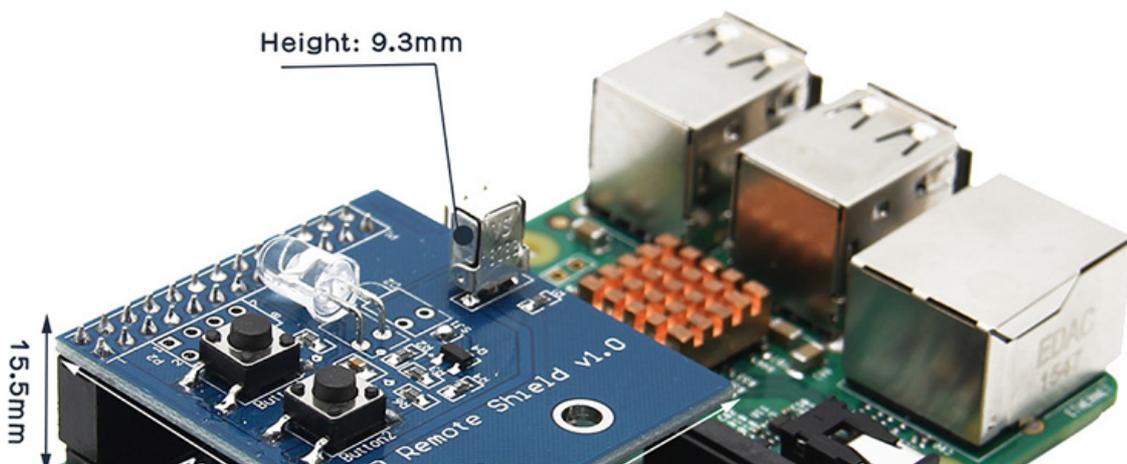
Raspberry Pi IR Control Expansion Board sku:449981

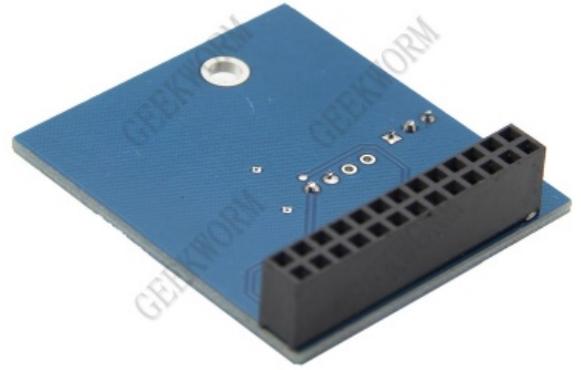


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## Function

### 1. IR Receive Function

Working frequency: 38KHz  
 Receive distance: 18-20m  
 Receive angle: +/-45 angle

### 2. IR Launch Function

wavelength: 940nm  
 Launch distance: 7-8m

3. Support launching with IR double LED.(You need to weld backup launch tube D2, and cut off SJ1.)

4. Support LIRC software. You can copy all of the IR remote control function with LIRC and expansion board.(Such as TV, Power amplifier and DVD etc), you can also use commands to control the appliances.

5. Support XBMC system.

6. Support Double GPIO button.

## LIRC Software

1. Connect the IR Remote Shield to your Raspberry Pi, turn it on. Log in to the Raspberry Pi. install LIRC software(Linux Infrared remote control) .

```
sudo apt-get install lirc
```

2. Edit config.txt, and add configuration. (IR launcher for IR Board=17, IR receiver=18)

**PS: For the those expansion board such as DAC II,DiGi+, DAC+ or Stepper/Motor/Servo Robot Expansion Board SKU:418460, only exist Receiver no launcher, and gpio\_in\_pin=26 (GPIO PIN)**

```
sudo nano /boot/config.txt
```

Add the following content to config.txt

```
dtoverlay=lirc-rpi,gpio_in_pin=18,gpio_out_pin=17
```

**Notice: The version under raspbian-02-05 please refer to the below step 2 !!!**

2. Edit Modules, and add configuration.

```
sudo nano /etc/modules
```

Add the two line content to end of this file

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```
lirc_dev
lirc_rpi gpio_in_pin=18 gpio_out_pin=17
```

3. Edit the configuration file of LIRC, enables the IR function.

```
sudo nano /etc/lirc/hardware.conf
```

modify the following content:

```
LIRCD_ARGS="--uinput --listen"
DRIVER="default"
DEVICE="/dev/lirc0"
MODULES="lirc_rpi"
```

PS: please create a new hardware.conf file if the hardware.conf file is not exist. the comment of file is as following:

```
LIRCD_ARGS="--uinput --listen"
LOAD_MODULES=true
DRIVER="default"
DEVICE="/dev/lirc0"
MODULES="lirc_rpi"
```

```
GNU nano 2.7.4 File: /etc/lirc/hardware.conf Modified
LIRCD_ARGS="--uinput --listen"
LOAD_MODULES=true
DRIVER="default"
DEVICE="/dev/lirc0"
MODULES="lirc_rpi"
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line
```

then edit the /etc/lirc/lirc\_options.conf file; and modify the following lines;

```
driver = default
device = /dev/lirc0
```

```

# These are the default options to lircd, if installed as
# /etc/lirc/lirc_options.conf. See the lircd(8) and lircmd(8)
# manpages for info on the different options.
#
# Some tools including mode2 and irw uses values such as
# driver, device, plugindir and loglevel as fallback values
# in not defined elsewhere.

[lircd]
nodaemon      = False
driver        = default
device        = /dev/lirc0
output        = /var/run/lirc/lircd
pidfile       = /var/run/lirc/lircd.pid
plugindir     = /usr/lib/arm-linux-gnueabi/hf/lirc/plugins
permission    = 666
allow-simulate = No
repeat-max    = 600
#effective-user =
#listen       = [address:]port
#connect      = host[:port]
#loglevel     = 6
#uinput       = ...
#release     = ...
#logfile      = ...

[lircmd]
uinput        = False
nodaemon      = False

```

#### 4. Restart the LIRC function

```

sudo /etc/init.d/lirc stop
sudo /etc/init.d/lirc start

```

Until now the configurarion has been finished!

**PS:** if you can't find the above command, maybe you use the new lirc versin, please try the following command:1

```

sudo /etc/init.d/lircd stop
sudo /etc/init.d/lircd start

```

## IR Receive Function

### 1. Stop LIRC software

```
sudo /etc/init.d/lirc stop
```

### 2. Issue the following command:

```
mode2 -d /dev/lirc0
```

3. Press any button of IR remote controller in front of the remote sheild. You should be able to see something like this in your terminal:

```

space 16300
pulse 95
space 28794
pulse 80
space 19395
pulse 83
space 402351
pulse 135
space 7085
pulse 85
space 2903

```

And that means your IR Remote Shield is working well!

## IR Transmitting Function

### 1. Stop LIRC software

```
sudo /etc/init.d/lirc stop
```

2. Input command 'irrecord -list-namespace'. The parameter will provide the tips of valid button name(Write it down as you will need to input these names manually).

`irrecord -list-namespace`

3. Issue the command of IR code recording.

`irrecord -d /dev/lirc0 ~/lircd.conf`

Then just follow the instruction printed on the screen. After you've finished everything, the information of your remote controller will be saved in `/home/pi/lircd.conf`.

4. Copy `/home/pi/lircd.conf` to `/etc/lirc/`, overwrite the existing file: `sudo cp /home/pi/lircd.conf /etc/lirc/lircd.conf`

Then restart LIRC:

`sudo /etc/init.d/lirc restart`

You can double check the keys you just recorded:

`irsend LIST /home/pi/lircd.conf ""`

You should be able to see something like this:

```
irsend: 000000000000c837 KEY_VOLUMEUP
irsend: 00000000000048b7 KEY_VOLUMEUP
irsend: 00000000000008f7 KEY_VIDEO_PREV
irsend: 0000000000008877 KEY_VIDEO_NEXT
```

5. Now You can now transmit IR commands:

```
irsend SEND_ONCE /home/pi/lircd.conf KEY_VIDEO_PREV
irsend SEND_ONCE /home/pi/lircd.conf KEY_VIDEO_NEXT
irsend SEND_ONCE /home/pi/lircd.conf KEY_VOLUMEUP
irsend SEND_ONCE /home/pi/lircd.conf KEY_VOLUMEUP
```

## Features of remote control:

1. Remote control distance: 8~10m
2. 38KHz universal remote control for arduino

## Download

LIRC Official Website (<http://www.lirc.org/%7C>)

Control the Application via web IR (<http://alexba.in/blog/2013/11/02/lirc-web-nginx-and-upstart/%7C>)

Control the Application via Phone APP (<http://www.datscharf.dk/amote/%7C>)

Only IR receive Application under XBMC (<http://my.oschina.net/funnky/blog/147094%7C>)

## Packing List

- 1 x IR Control Board
- 1 x Remote Controller

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- 1 **名鉄イン 名古屋駅前** 3,400円〜 平成28年4月全室リニューアル！世界で愛好家の多い「シモンズベッド」を導入！朝食無料サービス/全室Wi-Fi対応 楽天トラベル 
- 2 **GPUサーバーが置けるDC** 最大提供電力30kVA/ラックでGPUサーバーの設置に対応。 [datadock.co.jp](http://datadock.co.jp) 

- This page was last edited on 24 July 2018, at 16:36.
- This page has been accessed 35,999 times.