# 3.5 inch HD-TFT Display shield for Raspberry pi 2B/B+ With Keyboards and Remote IR

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**Features:**

* **Demensions：85mm×56.5mm;**
* **Resolution: 800 x 480, 3.5 inch;**
* **267ppi High PPI display screen;**
* **11ms High Response Time(more than 60 fps);**
* **160° Wide Viewing Angle;**
* **900:1 High Contrast Ratio;**
* **Sunlight Readable;**
* **Backlight can change;**
* **With 2 keyboards;**
* **With IR function;**
* **With I2C Master;**

How to use this screen:

## 1. Easy method;

Use the full firmware with driver from:

 (Easy method, and this is the advised use method;)

## 2. DIY method;

you can use this module by the following step

step 1.

Download the official firmware, then upgrade to the latest kernel

*sudo rpi-update*

step 2.

Copy the file()in the /boot

*sudo cp dt-blob.bin /boot*

step 3.

Config file to enable HD-TFT

*sudo nano /boot/config.txt*

Add the following line:

*framebuffer\_width=800*

*framebuffer\_height=480*

*dtparam=spi=off*

*dtparam=i2c\_arm=off*

*enable\_dpi\_lcd=1*

*display\_default\_lcd=1*

*dpi\_output\_format=458773*

*dpi\_group=2*

*dpi\_mode=87*

*hdmi\_timings=800 1 0 48 0 480 0 13 3 32 0 0 0 60 0 23040000 6*

*display\_rotate=3*

step 4.

Save then restart;

### How to change the backlight,push the button



### How to use 2 keys,like gpio



### How to use the I2C master(I2C\_3)

you can use this module by the following step

step 1.

Download the official firmware, then upgrade to the latest kernel

*sudo rpi-update*

step 2.

Config file to enable i2c\_3

*sudo nano /boot/config.txt*

Add the following line:

*dtoverlay=i2c-gpio,i2c\_gpio\_scl=24,i2c\_gpio\_sda=23framebuffer\_height=480*

step 3.

Make and install the pigpio

*sudo git clone git://github.com/joan2937/pigpio*

*cd pigpio*

*sudo python setup.py install*

*sudo make*

*sudo make install*

step 4.

install the I2C tools

*sudo apt-get install i2c-tools python-smbus*

step 5.

Config file to /etc/modules

*sudo nano /etc/modules*

Add the following line:

*i2c-bcm2708
i2c-dev*

step 5.

Config file to /etc/ rc.loacl

*sudo nano /etc/* *rc.loacl*

Add the following line:

*raspi-gpio set 23 pu*

*raspi-gpio set 24 pu*

step 4.

Save then restart;

# How to use the IR function:

Description:

1. IR receiver function:
* Operating frequency: 38K HZ
* Receiving distance: 18-20m
* Reception angle: +/- 45 degrees
1. The infrared transmitter function
* Wavelength: 940nm
* Transmitting distance: 7-8m

Preparation: Burn into raspbian system;

1. Start the Raspberry Pi, login Raspberry Pi through SSH, the user name: pi, default password: raspberry

2. Update and install lirc software, run the following command:

**sudo apt-get update**
**sudo apt-get install lirc**





2. Edit the config.txt, and add configuration. use GPIO PIN 26;

**sudo nano /boot/config.txt**

Add the following line into the config.txt file:

**dtoverlay=lirc-rpi, gpio\_in\_pin=26**



3. Edit LRIC config file to enable infrared function;

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

Modify the following lines:

**LIRCD\_ARGS=”--uinput”**

**DRIVER=”default”**

**DEVICE=”/dev/lirc0″**

**MODULES=”lirc\_rpi”**

4. Run "**sudo reboot**" to restart the Raspberry Pi, then run "**ls / dev / l \***" to view the infrared device is enabled



It's enabled if you can view the above red mark;

5.Record Button

**sudo /etc/init.d/lirc stop**
**sudo irrecord -n -d /dev/lirc0 ~/lircd.conf**

Record your IR remote control Follow the prompts, such as “*pause*”，“*nextsong*”，“*prevsong*”，“*stop*”，“*volumeup*”，“volumedown” etc.



then you can get a lircd.conf file; override the old lircd.conf file;

**sudo cp ~/lircd.conf /etc/lirc/lircd.conf**

6. Startup lirc software;

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



7. Run the following command to view & check record result

sudo **irw**

Then press those record button;

8. You can view those button name to run irsend command;

irsend LIST /home/pi/lircd.conf “”

maybe it's following content:

irsend: 000000000000c837 pause

irsend: 00000000000048b7 nextsong

9. Now you can use the infrared transmitter, recorded before launching the remote control key coding, use that will extend the board as a rotary tool.Launch the command reference command:

irsend SEND\_ONCE /home/pi/lircd.confpause

irsend SEND\_ONCE /home/pi/lircd.confnextsong

irsend SEND\_ONCE /home/pi/lircd.conf KEY\_VOLUMEDOWN

irsend SEND\_ONCE /home/pi/lircd.conf KEY\_VOLUMEUP

Appendix:

1.LIRC <http://www.lirc.org/>

2. APP <http://www.datscharf.dk/amote/>