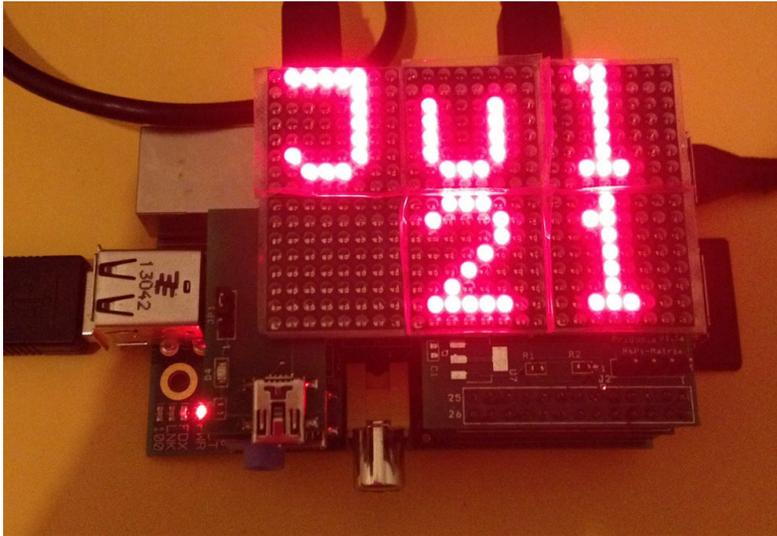


RsPi-24x16 LED Matrix User Manual



The HT16K33 is a memory mapping and multi-function LED controller driver. The max. Display segment numbers in the device is 128 patterns (16 segments and 8 commons) with a 13*3 (MAX.) matrix key scan circuit. The software configuration features of the HT16K33 makes it suitable for multiple LED applications including LED modules and display subsystems. The HT16K33 is compatible with most microcontrollers and communicates via a two-line bidirectional I2C-bus.

Feature ●● Operating voltage: 4.5V~5.5V

- Integrated RC oscillator
- I2C-bus interface
- 16*8 bits RAM for display data storage
- Max. 16 x 8 patterns, 16 segments and 8 commons
- R/W address auto increment
- Max. 13 x 3 matrix key scanning
- 16-step dimming circuit

8x8 20mmx20mm Dot Matrix 1.9mm Common Anode Red

1. J2 i2c signal input with logic level converter (PIN 1 -4 , GND, 5V, SDA, SCL)
2. JP1 DC 5V power select from mini USB connector or Pi P1 pin 2)

Information about 8x8 LED matrix

<http://learn.adafruit.com/adafruit-led-backpack/0-8-8x8-matrix>

Test Program can be download from our web site

<http://www.pridopia.co.uk/pi-matrix-3.html>

- 1.led8x16_j.py 24x16 moving image
- 2.led16x16-7172.py 16x16 test in address 71,72
- 3.led_time.py 2 line Date & Time information
- 4.led16x16.py 16x16 test in address 70,71
- 5.led_16x16_v2.py 16x16 display time & date
- 6.led_image.py 16x16 show image then Time & date
- 7.led24x16.py 24x16 line test
- 8.led_jd.py 24x16 input message test
Input "TEST" for display all characters input "Time" display Time & Date
Input "Smile" display 6 Smile face input "Cont" display 6 Block
- 9.time_check.py sync RTC tiem & System Time
- 10.led8x16-70.py 8x16 test in address 70
- 11.led8x16-71.py 8x16 test in address 71
- 12.led_single_img.py 24x16 display img first then Time & date
- 13.led_single.py 24x16 display Time & date
- 14.led_16x16_small.py 16x16 3x5 small font clock

New Pridopia scratch interface software you can download from our web site

<http://www.pridopia.co.uk/rs-pi-set-scratch.html>

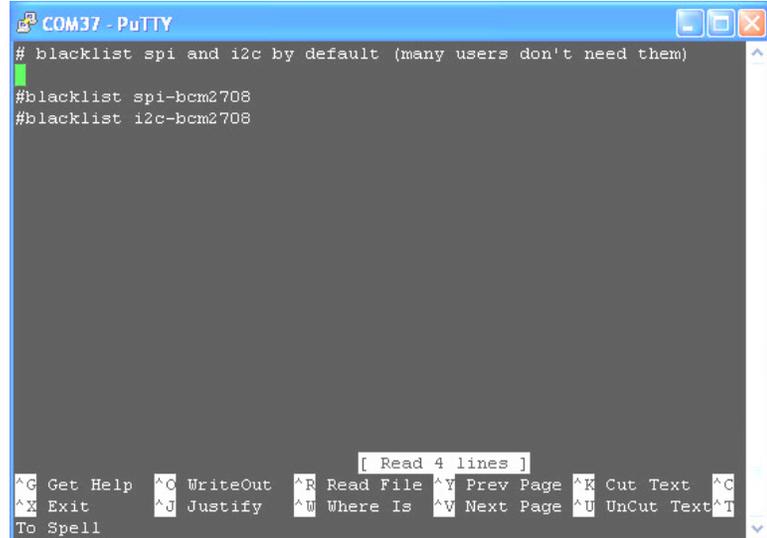
Package Content

1x Rs-Pi I2C LED Matrix 24x16 board

1x manual

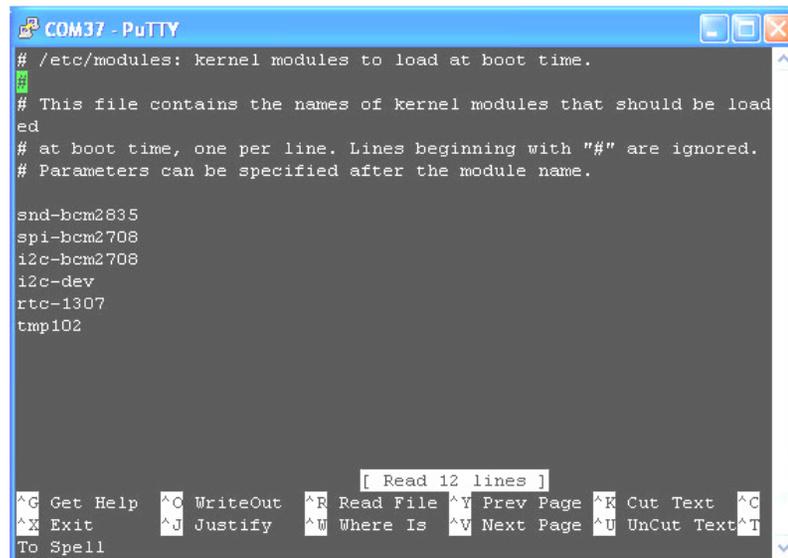
1. Make sure you I2C driver are enable

To enable it all you need to do is comment out a line by putting # in front
`sudo nano /etc/modprobe.d/raspi-blacklist.conf`



```
COM37 - PuTTY
# blacklist spi and i2c by default (many users don't need them)
#blacklist spi-bcm2708
#blacklist i2c-bcm2708
```

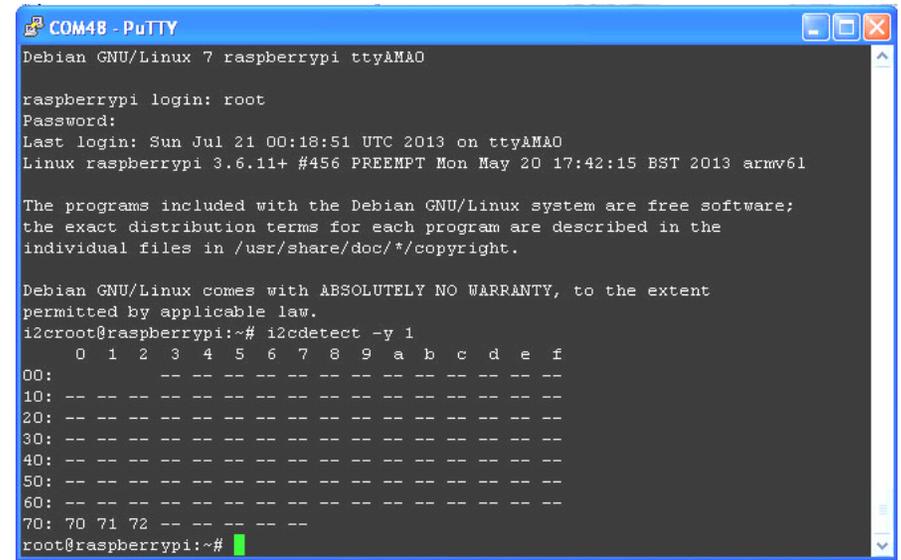
2. Add i2c-dev in /etc/modules by use
`sudo nano /etc/modules`



```
COM37 - PuTTY
# /etc/modules: kernel modules to load at boot time.
# This file contains the names of kernel modules that should be load
ed
# at boot time, one per line. Lines beginning with "#" are ignored.
# Parameters can be specified after the module name.

snd-bcm2835
spi-bcm2708
i2c-bcm2708
i2c-dev
rtc-1307
tmp102
```

If you already install I2c driver , then
`i2cdetect -y 0` `i2cdetect -y 1`
if Rs-Pi-v2 you need change 0 to 1



```
COM48 - PuTTY
Debian GNU/Linux 7 raspberrypi ttyAMA0
raspberrypi login: root
Password:
Last login: Sun Jul 21 00:18:51 UTC 2013 on ttyAMA0
Linux raspberrypi 3.6.11+ #456 PREEMPT Mon May 20 17:42:15 BST 2013 armv6l

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
i2croot@raspberrypi:~# i2cdetect -y 1
 0 1 2 3 4 5 6 7 8 9 a b c d e f
00: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
10: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
20: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
30: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
40: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
50: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
60: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
70: 70 71 72 -- -- -- -- --
root@raspberrypi:~#
```

70, 71,72 for three LED driver HT16K33

Install GPIO Library for software

<https://pypi.python.org/pypi/RPi.GPIO> GPIO library

GPIO library - RPi.GPIO-0.5.3a.tar.gz

Install python , library and run the test program

```
# sudo apt-get install python-dev
```

```
# wget http://www.pridopia.co.uk/pi-pgm/RPi.GPIO-0.5.3a.tar.gz
```

```
# gunzip RPi.GPIO-0.5.3a.tar.gz
```

```
# tar -xvf RPi.GPIO-0.5.3a.tar
```

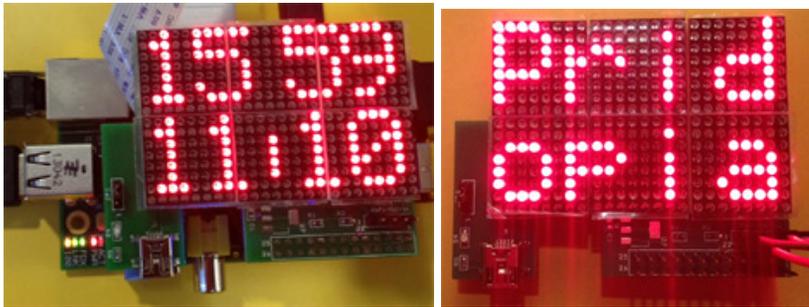
```
# cd RPi.GPIO-0.5.3a
```

```
# sudo python setup.py install
```

```
# sudo python xxx.py (xxx.py it's your test program)
```

New Pridopia scratch interface software you can download from our web site

<http://www.pridopia.co.uk/rs-pi-set-scratch.html>



(1) command LED+ "TIME" display Time & Date

(2) command LED+ "IMG" display 24X16 image & Time/Date

(3) command LED + "message" display message

LEDthis is led matrix demo --> display "this is led matrix demo"

(4) command "LEDCLS" clean 24x16 screen

(5) command LPRINT + "message"

Maximum display message 5X7 8 character in 24x16 Matrix

