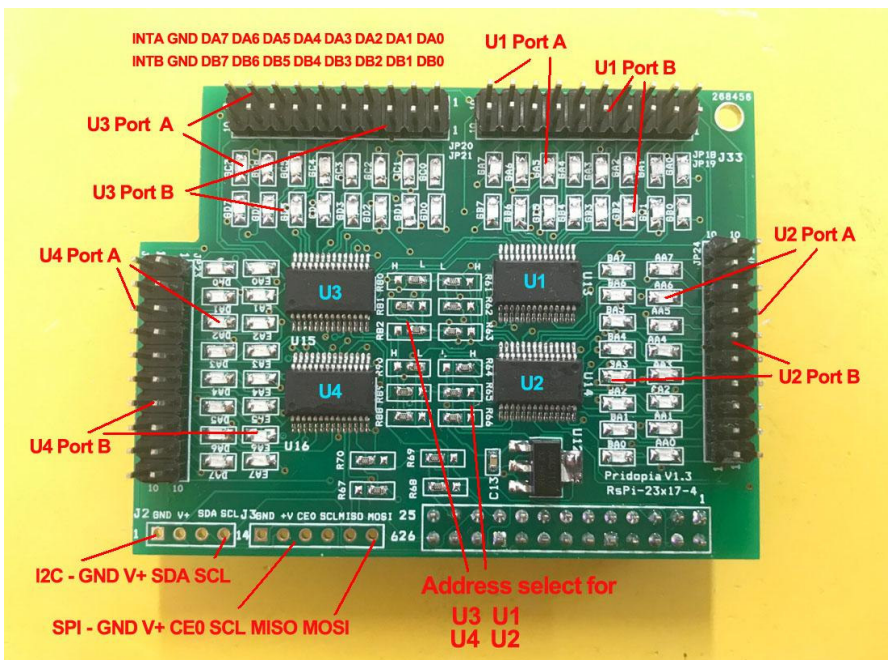


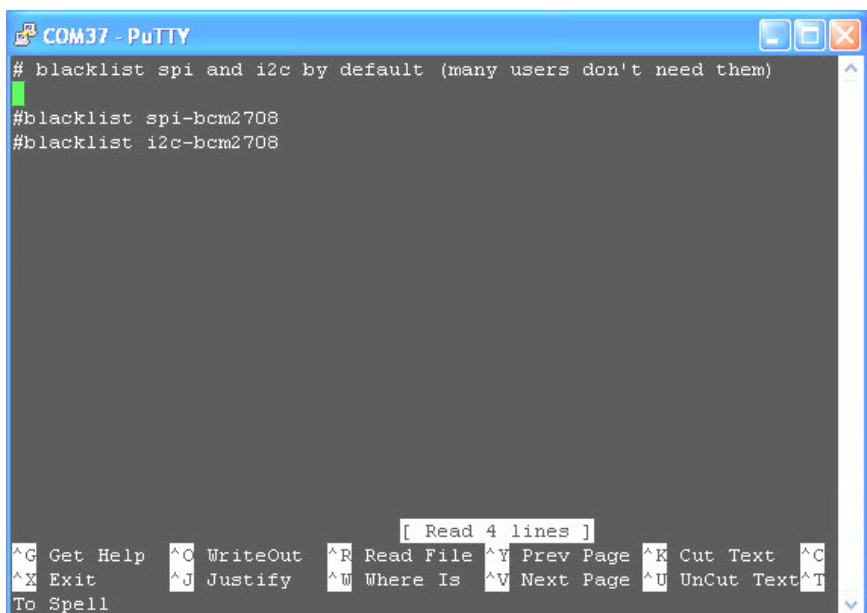
Rs-Pi-23017-4 i2c 64 GPIO User Manual



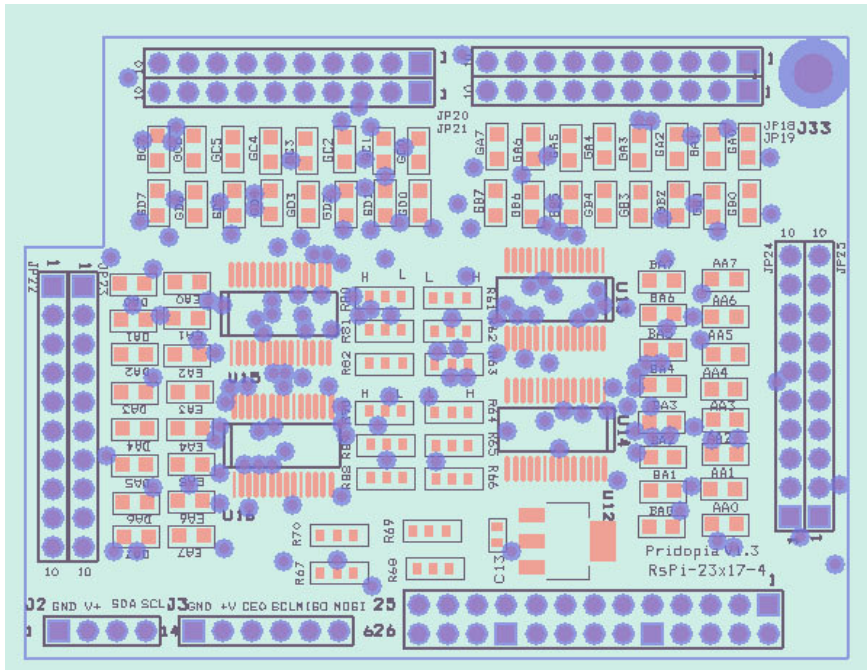
1. JP18 GA0 ~ GA7 U13 Port A JP19 GB0 ~ GB7 U13 Port B
2. JP25 AA0 ~ AA7 U14 Port A JP24 BA0 ~ BA7 U14 Port B
3. JP20 GC0 ~ GC7 U15 Port A JP21 GD0 ~ GD7 U15 Port B
4. JP22 DA0 ~ DA7 U16 Port A JP23 EA0 ~ EA7 U16 Port B
5. R61,R62,R63 (for U13 Address select A0,A1,A2)
6. R64,R65,R66 (for U14 Address select A0,A1,A2)
7. R80, R81,R82 (for U15 Address select A0,A1,A2)
8. R88,R89,R90 (for U16 Address select A0,A1,A2)
9. U13 (000) 23017 -1 Port A,B U14 (001) 23017-2 Port A,B
10. U15 (010) 23017 -3 Port A,B U16 (011) 23017-4 Port A,B

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
```



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

```

Next install the python-smbus python module:

```

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

```

Now you are ready to use the i2c with python.

Some 23017 program information

<http://nathan.chantrell.net/20120524/python-tools-for-the-mcp23017-io-expander/>

<http://nathan.chantrell.net/20120602/raspberry-pi-io-expander-board>

<http://learn.adafruit.com/mcp230xx-gpio-expander-on-the-raspberry-pi/hooking-it-all-up>

If you already install I2c driver , then

```

i2cdetect -y 0          i2cdetect -y 1
if Rs-Pi-v2 you need change 0 to 1

```

```

COM34 - PuTTY
e
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

Type 'startx' to launch a graphical session

i2croot@raspberrypi:~# i2cdetect -y 0
   0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
00: -- -- -- -- -- -- -- -- -- -- -- -- -- --
10: -- -- -- -- -- -- -- -- -- -- -- -- -- --
20: 20 21 22 23 -- -- -- -- -- -- -- -- -- --
30: -- -- -- -- -- -- -- -- -- -- -- -- -- --
40: -- -- -- -- -- -- -- -- -- -- -- -- -- --
50: -- -- -- -- -- -- -- -- -- -- -- -- -- --
60: -- -- -- -- -- -- -- -- -- -- -- -- -- --
70: -- -- -- -- -- -- -- -- -- -- -- -- -- --
root@raspberrypi:~#

```

```

COM22 - PuTTY
Output test for MCP23017
  8  7  6  5  4  3  2  1
A1 [0] [0] [0] [0] [0] [0] [0] [1]
A2 [0] [0] [0] [0] [0] [0] [0] [0]
B1 [1] [1] [0] [0] [0] [0] [0] [1]
B2 [0] [0] [0] [0] [0] [0] [0] [0]
C1 [0] [1] [0] [0] [0] [0] [0] [0]
C2 [1] [0] [0] [0] [0] [0] [0] [0]
D1 [0] [0] [0] [0] [0] [0] [0] [0]
D2 [0] [0] [0] [0] [0] [0] [1] [0]

Enter the Bank ( A-D ), Port ( 1-2 ) and LED number ( 1-8 ).
Type RES to Reset.
Example "A21" or "a21" will Toggle Bank A, Port 2, LED 1.
>3

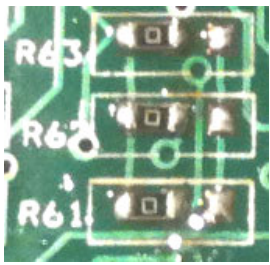
```

23017-4port-s-v103.py test program
Input "a21" will toggle Bank A, Port2, bit1 LED "ON"

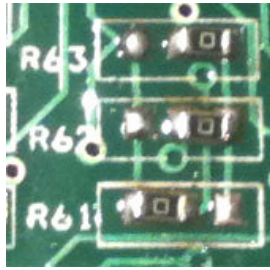
20, 21, 22 & 23 -> 23017 x4 you can change this address

A0, A1, A2 address
* right side GND low - 0 * left side Vcc High - 1

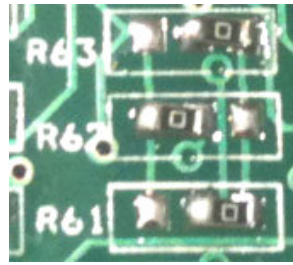
000 - 20



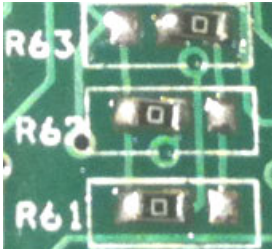
001 - 21



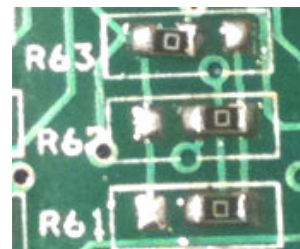
010 - 22



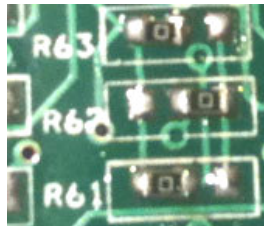
011 - 23



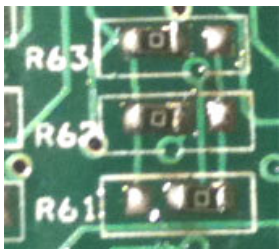
100 - 24



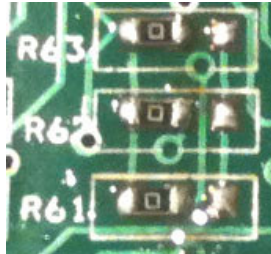
101 - 25



110 - 26



111 - 27



<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 is test program)
```

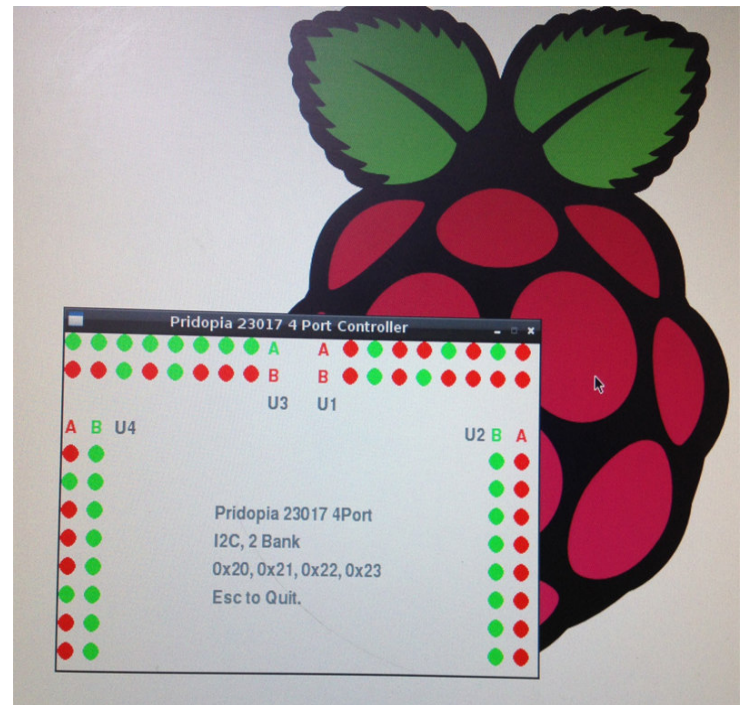
Download test program from our web site Python & C

Python

<http://www.pridopia.co.uk/pi-23017-4-lp.html>

C code for 2port

<http://www.pridopia.co.uk/pi-i2c-23017x2-2803x2.html>



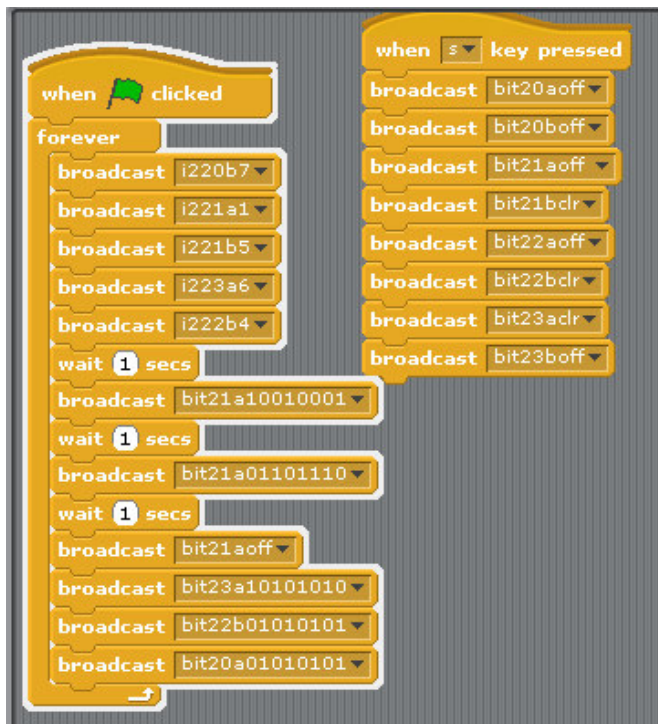
new GUI interface output software 23017-4port-GUI.py demo

[23017-4port-GUI.py](#) [red.png](#) [green.png](#) download these three files

New Pridopia scratch interface software you can download from our web site <http://www.pridopia.co.uk/rs-pi-set-scratch.html>

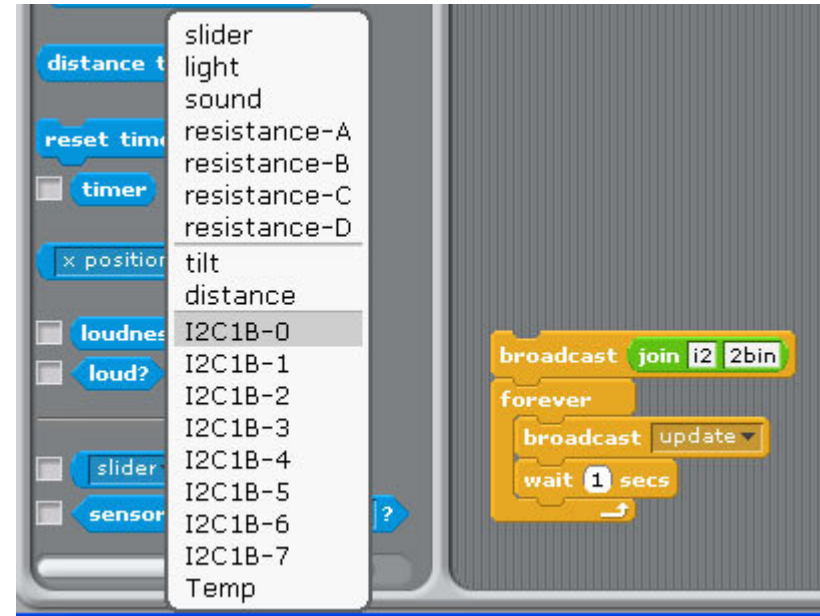
Command "i2"+ "address(20-27)" + "a" +"bit(1 to 8)" for Port A
 Command "i2"+ "address(20-27)" + "b" +"bit(1 to 8)" for Port B
 Command "bit"+ "address(20-27)" + "a" +"bit(8 to 1)" for Port A
 Command "bit"+ "address(20-27)" + "b" +"bit(8 to 1)" for Port B

i221a1 --> i2c address 21 Port A bit 1 ON/OFF
 i222b4 --> i2c address 22 Port B bit 4 ON/OFF
 bit22b01010101 --> address 22 port B from bit 8 to 1
 output --> 01010101
 bit21a01010101 --> address 21 port A from bit 8 to 1
 output --> 01010101
 bit21aoff --> address 21 Port A all OFF/clear
 bit21boff --> address 21 Port B all OFF/clear
 bit22aoff --> address 22 Port A all OFF/clear



U1 to U4 i2c 23017 address 20,21,22,23

Setting GPIO as input



Command "i2"+ "address(1-8)" + "a" +"in" for Port A
 Command "i2"+ "address(1-8)" + "b" +"in" for Port B
 Address 20 --> 1 21 --> 2 22-->3 23 -->4
 Address 24 --> 5 25 --> 6 26-->7 27 -->8

command "i22bin" initial address 21, Port B as input

- (1)"i22bin" initial address 21, Port B as input
- (2) broadcast "Update"
- (3) in Sensing --> Slider , you will see the " I2C1B-0 ~ I2C1B-7" in the list