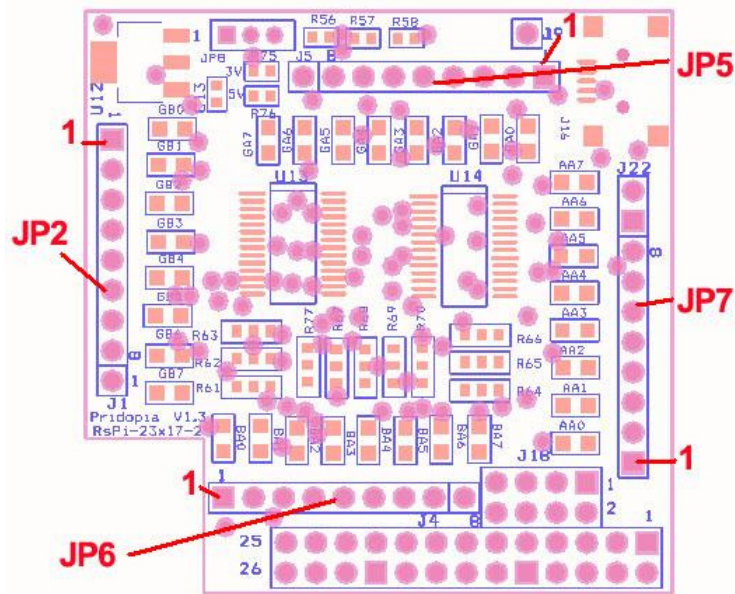
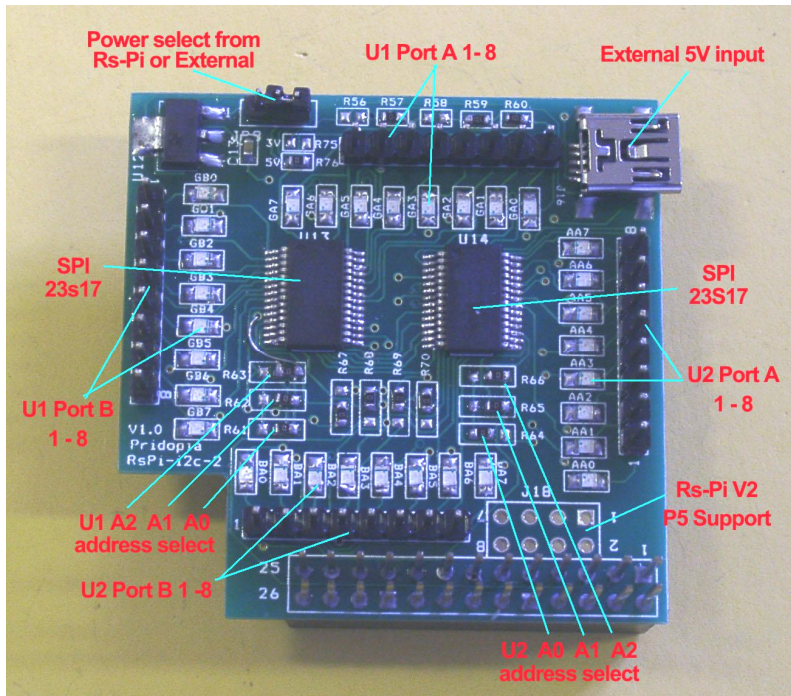


Rs-Pi-23s17-2 V1.3 SPI User Manual



1. J16 Mini USB 5V input
2. J18 Rs-Pi V2 GPIO output
3. JP5 GA0 ~ GA7,GND U13 Port A
4. JP2 AA0 ~ AA7, GND U13 Port B
5. JP7 BA0 ~ BA7,GND,VCC U14 Port A
6. JP6 GB0 ~ BG7,GND U14 Port B
- 7 R61,R62,R63 (for U13 Address select A0,A1,A2)
8. R64,R65,R66 (for U14 Address select A0,A1,A2)
8. U13 23s17 -1 Port A,B
9. U14 23s17-2 Port A,B
- 10.JP8 jumper select use external 5V from Mini USB connect(J16) for 5V internal use or output to JP7 pin 10, J9 Vcc 5Vout

R77, R67 default setting to CE0 for U13, U14

You can move to up, then will change to CE1

Download test program from our web site n23s17-cs0.py

New test program 23s17-2port-v3.py

<http://www.pridopia.co.uk/pi-23s17-2-lp.html>

<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 23s17-2port-v3.py
```

Install piface software test U1 (address 000) I/O

Detail information <http://piface.openlx.org.uk/174770794>

Java program information

<http://www.savagehomeautomation.com/projects/raspberry-pi-programming-pi-face-with-java-pi4j.html>

Always enabling SPI

To always enable the SPI driver:

- After logging in, edit /etc/modprobe.d/raspi-blacklist.conf
`sudo nano /etc/modprobe.d/raspi-blacklist.conf`
- Insert a # at the start of the line containing blacklist spi-bcm2708
`#blacklist spi-bcm2708`

To install and setup the software, ensure your Pi can access the Internet and type:

```
sudo apt-get update
```

```
sudo apt-get install -y python-dev python-gtk2-dev git  
pushd ~/  
git clone https://github.com/thomasmacpherson/piface.git  
pushd piface/python  
sudo python setup.py install  
popd  
sudo piface/scripts/spidev-setup  
popd
```

The software will complete installing in a few minutes.

Reboot your Pi by typing:

```
sudo reboot
```

Testing

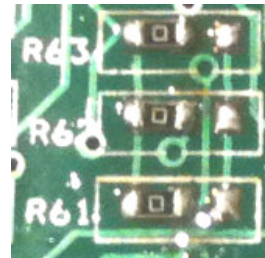
After installing the software and restarting, login and startx.

Start the PiFace emulator by typing in a terminal:

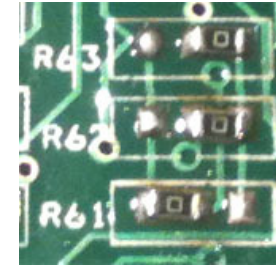
```
piface/scripts/piface-emulator
```

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

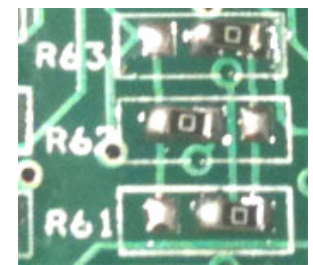
000 -



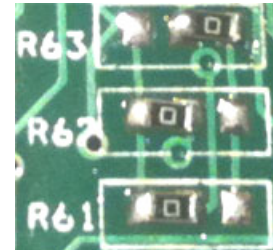
001 -



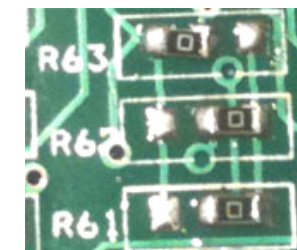
010 -



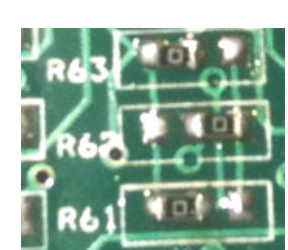
011



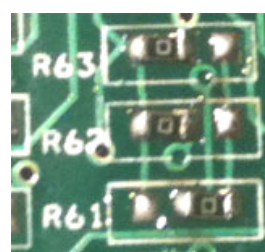
100



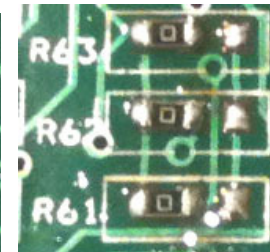
101



110



111



Download test program on our web site Python

<http://www.pridopia.co.uk/pi-23s17-2-lp.html>

```
COM22 - PuTTY
23S17-2port MCP23S17
 8 7 6 5 4 3 2 1
A1 [0] [0] [0] [0] [0] [0] [0] [1]
A2 [0] [0] [0] [0] [0] [1] [0] [0]
B1 [1] [0] [0] [0] [0] [0] [0] [0]
B2 [1] [0] [0] [0] [0] [0] [1] [0]

Enter the Bank ( A-B ), Port ( 1-2 ) and LED number ( 1-8 ).
Type RES or Ctrl+Z to reset.
Example "A21" or "a21" Which will toggle Bank A, Port 2 and LED 1
>
```

our new output test program 23s17-2port-s-v103.py display all 32 GPIO status

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

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

U1 to U2 spi 23s17 address 40,42

40 --> 1 42 --> 2 44 --> 3 46 --> 44
48 --> 5 4a --> 6 4c --> 7 4e --> 8

Command "sp"+ "address(1-8)" + "a" +"bit(1 to 8)" Port A
Command "sp"+ "address(1-8)" + "b" +"bit(1 to 8)" Port B
Command "bits"+"address(1-8)" + "a" +"bit(8 to 1)"Port A
Command "bits"+"address(1-8)" + "b" +"bit(8 to 1)"Port B

sp2b7 --> spi address 2 Port B bit 7 ON/OFF
sp3b4 --> spi address 3 Port B bit 4 ON/OFF
bits2b01010101 --> address 2 port B from bit 8 to 11
output --> 01010101
bits2a01010101 --> address 2 port A from bit 8 to 1
output --> 01010101
bits2aoff --> address 2 Port A all OFF/clear
bits2aclr --> address 2 Port A all OFF/clear

