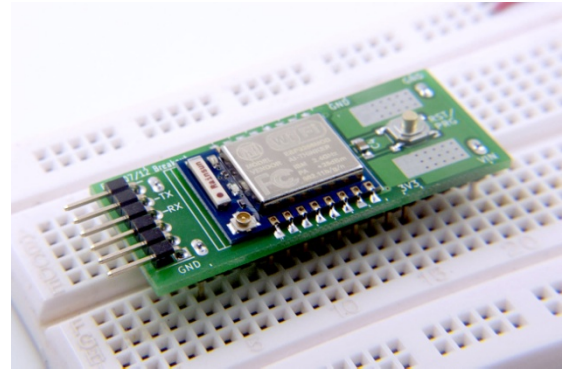# Introduction

ESP-07/12 Breakout is a breadboard adapter for the popular ESP-07 / ESP-12 ESP8266 WiFi modules.

Key Features

- Breakout of all ESP07/12 pins
- Custom made pin headers take minimum real-estate on breadboard (only 0.5in wide)
- One button reset/program mode selection
- On-board 3.3v regulator
- On-board UART (UART0) connector with FTDI Basic (not included) compatible pinout

Layout
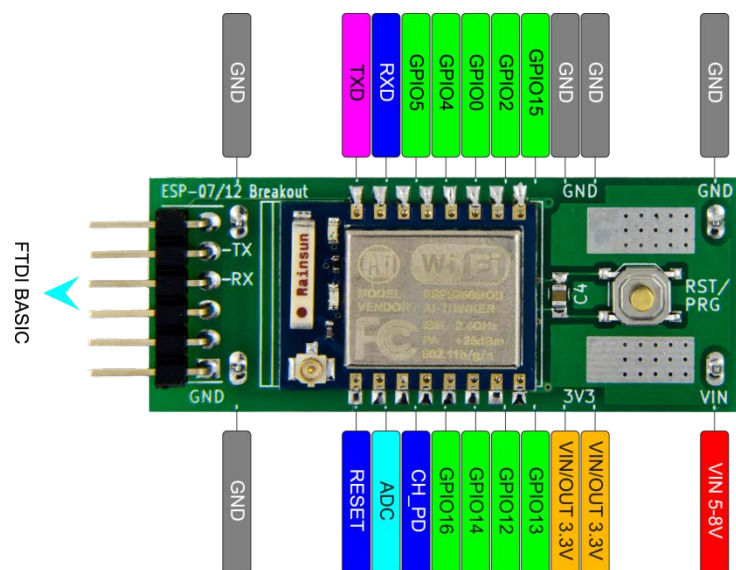
| VIN	Input to the on-board 3.3V regulator. Supply 5-8V DC (150mA min.) to this pin if on-board regulator is used.
VIN/OUT	When used as input, user may supply external 3.3V to this pin. If external supply is connected to VIN, this pin can be used as 3.3V power output. Please make sure do not draw more than 500mA from this pin.

FTDI BASIC Serial Connection

First, make sure your FTDI Basic board (*not included*) is configured at 3.3V I/O. This is usually done by shorting the "3.3V" jumper or solder bridge on the board, similar to the boards below:
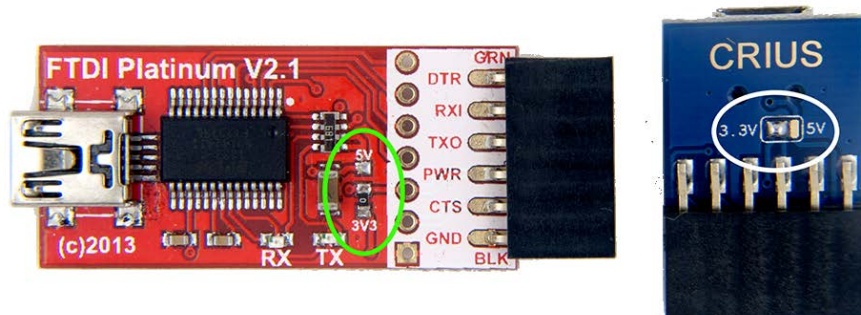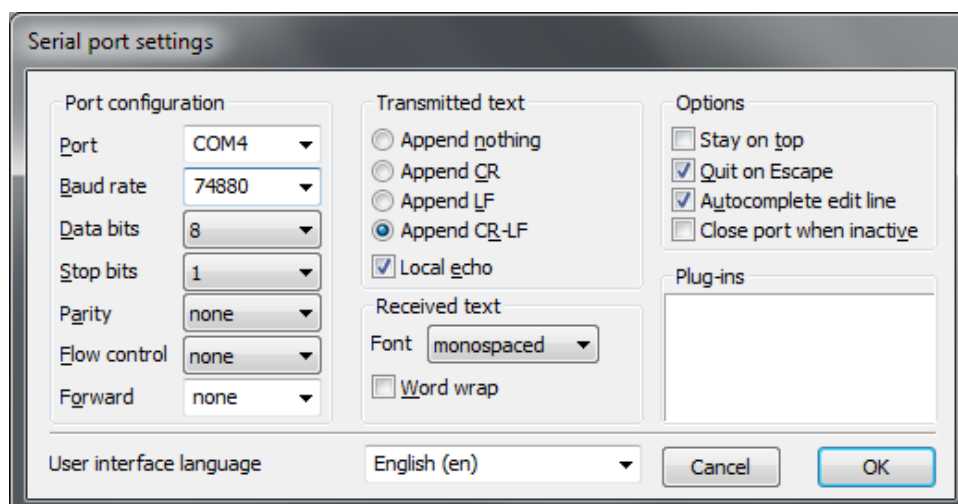

Please note Arduino is using 5V I/O, so most FTDI Basic boards default to 5V.

A 3.3V FTDI Basic board can be directly connected as show below
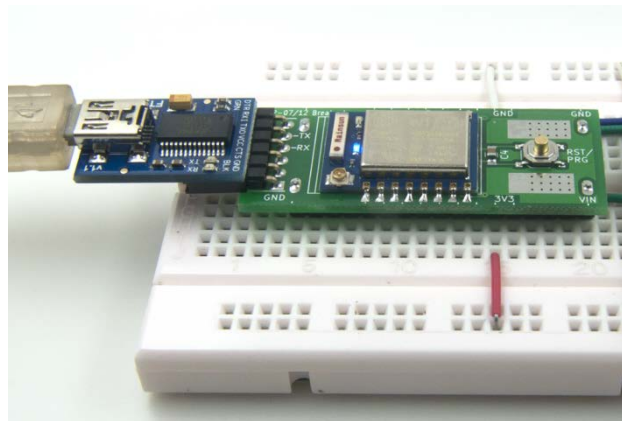
To test the serial connection, I recommend "Termite" freeware, available at http://www.compuphase.com/software_termite.htm

 Configure COMx (x is the FTDI serial port number) to 74880,8,N,1 (default ESP8266 boot serial protocol) as follows:

Upon power up, you should see boot message

```
ets Jan  8 2013,rst cause:2, boot mode:(3,7)
```

which means the module is powered up and running in user code mode.

Reset/Program Button

The button labeled as "RST/PRG" is for system reset or firmware re-program. To reset the chip, quickly press the button and release. If you have serial connectivity you should see boot message

```
ets Jan  8 2013,rst cause:2, boot mode:(3,6)
```

meaning that ESP8266 has went through user reset.

For firmware developers or upgrade firmware, hold down the "RST/PRG" button for *1 second* then release. Boot message will be

```
ets Jan  8 2013,rst cause:2, boot mode:(1,6)
```

At this moment, you can disconnect Termite and use the FLASH_DOWNLOAD_TOOLS or esptool.py to download new firmware.

License

This document with all the photos within, the schematic and PCB layout are licensed under CC-0, available at http://creativecommons.org/publicdomain/zero/1.0/
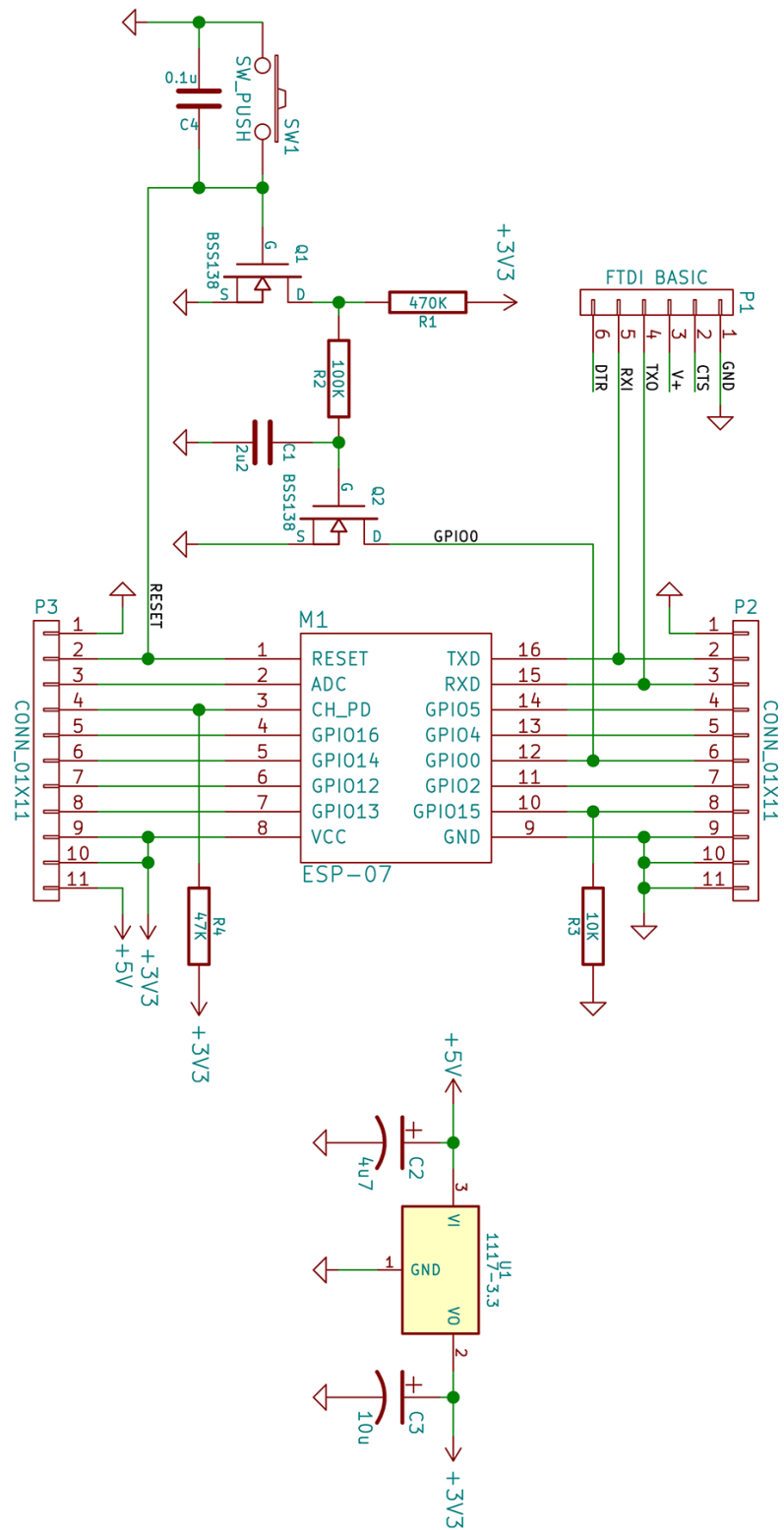
Copyright

Zhu Baoshi <mail(at)ba0sh1(dot)com>

Blog: www.ba0sh1.com

Twitter: @ba0sh1

Version

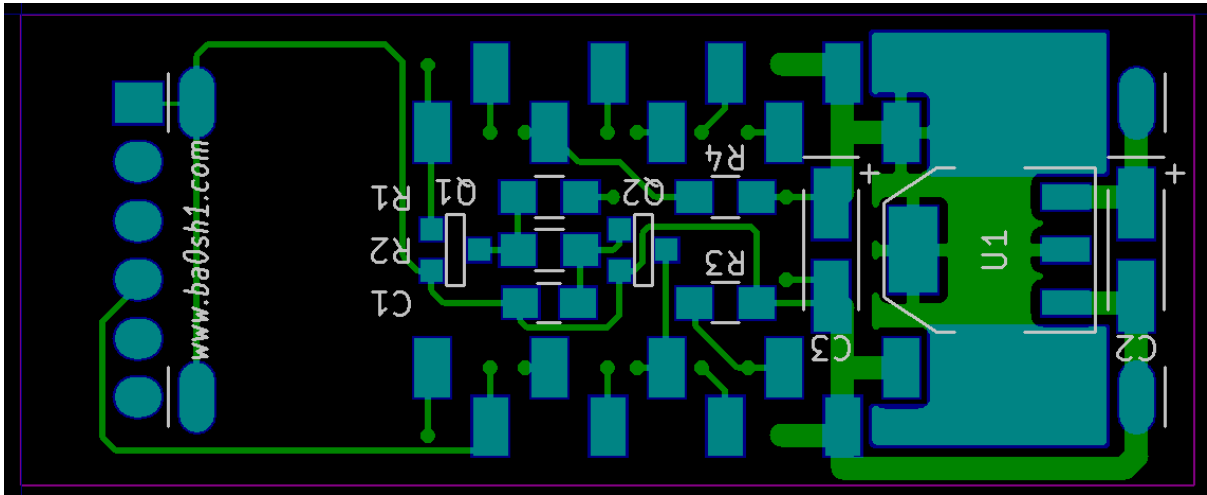| 1.0 | Initial version, Jan 30, 2015 |

Appendix

Schematic

PCB Layout
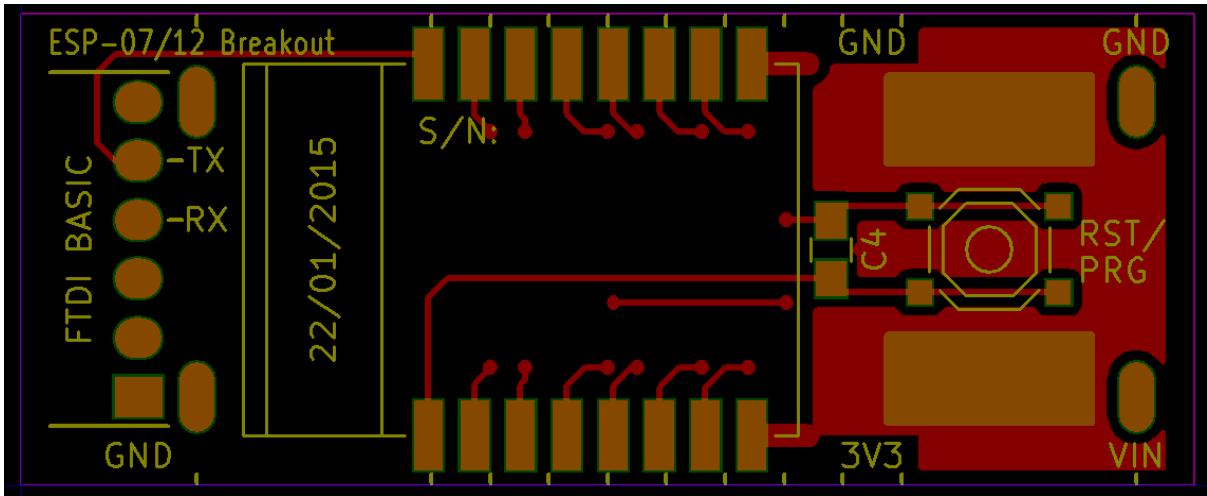
Front (top) side

Back (bottom) side