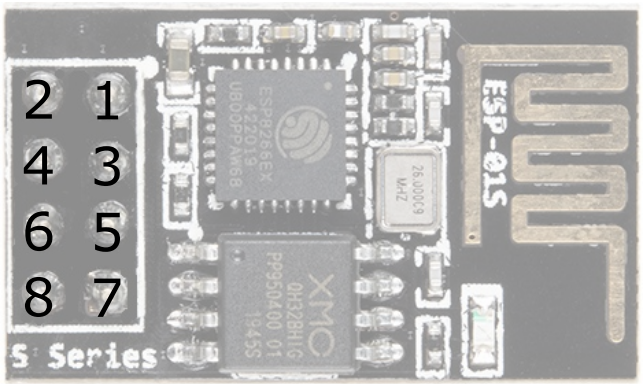
ESP8266 WiFi Module (WRL-17146)

sparkfun ELECTRONICS
CC BY SA

Name | Power | Ground | Control | Serial | GPIO | Arduino

D7	GPIO1	TX	2- TXO
		Chip Enable	4- CHPD
		Reset	6- RST
		3.3V	8- 3V
		GND	1- GND
	D2/SDA	GPIO2	3- GPIO2
	D0	GPIO0	5- GPIO0
D8	GPIO3	RX	7- RXI



PCB Antenna

Power
VCC-3.0-3.6V
Standby ~ 0.9uA
Running ~60-215mA,
Average ~ 80mA

Wifi Features
802.11 b/g/n
2.4GHz
WPA/WPA2
Wifi Direct

+20dBm output power (802.11b)

I/O Features
Integrated TCP/IP
Integrated TR switch, LNA, balun

Memory/Speed Features
80MHz
64KB instruction RAM
96KB data RAM
64K boot ROM
4MB* Flash Memory

Basic Connection
VCC - 3.3V
GND - GND
TX - RX on Arduino or FTDI
RX - TX on ARduino or FTDI
Chip Enable - 3.3V

Default Baud Rate
115200* 8N1

LEDs
Blue: TX

*mileage may vary on different version of the board

AT Command Usage

Commands are case sensitive and should end with /r/n

Commands may use 1 or more of these types
Set = AT+<x>=<...> - Sets the value
Inquiry = AT+<x>? - See what the value is set at
Test = AT+<x>=? - See the possible options
Execute = AT+<x> - Execute a command

Commands with * have been depreciated in favor of COMMAND_CUR and COMMAND_DEF. CUR will not write the value to flash, DEF will write the value to flash and be used as the default in the future.

AT Command List

AT - Attention
AT+RST - Reset the board
AT+GMR - Firmware version
AT+CWMODE* - Operating Mode
  1. Client
  2. Access Point
  3. Client and Access Point
AT+CWJAP*=<ssid>,<pwd> - Join network
AT+CWLAP - View available networks
AT+CWQAP - Disconnect from network
AT+CWSAP*=<ssid>,<pwd><chl><ecn> - Set up access point
  0. Open. No security
  1. WEP
  2. WPA_PSK
  3. WPA2_PSK
  4. WPA_WPA2_PSK
AT+CWLIF - Show assigned IP addresses as access point
AT+CIPSTATUS - Show current status as socket client or server
AT+CIPSTART=<type>,<addr>,<port> - Connect to socket server
  IP is fixed at 192.168.4.1, mask is fixed at 255.255.255.0
  if CIPMUX is set to multichanel add <id> to beginning of string
AT+CIPCLOSE - Close socket connection
AT+CIFSR - Show assigned IP address when connected to network
AT+CIPMUX=<mode> - Set connection
  0. Single Connection
  1. Multi-Channel Connection
AT+CIPSERVER=<mode>[,<port>](AT+CIPMUX=1) - Default port is 333
  0. Close the Socket Server
  1. Open the Socket Server
AT+CIPMODE=<mode> - Set transparent mode
  Data received will be sent to serial port as
  0. +IPD,<connection channel>,<length>format (AT+CIPMUX=[0,1])
  1. Data stream (AT+CIPMUX=0)
AT+CIPSTO=<time> - Set auto socket client disconnect timout from 1-28800s

Example commands
```
AT+CWMODE=? //View options for mode (test)
AT+CWMODE=3 //Set mode to client and access modes (set)
AT+CWLAP  //View available networks (execute)
AT+CWJAP = "ssid","password" //Join network (set)
AT+CWJAP? //View the current network (inquiry)
AT+CIFSR //Show IP address (execute)
AT+CWQAP //Disconnect from network (execute)
AT+CWSAP="apoint","pass",11,0//Setup an open access point (set)
AT+CWLIF //Show devices connected to access point
```