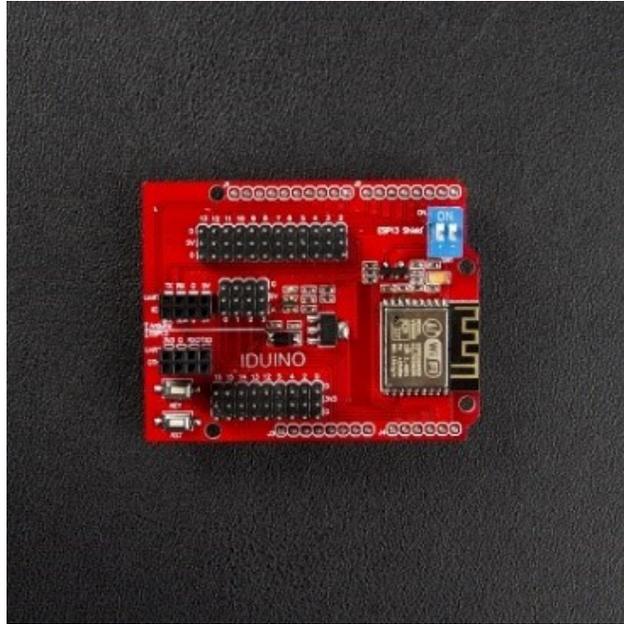# User Manual

Of

ESP8266 Wifi Shield(AD010)

Description

   The shield is designed based on esp8266 by Espressif Systems, pin-compatible with Arduino UNO/Mega2560 DevBorad. Which can be used as two independent part, the upper part is for the Arduino UNO/Mega pin-extension board, the bottom part is for the Esp8266 expansion board. Now the Arduino IDE which is higher than 1.6.4 can be installed Esp8266 board package, so you can control the esp8266 board through the Arduino IDE, not just AT Command. The install method please refer the weblink at last of this guide.

The serial wifi shield has the following features:

1.WiFi module is industrial-grade chips ESP8266, which is ESP-12E with metal shield, strong anti-interference ability;

2, Shield is pin-compatible with Arduino Uno, Mega2560 and other control board. A voltage converter chip is used to deal with 3.3V (Esp8266) and 5V (Arduino);

3, Dual DIP switches is used for serial ports so that this module shield can be used alone as an Arduino Uno expansion board, and also be used as ESP8266 expansion board;

4, Serial data is transported to WiFi device transparently, and vice versa. Arduino program does not need any configuration;

5, WebServer is developed to configure WiFi parameters and serial port parameters;

6, The module shield can be used as an independent ESP8266 development board. for instance, downloading the official AT commands firmware, NodeMCU open source firmware can be used;

7, The module shield also can be used as stand-alone expansion board for Arduino Uno.

Technical Specifications

- 802.11 b / g / n wireless standards;

- STA / AP modes support ;

- TCP / IP protocol stack, One socket;

- Supports standard TCP / UDP Server and Client;

- Supports serial port baud rate configuration:
  1200/2400/4800/9600/19200/38400/57600/74800/115200 bps;

- Supports serial data bits: 5/6/7/8 bits;

- Supports serial parity: none;

- Supports serial stop bits: 1/2 bit;

- Pin-compatible with Arduino UNO, Mega;

- Arduino Pinout 2/3/4/5/6/7/8/9/10/11/12/13;

- ESP8266 GPIO Pinout 0/2/4/5/9/10/12/13/14/15/16 / ADC / EN / * UART TX / UART RX;

- KEY button: modes configuration;

- Dual-Ports DIP switches: switching Arduino and ESP8266;

- WiFi operation current: continuous transmission operation: ≈70mA (200mA MAX), idle mode: <200uA;

- Serial WiFi transmission rate: 110-460800bps;

- Temperature: -40℃ ~ + 125 ℃;

- Humidity: 10%-90% non-condensing;

- Weight: about 20g (0.7oz);

Pinout

This serial WiFi module board provides interface as shown in PCB view. And each pin functions are silk-printed in circuit board, as follows:

Part	Pin	Function	Remark
Arduino	G	Ground	
	D	Digital IO	
	A	Analog IO	
	5V	5V	
	TX	Arduino Uno TX	Connection with ESP8266
	RX	Arduino Uno RX	Connection with ESP8266
	SCL	Arduino SCL	
	SDA	Arduino SDA	
ESP8266	G	Ground	
	D	Digital IO	
	3V3	3.3V	
	RX0	ESP8266 RX0	Connection with Arduino
	TX0	ESP8266 TX0	Connection with Arduino
	EN	ESP8266 EN	
	AD	ESP8266 AD	
	RST	ESP8266 reset	
	KEY	ESP8266 WiFi configuration	
	SW	ESP8266 And Arduino	When programming Arduino with IDE, SW1 must switch to "OFF" position.

LED definition

ESP8266-Based serial WiFi Shield has two LEDs. Red color LED is donated to power supply. Blue LED is a multi-functional LED, and its function is described as follows:

Blink 4 times continuously	Data communication
Blink 1 time every 0.5s	Configuration modes
Blink 1 time every 1s	Connecting router in STA mode
Steady-on	AP/STA working mode

Example:

 This wifi shield allows you operate a Esp8266 controller board through Arduino IDE, without any wire connection, just plug this shield into Arduino UNO/Mega board ,upload the wifi configuration code to start a wifi host or hotpoint. Then use the TCP/UDP Debugging software to monitor your data transmission.

Please refer the following information:
https://learn.adafruit.com/adafruit-huzzah-esp8266-breakout/using-arduino-ide
https://learn.adafruit.com/adafruit-huzzah-esp8266-breakout/downloads