

## NLED ESP8266 Add On Card

This add on card allows compatible NLED controllers and other devices to interface with a wireless network. It features a ESP8266 WiFi module, in the ESP-01 version. It includes on-board 3.3v voltage regulator, tank capacitance for reliable connections, and breakout DIP spaced solder pads for connecting to other devices. Pin headers or wires can be used to connect this add on card to other devices.

### Features:

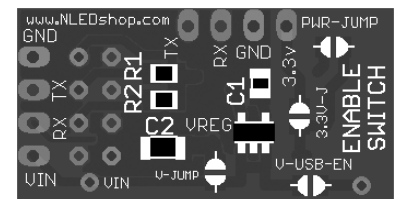
- ESP8266 ESP-01 module compatibility.
- On-board 3.3 volt low drop out linear regulator
- Large(100uF) on board capacitor for power regulation.
- Multiple 4-pin DIP spaced(0.1"/2.54mm) solder pads compatible with many types of pin headers.
- Wide input voltage, 3.3 volts to 12 volts. Must use power selection jumpers.
- User selectable power input via SMD solder jumpers.
- Access to jumper that can bring GPIO0 to GND, which enables ESP module bootloading.
- ESP module bootloading compatible.
- Directly mountable to a Pixel Controller Electron or a Pixel Controller Ion.

### Specification:

<b>Input Voltage</b>	<b>3.3v* or 5v to 12v*</b>
<b>Logic Current Draw</b>	<b>&lt; 350mA</b>
<b>Connectors</b>	<b>Solder Pads</b>
<b>Connector Spacing</b>	<b>0.1"(2.54mm)</b>
<b>PCB Dimension</b>	<b>1.15" x 0.6" x 0.2"</b>
<b>PCB Dimension with Module</b>	<b>1.15" x 0.6" x 0.5"</b>

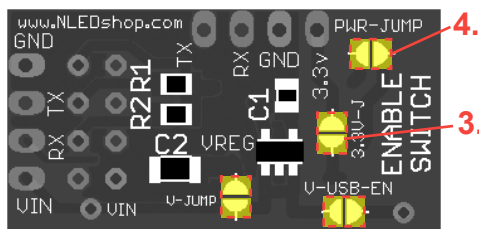
\*Must properly set jumpers to select input voltage.

(Top)



(Bottom)

### Jumper Descriptions



Power Input Jumpers	1	2	3
Input Voltage = 3.3 volts	x		x
Input Voltage > 3.3 volts			

PWR JUMP - #4	4
Always Power On	x
ENABLE switch On/OFF	

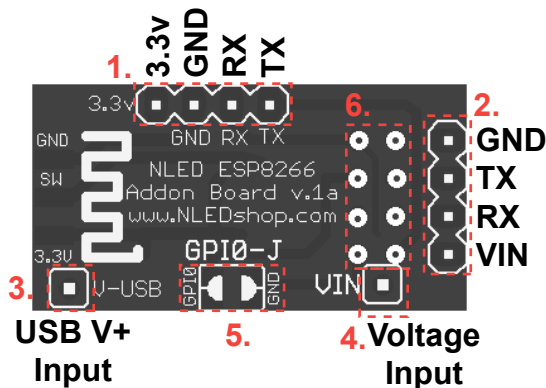
#### ENABLE SWITCH- #6

GND	Not Required
SW	Connects to ESP module's VCC
3.3V	Regulated or Jumped 3.3V power

Enter ESP Bootloader Mode: Close #5

VIN and V-USB should not be powered at the same time.

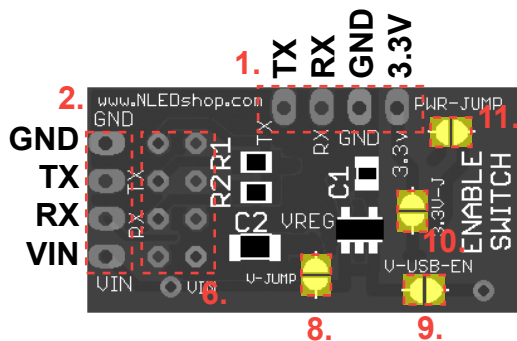
Viewing from the top.  
The ESP module mounts on this side.



1. In/Out Header, for connection to a Pixel Controller Electron or Ion. Note the 3.3v pin is not tolerant of higher voltages.
2. Secondary In/Out Header, different pinout. VIN pin accepts full input voltage range.
3. Input for connecting to USB input voltage on a Pixel Controller Ion or Electron.
4. Voltage input pad, connected to VIN on #2. Connects to a Pixel Controller Ion or Electron.
5. GPIO0 jumper, jumping these pads will hold GPIO0 low on the ESP module, if held low at power up will enter module into bootloader mode. See 5a.
6. Connection for ESP module's 2x4 header pins.



Viewing from the bottom  
A Pixel Controller mounts to this side.



7. ENABLE switch position. Connecting SW to 3.3V is the same as closing the PWR-JUMP jumper see #11. Can be used to turn the ESP module on and off, compatible slide switch:  
C&K OS102011MS2QN1
8. V-JUMP jumper used to skip the onboard voltage regulator, only solder closed if using a 3.3 volt input.
9. V-USB-EN jumper used to enable USB (5 volt) input voltage from Pixel Controller Electron or Ion.
10. 3.3V-J jumper is used if the input voltage is 3.3 volts and the In/Out Header #1 is being used.
11. PWR-JUMP jumper is used to enable power to the ESP module whenever there is an input voltage. Alternatively if this jumper is left open the ENABLE switch will turn power on or off to the ESP module.

## ESP8266 Module

ESP8266 based processors and modules can be loaded with different firmware to suit the project. There are many different firmware available on the internet. And with some programming knowledge, custom firmware can be written and ran on an ESP8266 module.

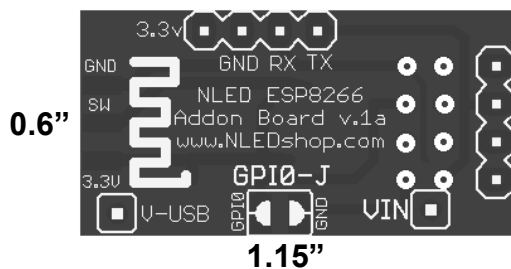
For the most basic usage and for compatibility with NLED Aurora based controllers, what is called a “Transparent Bridge” firmware should be used. There are many on the net available to choose from. Follow online tutorials on how to program ESP modules with new firmware.

This addon card is compatible with the bootloading process. With the module turned off, jump the GPIO-J header, either with solder or an alligator clip. If using a clip, be careful of the exposed solder on the opposite side of the addon card.

**As of this release NLED does not support or offer any ESP8266 module firmware. Any modules purchased will have the default firmware loaded which is not supported by NLED products. The user must be able to install their own firmware.**

Contact [Support@NLEDshop.com](mailto:Support@NLEDshop.com) for any questions or for help.

## Dimension



**Addon Board: Approx. 0.2”(5mm) tall  
With ESP-01 module: Approx. 0.5”(13mm) tall**

**Red is ESP-01 module dimension**



**0.5” / 12mm**



**Pixel Controller  
Addon Card  
ESP-01 Module**

## Pixel Controller Mounting

