# BNF Underglow fx information and setup

Welcome and Thank you for checking out my project.

Before you start you need to read and understand basic Electronics. Best Place to start is "Adafruit NeoPixel Überguide" https://learn.adafruit.com/adafruit-neopixel-uberguide/best-practices .

Also read the info page from the ws2812fx library
https://github.com/kitesurfer1404/WS2812FX/blob/master/extras/WS2812FX%20Users%20Guide.md

Once your ready and have everything on the list , we can start led strip prep. Then program esp8266. Add resistors to esp8266.

## Strip Prep

1: Remove leds from waterproof sleeve.
Tip: attach string to end of led strip before pulling out led strip. So you can easily reinsert/pull leds back in sleeve.
2: On 5m strip find the connection points to desolder sections. Front and Rear strips are 2 sections, and 3 sections for left and right sides. Once you have your sections now we solder 1ft wire pigtails to ends of sections.
3: **Test all sections.** Test each, then test all together.
4: Cut rubber sleeve to size of sections. Reinsert strip back in sleeve.
Tip: This is where the string helps reinsert leds. Also once back in sleeve you can stretch the sleeve so there is overhang to seal ends. **Don't stretch sleeve when led not in sleeve** or it will be a pain reinserting led strip in sleeve. .
5: Seal ends of the sections with hot glue or silicone.
Tip: when sealing ends push a good amount of glue or silicone in sleeve ends for waterproofing.
Then rap elec tape over ends.
6: **Retest all sections**!!

**(Optional but recommended)**
**7: add firm/stiff strip molding to backside of strips.**
Dietrich Metal Framing 1.25-in x 10-ft Vinyl Corner Bead.
I cut/made strips with the holes side, then you can mount strip with zip ties and then mount that to car.

## Installation

8: Mount sections under vehicle.
9: Measure and cut wire connecters.
Tip: **Make sure you route and securely mount connectors,** so not to snag or hang off anything.
Also use the waterproof wire connectors and then **seal or tape connections**. Water is not your friend.
Check and double check connections.
10: Mount switch in car.
11: Mount dc-dc power converter with the 2 inline fuses. Location suggestions( under hood by fusebox or under dash). Keep high and dry.  Path: Battery - fuse - switch - dc-dc power - capacitor  - led strip
12. Run a wiretap line from blinkers and brake lights to the esp inputs D5,D6,D7.

# NOTES

Things to keep in mind. Communication is done over WiFi. witch means you need phone mobile hotspot or an AP. I recommend phone hotspot so you keep internet while connected to esp.  Or another esp setup as an Access Point.  **The current setup, the underglow system will not start-light up until esp connects to WiFi.**

**Coming soon esp32 with Bluetooth comms version, and more games and features.**
**I won't be adding any more features to this, but moving on to the esp32 with BT.**
**Thanks to the ws2812fx Library team for the esp32 rmt driver.**

**Disclaimer: <u>Use at own Risk!!!</u>**
 **Check Local and state Laws in your area concerning underglow lights.**
**You agree to assume all responsibility for everything. I assume no responsibility for anything.**
**And make no guarantees, And you release me from all legal, emotional, vehicle damage, ect…**
**You also accept any and all responsibility for damage to you or your vehicle for any reason.**

# BNF Underglow fx

## Items Needed

1: **Waterproof ip67** 5m strip ws2812b or WS2813 Dual Data Line

1: 12V 24V to 5V 20A 100W Buck Converter, DC to DC Step Down Voltage Transformer Adapter Regulator Power Supply Waterproof IP67 for Car Truck Vehicle WS2812B SK6812 LED Pixel Strip Light

1: double pole switch

1: esp8266 wemos d1 "prefured"

4: resistors 1 330ohm data line  3: ... for blinkers & breaks

1: 1000uf 16v capacitors

2: inline 20a fuses

bunch of **waterproof** wire connectors/ 18/4 copper stranded wire / elec tape / my app from playstore

*(i used Plenum18/4 security wire for better power / weather proof. )*

D6 = Right Blinker
D5 = Left Blinker
D7 = Break Light

**Do not Connect inputs if you have Canbus Led.
as it may cause errors and throw engine codes.**

*Please note direction of lights
it goes counter clockwise so that if a led
goes out you can see . as if 1 led dies all
leds after stop and you have to replace or
remove bad led. better option is*
*WS2813 Dual Data Line*



Led 299

Led 210

Led 209

LED 0

AGM BATTERY

LED 59

Led 60

Led 150

Led 149