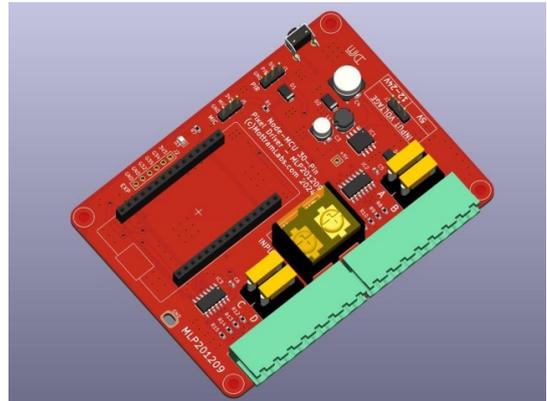


ESP32 LED Pixel (WS2812) Driver Board - MLP201209

Features and Benefits

- 5V or 12-24V Operation
- Works With Node-MCU (30-Pin) ESP32 Wi-Fi Board
- On-board 5V Regulator powers the Node-MCU
- Reverse Polarity Protection for Node-MCU
- On-Board Fuses 5A (10A max)
- 5V data output to LED pixels
- Screw terminal connections
- Analogue audio input option
- PIR input option

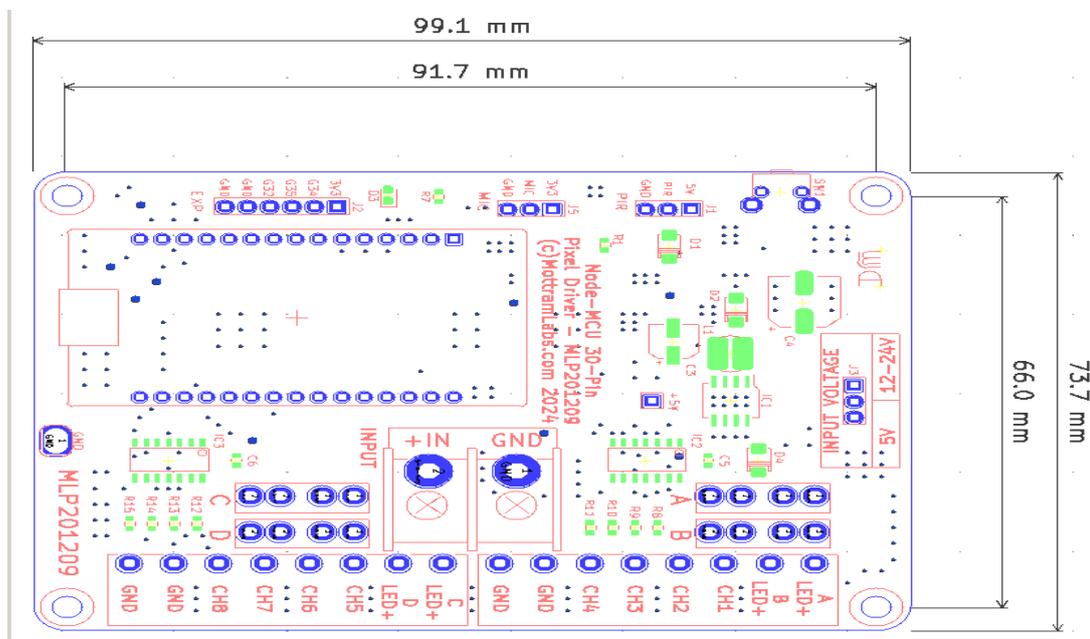


Product Details

The MLP201209 provides a simple solution for connecting WS2812 or similar LED pixel strips to the popular Node-MCU ESP32 Wi-Fi module. An on-board 74HCT125 line driver provides a 5V P/P output from the normal 3.3V output supplied by the ESP32 chip as used on the Node-MCU boards.

The board provides both reverse polarity protection (ESP32 Only) and four 5A fuses (Mini Low Profile) for the LED strips, each 5A fuse powers 2 of the eight outputs. The board can be used with either 5V, 12V or 24V LED strips when using the appropriate power supply. There is an option link on the board to select between a 5V or 12-24V supply, it's important to select this link for the supply used or the Node-MCU will be damaged. Please note the boards 5V regulator powers the ESP32 and 74HCT125 only, it does not power the LED output.

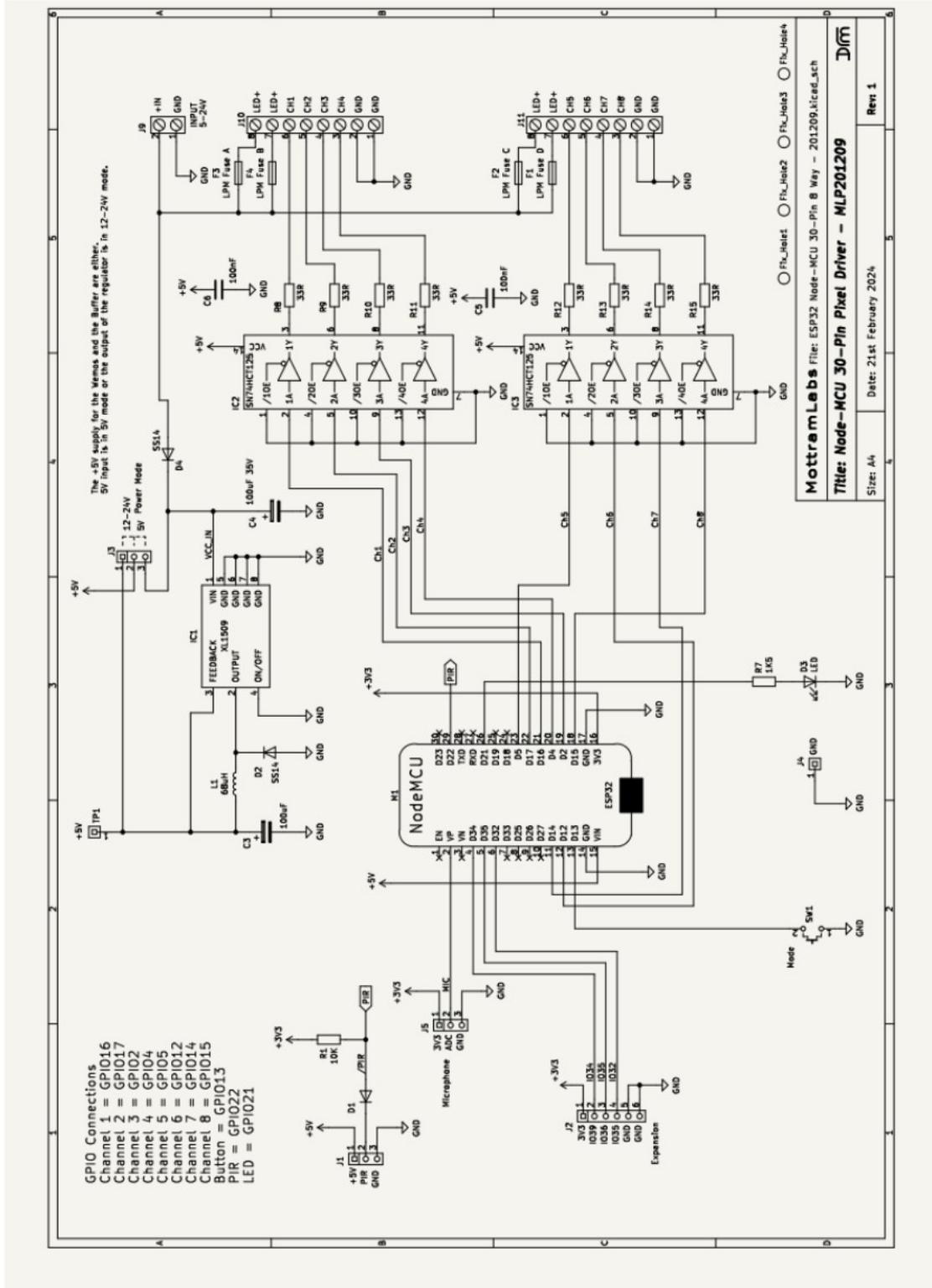
A Sound reactive option is possible via a 3 pin header for use with an external analogue microphone board, the microphone is then connected to the Node-MCU analogue input.



Voltage Link

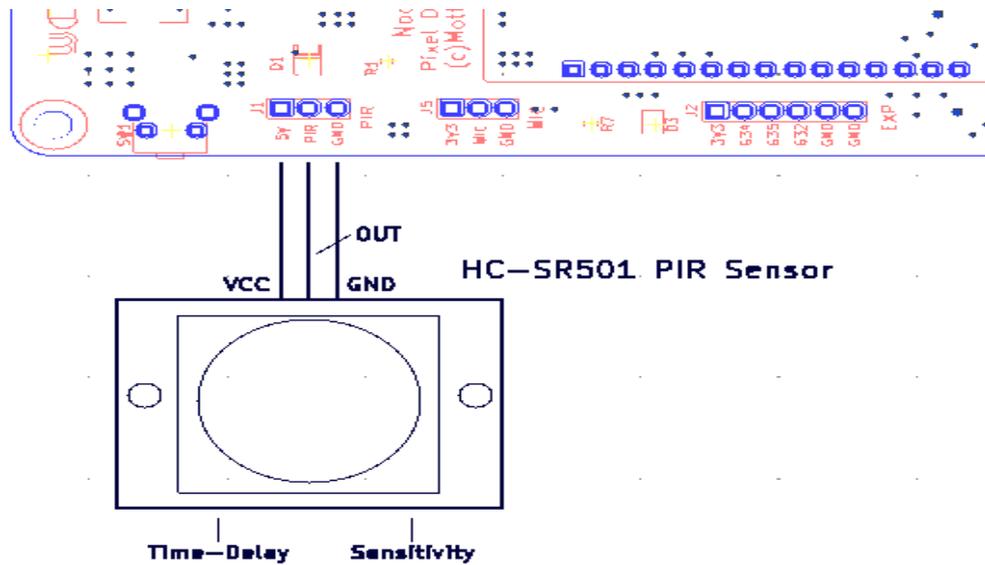
The voltage selection must match the input supply, so for 5V this link must be set to 5V and for 12 or 24V select 12-24V. Failure to do this will damage the PCB and any Node-MCU plugged in.

MLP201209 - Schematic



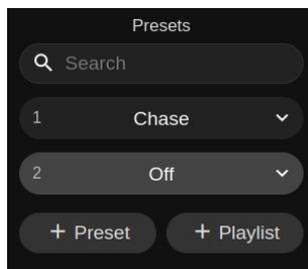
PIR Option in WLED

Connecting a HC-SR501 PIR Module



WLED Settings

In LED settings set Button 0 to GPIO22 and the option as a PIR sensor. Then make two presets for the PIR to toggle between, i.e. one could be off and one an LED animation like below.



Then in Time & Macros set button actions like below.

	push switch	short on->off	long off->on	double N/A
Button 0:	2	1	0	0
Button 1:	0	0	0	0
Button 2:	0	0	0	0
Button 3:	0	0	0	0

PIR operation

When the PIR senses motion WLED will toggle between presets. In this setup it selects preset 1 (Chase) when it senses motion and preset 2 (Off) when it times out. Please note these PIR sensors are unstable or inactive for the first few minutes after they are powered up as they take time to stabilise.

Note: When using the PIR option the push button operations is not stable and so not recommended.

Software – WLED

Although the board can work with a range of software one of the most popular and feature rich is WLED. Below are some links to the WLED project page and a fork “WLED Sound Reactive”. This version adds as the name suggests sound reactive modes, this version requires an external audio input. The simplest way is to add a microphone board to a Node-MCU analogue input.

Flashing Tool

ESPHome-Flasher is a python utility for programming the Node-MCU 30-Pin

<https://github.com/esphome/ESPHome-Flasher>

WLED

Simple Browser install using ESP Web Tools (Chrome or Edge only)

<https://install.wled.me/>

WLED Github Page

<https://github.com/Aircoookie/WLED>

WLED Releases

<https://github.com/Aircoookie/WLED/releases>

Sound Reactive WLED

Sound Reactive WLED Releases

<https://github.com/atuline/WLED/releases>

Sound Reactive Wiki

<https://github.com/atuline/WLED/wiki>

Audio connection Options

<https://github.com/atuline/WLED/wiki/Analog-Audio-Input-Options>

Peripheral Connections and I/O Mapping

Function	ESP32
Channel 1	IO16
Channel 2	IO17
Channel 3	IO2
Channel 4	IO4
Channel 5	IO5
Channel 6	IO12
Channel 7	IO14
Channel 8	IO15
Button	IO13
PIR	IO22
LED (PCB)	IO21
Audio	SVP