Power

File: Power.kicad_sch

GPS and Switches and Light Sensor

File: GPS.kicad_sch

RPI5

File: RPI5.kicad_sch

camera battery and mechanical

File: camera.kicad_sch

Photo LED's

File: Photo_LEDs.kicad_sch

UV LED PCB

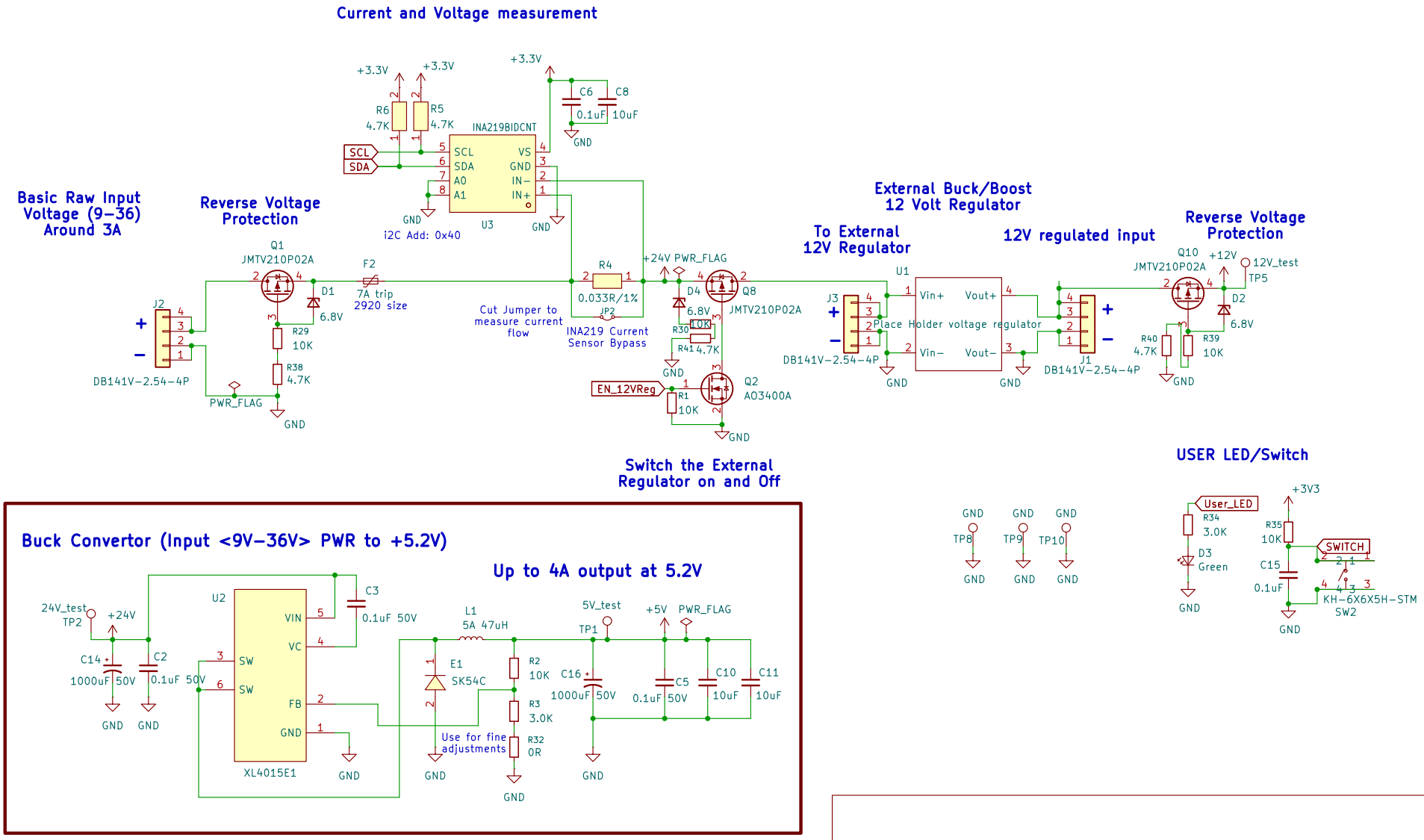
File: UV_LED_PCB.kicad_sch

**Digital Naturalism Laboritories**

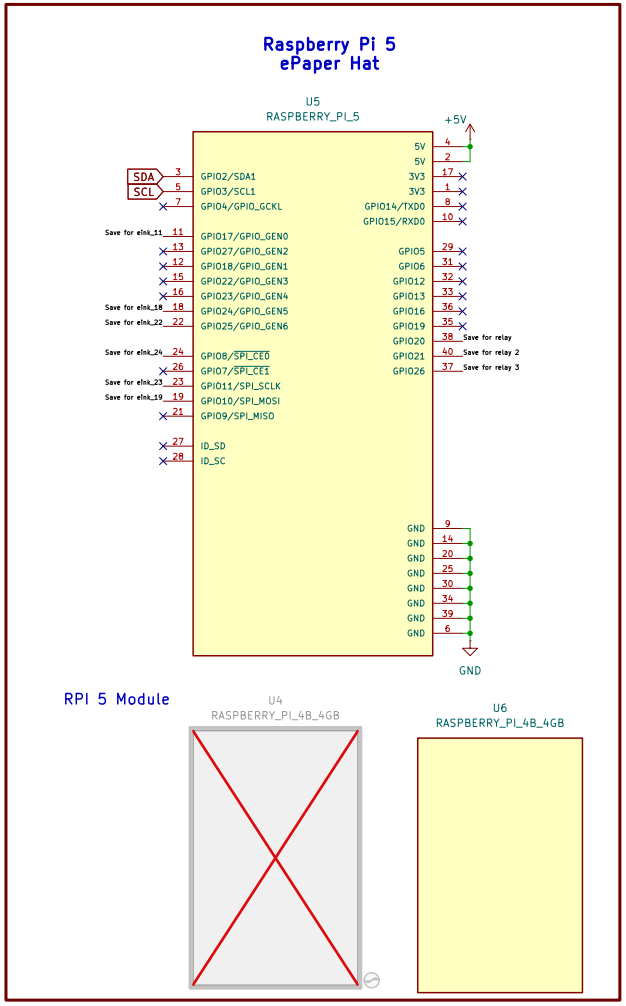
Sheet: /
File: MothBox_5.0.3.kicad_sch

***Title: MothBox***

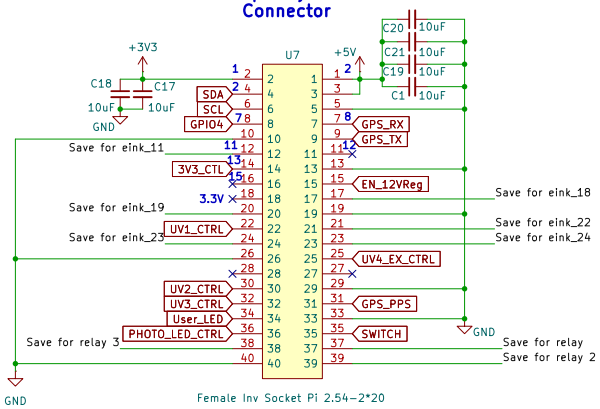
| Size: A4 | Date: 2025-11-05 | **Rev: 5.0.3** |
|---|---|---|
| KiCad E.D.A. 9.0.6 | | Id: 1/7 |


Current and Voltage measurement
Basic Raw Input Voltage (9–36) Around 3A
Reverse Voltage Protection
External Buck/Boost 12 Volt Regulator
To External 12V Regulator
12V regulated input
Reverse Voltage Protection
Switch the External Regulator on and Off
USER LED/Switch
Buck Convertor (Input <9V–36V> PWR to +5.2V)
Up to 4A output at 5.2V
INA219BIDCNT
i2C Add: 0x40
Cut Jumper to measure current flow
INA219 Current Sensor Bypass
Place Holder voltage regulator
XL4015E1
Use for fine adjustments
Digital Naturalism Laboritories
Sheet: /Power/
File: Power.kicad_sch
Title: MothBox
Size: A4
Date: 2025-11-05
Rev: 5.0.3
KiCad E.D.A. 9.0.6
Id: 2/7

## Raspberry Pi 5 ePaper Hat



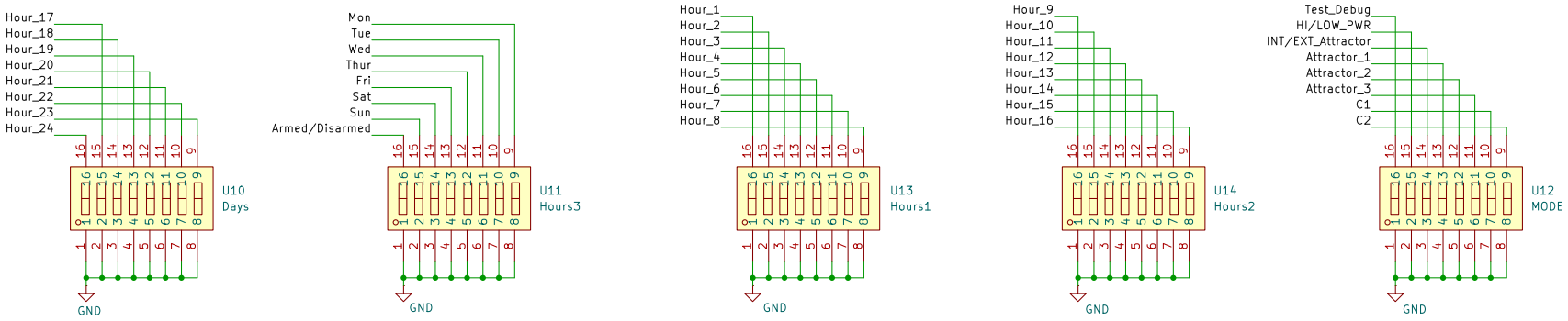

## Raspberry Pi 5 Connector



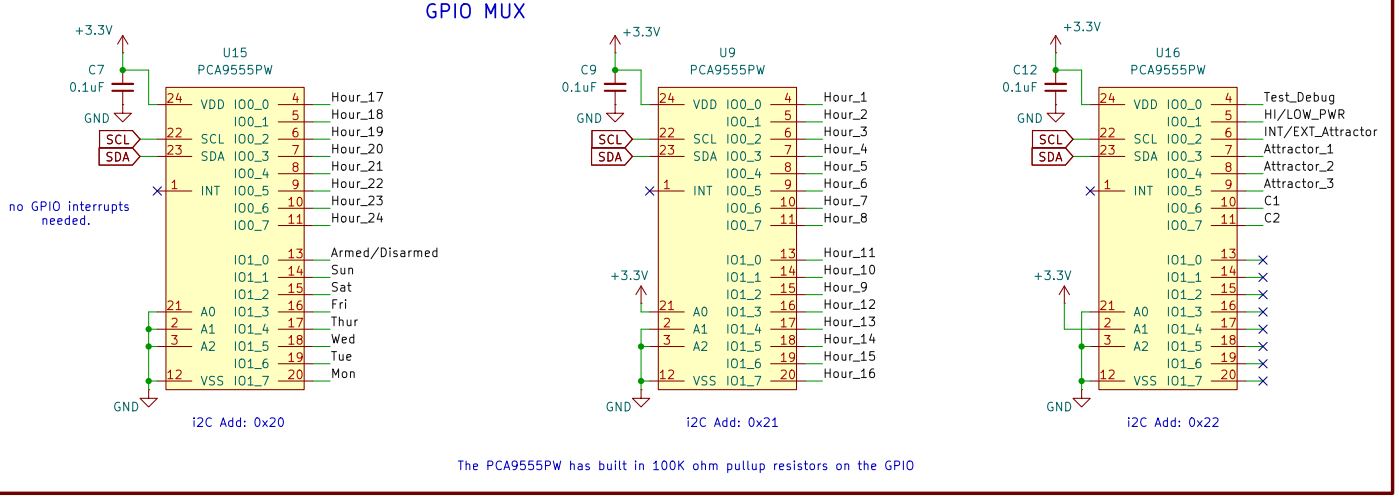

**NOTE: The connector is in back-to-front.**
**But it's wired up so it works.**

| | | |
|---|---|---|
| **Digital Naturalism Laboritories** | | |
| Sheet: /RPI5/ | | |
| File: RPI5.kicad_sch | | |
| ***Title: MothBox*** | | |
| Size: User | Date: 2025-11-05 | **Rev: 5.0.3** |
| KiCad E.D.A. 9.0.6 | | Id: 3/7 |

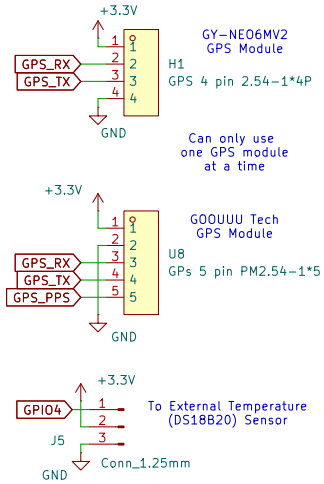
## SWITCHES



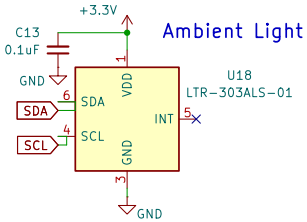

## GPIO MUX



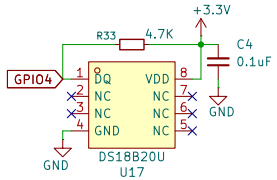

## GPS connects



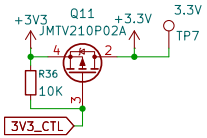

## Ambient Light Sensor




## PCB Temperature




## Switched 3V3

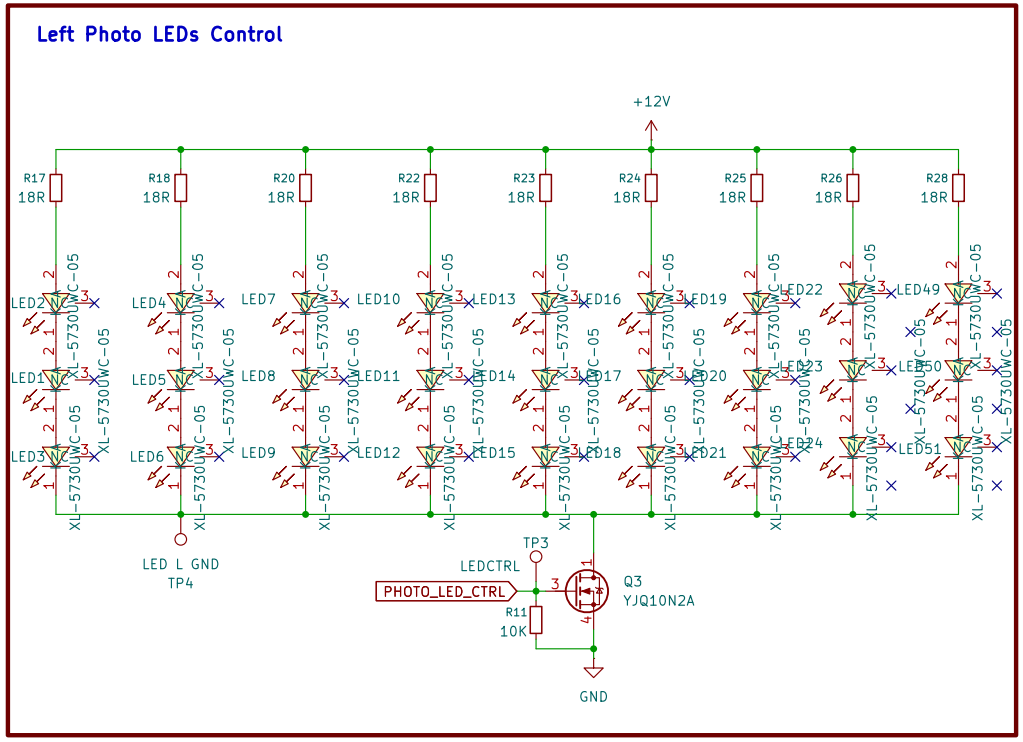


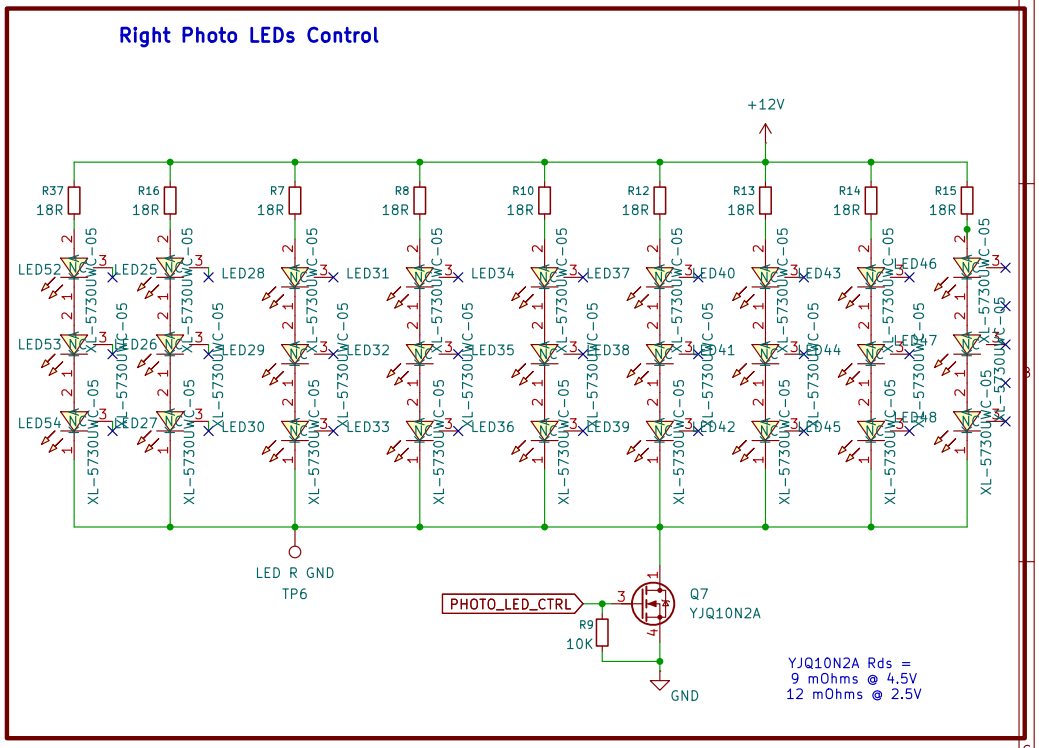

and Parkview
**Digital Naturalism Laboritories**

Sheet: /GPS and Switches and Light Sensor/
File: GPS.kicad_sch

***Title: MothBox***

| Size: User | Date: 2025-11-05 | **Rev: 5.0.3** |
|---|---|---|
| KiCad E.D.A. 9.0.6 | | Id: 4/7 |




v5.0.0 used XINGLIGHT XL-2835UWC-02

60mA 6000K~7500K Yellow lens -20□~+85C Positive Stick White 120° 200mW 3.4V SMD2835 LED Indication - Discrete ROH

Figure out:
Each string used around 83mA

how many batches per transistor thing

what is the light angle of these LEDS (if any) without lens is cheaper

Current per led = 60mA
Total current = 8(columns) x 60mA
= 480mA
Total Luminous required = ?? lm
Per led luminous = ??? lm
10 led Luminous = ???? lm

v5.0.1+ used the XL-2835UWC-02
it should draw around 133mA at 12V
therefore each bank should draw 1.072A, or 2.144A total

(144mA-149mA @ 11.89V measured through two strings: 2025-10-02)

**Digital Naturalism Laboritories**

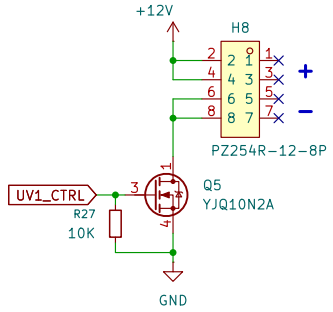
Sheet: /Photo LED's/
File: Photo_LEDs.kicad_sch

***Title: MothBox***

| Size: A4 | Date: 2025-11-05 | **Rev: 5.0.3** |
|---|---|---|
| KiCad E.D.A. 9.0.6 | | Id: 5/7 |

## UV PCB1 Control Circuit

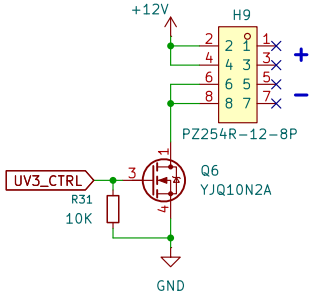
UV PCB1 current consumtiom = 500mA




v5.0.0 used the: PZ254R-11-04P single row connector

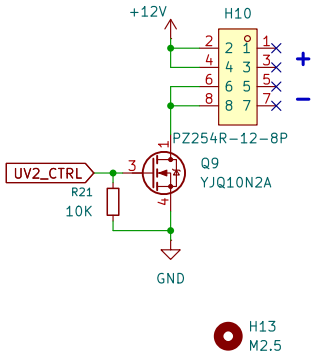
## UV PCB3 Control Circuit

UV PCB3 current consumtiom = 500mA

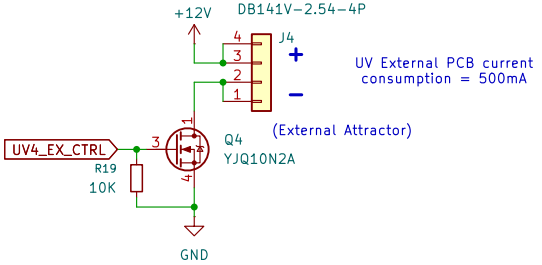



## UV PCB2 Control Circuit

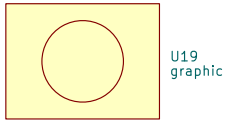
UV PCB2 current consumtiom = 500mA




## UV External Attractor



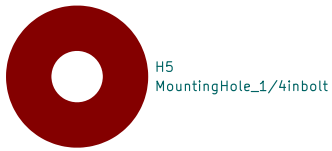

| | | |
|---|---|---|
| **Digital Naturalism Laboritories** | | |
| Sheet: /UV LED PCB/ | | |
| File: UV_LED_PCB.kicad_sch | | |
| ***Title: MothBox*** | | |
| Size: A4 | Date: 2025-11-05 | **Rev: 5.0.3** |
| KiCad E.D.A. 9.0.6 | | Id: 6/7 |













and Parkview
**Digital Naturalism Laboritories**

Sheet: /camera battery and mechanical/
File: camera.kicad_sch

***Title: MothBox***

| Size: A4 | Date: 2025-11-05 | **Rev: 5.0.3** |
|---|---|---|
| KiCad E.D.A. 9.0.6 | | Id: 7/7 |