

Board

| Quantity | References | Value | Purchase |
|----------|---|-----------------------------------|---|
| 8 | C11, C21, C31, C41, C51, C61, C71, C81 | 10uF 50V | lcsc.com |
| 8 | C12, C22, C32, C42, C52, C62, C72, C82 | 1uF 50V | lcsc.com |
| 3 | C101, C311, C321 | 10nF 25V | lcsc.com |
| 1 | C102 | 470uF 50V | lcsc.com |
| 1 | C201 | 220uF 10V | lcsc.com |
| | C331, C411, C601 | 100nF 50V | lcsc.com |
| 8 | D11, D21, D31, D41, D51, D61, D71, D81 | MBR0560 | lcsc.com |
| 1 | D101 | BZT52C10 | lcsc.com |
| 1 | D201 | Power LED | lcsc.com |
| 1 | F101 | Holder 5.2x20mm | lcsc.com |
| 1 | F101 | 4A fast blowing | lcsc.com |
| 1 | F201 | 1A resettable | lcsc.com |
| 1 | F202 | 0.5A resettable | lcsc.com |
| 9 | IN1, LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED8 | Screw_Terminal_01x02 | lcsc.com |
| 1 | J301 | JST S6B-XH-A 6in | aliexpress.com |
| 1 | J401 | JST S3B-XH-A 3pin | aliexpress.com |
| 1 | J501 | Pin Header 2x3 horizontal | lcsc.com |
| 1 | J801 | Pin Header 1x3 vertical | lcsc.com |
| 1 | J801 | Pin Header jumper, green long cap | aliexpress.com |
| 8 | L11, L21, L31, L41, L51, L61, L71, L81 | 100uH, GLE GCNR6045 | lcsc.com |
| 1 | Q101 | BR50P06 | lcsc.com |
| 1 | Q801 | BSS138 | lcsc.com |
| 8 | *R11, R21, R31, R41, R51, R61, R71, R81 | 0.3Ω +-1% | lcsc.com |
| 8 | R12, R22, R32, R42, R52, R62, R72, R82 | 1kΩ | lcsc.com |
| 1 | R101 | 82kΩ | lcsc.com |
| 1 | R201 | 3.9kΩ | lcsc.com |
| 6 | R311, R312, R321, R322, R801, R802 | 10kΩ | lcsc.com |
| 2 | R331, R421 | 39kΩ | lcsc.com |
| 2 | R332, R422 | 6.8kΩ | lcsc.com |
| 1 | R701 | 4.7kΩ | lcsc.com |
| 1 | R803 | 33Ω | lcsc.com |
| 1 | R804 | 220Ω | lcsc.com |
| 1 | SW331 | SW_Push | lcsc.com |
| 8 | U11, U21, U31, U41, U51, U61, U71, U81 | PT4115 | lcsc.com |
| 1 | U201 | step down 5V 3A | aliexpress.com |
| 1 | U601 | ESP32 mini (CP2104!) | aliexpress.com |
| 1 | U701 | DS18B20 | lcsc.com |

* Note for R11 – R81

The board can handle up to 500mA per channel. Changing the resistor has impact on Iled max which is calculated $0.1 / R$.

I recommend using +-1% tolerance for constant Iled values over the different channels

With 0.3Ω, it's $0.1 / 0.3 = 333\text{mA}$

You can throttle the power in esphome yaml code to meet your light's characteristic

Smallest recommended resistor is 0.22Ω which will end up in Iled max per channel slightly above 450mA

Installation

Materials

| Quantity | Reference | Value | Purchase |
|----------|---------------------------------|----------------|---|
| 1 | Power supply | 24V/100W | aliexpress.com |
| 1 | Enclosure box | 150x100x50mm | aliexpress.com |
| 4 | M3x5 screw | M3x6 | aliexpress.com |
| 4 | M3 washer | M3x6x0.8 | aliexpress.com |
| 9 | DC sockets | DC-022B | aliexpress.com |
| 9 | DC plugs | DC-022B | aliexpress.com |
| 100m | DC cable | 20AWG | aliexpress.com |
| 1 | Rotary encoder 15mm plum handle | EC11 | aliexpress.com |
| 1 | Encoder knob | Marshall white | aliexpress.com |
| 1 | Blank cover panel | | aliexpress.com |
| 1 | Motion detection sensor | AM312 | aliexpress.com |

Tools

| Quantity | Reference | Value | Purchase |
|----------|------------------------------------|----------------|---|
| 1 | Crimping plier JST XH | SN-2549 | aliexpress.com |
| 1 | 3 ceramic tweezers | | aliexpress.com |
| 1 | Ferrules + Terminal Crimping Plier | HSC8 6-6 | aliexpress.com |
| 5m | Transparent heat shrink tube 3:1 | | aliexpress.com |
| 1 | SMD soldering heating plate | MECHANIC ET-10 | aliexpress.com |
| 1 | 6" diagonal wire cutter nipper | | aliexpress.com |
| 1 | WAGO connectors combo kit | | aliexpress.com |
| 100g | Solder wire 0.6mm | | aliexpress.com |
| 1 | Soldering paste 138°C | | aliexpress.com |
| 1 | Extra Flux | | aliexpress.com |
| 1x10 | Desoldering wick 2mm x 1.5m | | aliexpress.com |
| 1 | Multimeter | ZT301 | aliexpress.com |