

## Board

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

### \* 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	<a href="https://www.aliexpress.com">aliexpress.com</a>
1	Enclosure box	150x100x50mm	<a href="https://www.aliexpress.com">aliexpress.com</a>
4	M3x5 screw	M3x6	<a href="https://www.aliexpress.com">aliexpress.com</a>
4	M3 washer	M3x6x0.8	<a href="https://www.aliexpress.com">aliexpress.com</a>
9	DC sockets	DC-022B	<a href="https://www.aliexpress.com">aliexpress.com</a>
9	DC plugs	DC-022B	<a href="https://www.aliexpress.com">aliexpress.com</a>
100m	DC cable	20AWG	<a href="https://www.aliexpress.com">aliexpress.com</a>
1	Rotary encoder 15mm plum handle	EC11	<a href="https://www.aliexpress.com">aliexpress.com</a>
1	Encoder knob	Marshall white	<a href="https://www.aliexpress.com">aliexpress.com</a>
1	Blank cover panel		<a href="https://www.aliexpress.com">aliexpress.com</a>
1	Motion detection sensor	AM312	<a href="https://www.aliexpress.com">aliexpress.com</a>

### Tools

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