

## Board

Quantity	References	Value	Purchase
11	C11, C21, C31, C41, C51, C61, C71, C81, C331, C421, C601	100nF 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>
	C331, C421, 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	Pow 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>
9	IN1, LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED8	Screw_Terminal_01x02	<a href="https://www.lcsc.com">lcsc.com</a>
1	J301	S4B-XH-A	<a href="https://www.lcsc.com">lcsc.com</a>
1	J401	S3B-XH-A	<a href="https://www.lcsc.com">lcsc.com</a>
1	J501	Conn_02x04_Male	<a href="https://www.lcsc.com">lcsc.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>
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>
4	R311, R312, R321, R322	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>
8	U11, U21, U31, U41, U51, U61, U71, U81	PT4115	<a href="https://www.lcsc.com">lcsc.com</a>
1	U201	step down 5V 1A	<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	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>