Illuminate This

Photon Cannon Edition (v3.0)

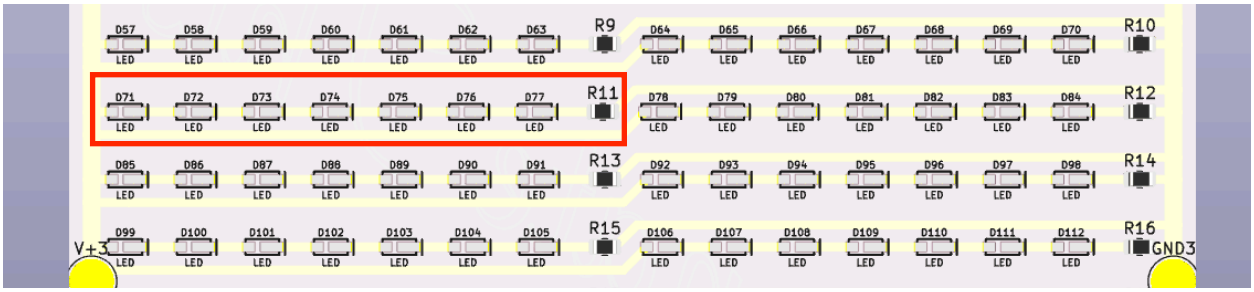
Welcome to the instruction manual for the *Illuminate This: Photon Cannon Edition*, the third edition of the Illuminate This board.

The “Illuminate This” series was born at the Vancouver Hackspace, when millions upon millions of white SMD LEDs were donated and there was no plan for them. This board provides a nice way of creating area-like lights that can be used as back-lighting, or just really really big flat bulbs.
The *Illuminate This: Photon Cannon Edition* tech specs are as follows:

Name	The Illuminate This: Photon Cannon Edition
Board Version	v3.0
Width	100mm
Height	100mm
Supply Voltage	24v
Supply Maximum Current	6.2 Amps (at 20ma configuration, fully populated)
LED Grouping	7 LEDs, 1 Current Limiting Resistor
Maximum LEDs	224
Board Material	Aluminum or FR4
Mounting Holes	M4 x 4
LED Form Factor	3014 SMD
Resistor Form Factor	0805 SMD

Building the Photon Cannon

It is recommended to use the provided solder stencil to build the *Illuminate This* boards and use the solder oven; it is not recommended to hand-solder LEDs, especially on aluminum boards, as it will be exceedingly difficult to not damage the LEDs while getting the pad hot enough to flow.



The Illiminate This boards are divided by rows and columns. The Photon Cannon is comprised of 2 columns and 16 rows. When populating the board, you must fill out all the components in one cell. For instance, you can fill out only half a row, but all 8 components (7 LEDs and one Resistor) must be populated on one side. An example of a single “cell” is illustrated below: Once the board has been populated and baked, Ground and V+ leads can be attached. Using flux and pre-tinning is recommended; with aluminum boards, some pre-heating may be useful to ensure the pad can reach solder flow temperature.

Once soldered, glue or epoxy on top of leads is recommended to help prevent desoldering, ensure proper strain relief is provided.

LED and Resistor Values:

It is recommended to use https://ledcalculator.net/ to size your LEDs, desired current per LED, to determine your resistor value.