PROJECT NAME

MINI LIGHT SHIELD

aion DIY GUITAR EFFECTS

DOCUMENT VERSION
1.0.0 (2026-07-03)

BUILD DIFFICULTY
Easy

PROJECT SUMMARY
A four-panel box with a reflective interior designed for use with projects such as the Straylight Mini and Hexatron.

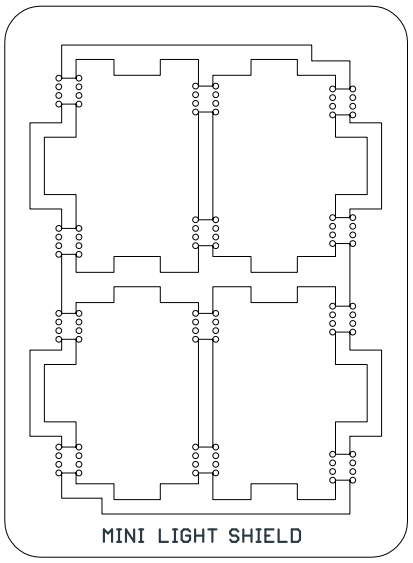
PROJECT OVERVIEW

This is a light shield designed for our optical phaser projects, based on the types used in the original Univox Uni-Vibe and Mu-tron Phasor II.

The Uni-Vibe enclosed the lamp and LDRs in a reflective sheet-metal box that dispersed the light internally so that all four LDRs were evenly exposed. It also blocked most outside light so the effect would still work when the enclosure lid was removed for service.

The Phasor II used a round metal cap around a plastic base to enclose the LED and LDRs. It was signficantly smaller than the Uni-Vibe solution but the effect was the same.

For our original Straylight project, we designed a solution that uses interlocking PCBs to build a box with a reflective interior that can be soldered in place, which closely replicates the functionality of the sheet-metal box of the Uni-Vibe.



Actual size is 1.40" x 1.91".

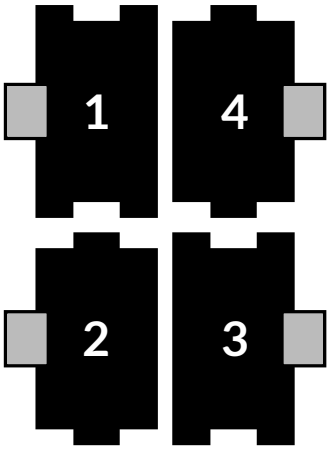
For the Straylight Mini and Hexatron projects, we used a two-tiered PCB layout so they could fit in a compact 125B enclosure. Accordingly, the light shield was redesigned so that it can fit between the two PCBs, with the PCB itself acting as the removable lid. The mini light shield comes in a single panel with four sub-PCBs that can be easily separated.

IMPORTANT NOTE

This is the **mini** version of the light shield, designed to be used with "sandwich" PCB projects such as the Straylight Mini and Hexatron. Please use the regular-sized Light Shield for the standard Straylight project. The two shields are different sizes and not compatible with each other.

ASSEMBLY INSTRUCTIONS

The light shield is straightforward to put together, but there are a few ways to mess it up, so make sure to read all of the instructions before you start soldering.



Before you begin

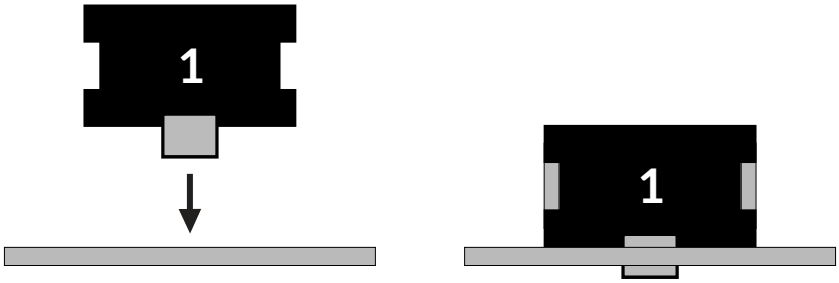
Separate all four of the PCBs from the frame. It's easiest to push from the center so that they snap and swing outward. The outer frame is flexible, so they should come out without much force.

Then, using needlenose or flat-nose pliers, snap off the remaining mouse-bite tabs from each PCB.

Try to avoid touching the plated reverse side of the panel. It's lead-free, but fingerprints will diminish the reflectivity.

Install the panels to the PCB

Fit the four panels together, reflective side facing inward, then sit them loosely into the slots on the PCB to test the fit. The tab that is plated on both sides fits into the slot on the PCB.



From here, it will be much easier if you use a rubber band around the perimeter to hold the four panels together. The box needs to be tight against the board to allow enough clearance between the main PCBs.

Note: Unlike the full-size light shield, the box orientation does not make a difference for this version, so whether the even or odd panels are north/south or east/west, it's all the same.

Solder the tabs

Once the panels are interlocked and straight, you can flip the whole PCB upside down and let gravity hold it in place while you solder the tabs from the bottom. They are plated on both sides, so solder wherever you can and make sure it flows into the slots.

The solder won't go all the way around due to the unplated PCB material on the edges, but the connection will still be very rigid. You can also add some solder from the top side if you want to make it even stronger.

That's it! The light shield is now integrated into the top PCB, so when the two PCBs are connected together, the optical elements are isolated from the outside.

LICENSE & USAGE

No direct support is offered for these projects beyond the provided documentation. It's assumed that you have at least some experience building pedals before starting one of these. Replacements and refunds cannot be offered unless it can be shown that the circuit or documentation are in error.

All of these circuits have been tested in good faith in their base configurations. However, not all the modifications or variations have necessarily been tested. These are offered only as suggestions based on the experience and opinions of others.

Projects may be used for commercial endeavors in any quantity unless specifically noted. No attribution is necessary, though a link back is always greatly appreciated. The only usage restrictions are that **(1) you cannot resell the PCB as part of a kit without prior arrangement**, and **(2) you cannot "goop" the circuit, scratch off the screenprint, or otherwise obfuscate the circuit to disguise its source**. (In other words: you don't have to go out of your way to advertise the fact that you use these PCBs, but please don't go out of your way to hide it. The guitar effects industry needs more transparency, not less!)

DOCUMENT REVISIONS

1.0.0 (2026-07-03)
Initial release.