

Case Study - Submodular Systems - Shadow

Road Warrior Chops In Sheep's Clothing



Shadow 6u / 208hp

Since 2015 when this idea was conjured up over a couple of beers and two way phone call between LA and “the Ranch” on Tuckahoe Creek, the Shadow has grown to become the “go-to” case for electronic musicians of all flavors from techno and the boiler room to jazz and rock bands. The Shadow case embodies our vision of a slimline airline-friendly eurorack travel case while great care was taken to maintain a form factor that was slim and lightweight, but road warrior rugged, making sure the needs of the traveling musician were met.

Using bleeding edge design, military spec, manufacturing techniques, and materials, nearly every aspect has been custom engineered, in-house, to exacting detail.

- laser cut 5052 mil spec tooling plate aluminum shell
- elastomer coated exterior (yes that’s Linex truck bed liner on there)
- powder coated interior
- high-density polypropylene end panels machined in-house to our 1/10 mm specifications
- spring-action latches custom machined from monolithic blocks of homopolymer Delrin that retract like landing gear so they won’t hang up on patch cables
- in-house RIM molded urethane lid bumpers and feet that are integrated and encapsulated into the case with no fasteners

The total case depth is able to accommodate all but the deepest of modules, and lid depth allows for patches to be kept intact for quick setup time at gigs. Modularity was also a key element where the expandability of our system means that it grows and expands as the customer grows.

While a custom nylon carrying harness is included with each case, the form factor of a single Shadow will fit within a variety of third party manufacturer’s 37-key keyboard cases.

Appendix I - MIY - Machining It Ourselves! Or - You're Never Too Old to Learn



When I was told, by the best machine shop in town, that our latches would be \$25 apiece, adding \$50 to our already overloaded product cost I took it upon myself and resolved to learn how to use the CNC Mill at TechShop in DC. It was a long, slow process. That meant arriving in the evening since that allowed me to get in a day's work in the studio, after driving an hour and a half to DC and standing for 12 hours baby-sitting the CNC Mill. It was not all bad though since the best pizza in DC was right next door! In the process I gained enough confidence that I felt after 28 years as a client of various CNC shops that had done all my furniture since 1988 that I was ready to invest in a machine that we could use to make everything in house for much less. The latches ended up costing me \$2.50 each. When I took them back to the machine shop the owner said "hmmm decent job! Where'd you get these made?" I told him I did and he said "NO WAAAY!". Way!

I made several runs but in the end the Teflon coating which was never black but became our "signature blue"(!) was getting less and less consistent from the finishing vendor so I switched to machining them out of pure Delrin and that had to be done by, yep, that same machine shop. But now that we had a bit of "street cred" they agreed to do them for \$18. Way!



Appendix II - Manifold - Click, Flip and Play!



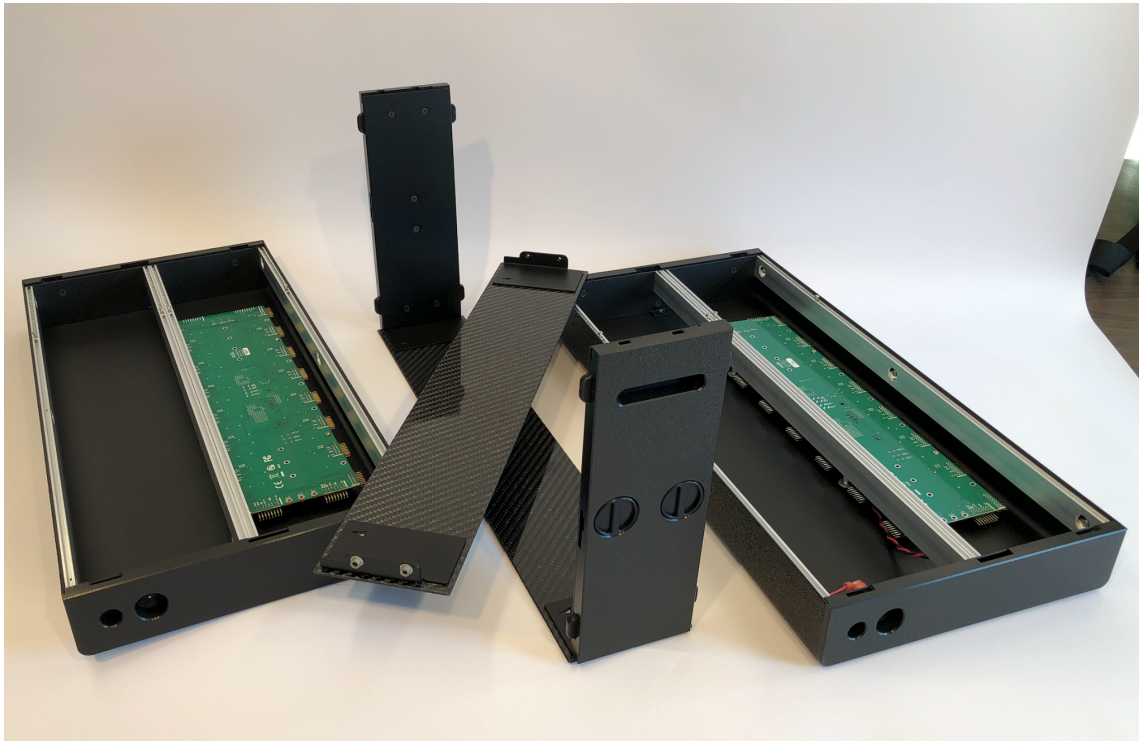
The Manifold accessory connects two 6u Shadows together as one travel friendly unit allowing the performer to keep those hard won patches together and avoid hours of setup at the gig. Just pop it open and play! It comes standard with aluminum struts but a limited edition carbon fiber version is also available that reduces weight by a further 1.3 lbs. Both feature the same exterior truck bed liner finish as the Shadow preferred by “roadies”, worldwide.

As a further consideration for the ease of organization in the dark chaos of the pit, each Manifold includes a storage bag to keep track of the components while sweating out beats in the boiler room! Easy to put one’s hands on for a quick getaway to that after party, it also features a larger harness of 6 oz. ballistic polypropylene rated at 3,700 lbs, per strap - not that one would ever need that much even if they filled it with lead!

With over a year of rigorous field testing, including a reported unplanned “flight” down 2 flights of concrete stairs without any apparent damage, that strap wraps its arms around 12u. worth of modular goodness and includes a molded in place handle that won’t slip around while sprinting through airports the world over and two D rings so the user can attach any shoulder strap preferred,

All that and an empty weight as little as 5.4 kg (11.9 lb) for unpowered carbon fiber. We are told that our case, full of modules, is still lighter than the next popular case on the market is, EMPTY!

Appendix III - Manifold - We got your Back While You're Sweating the Beats!



In the bag!

