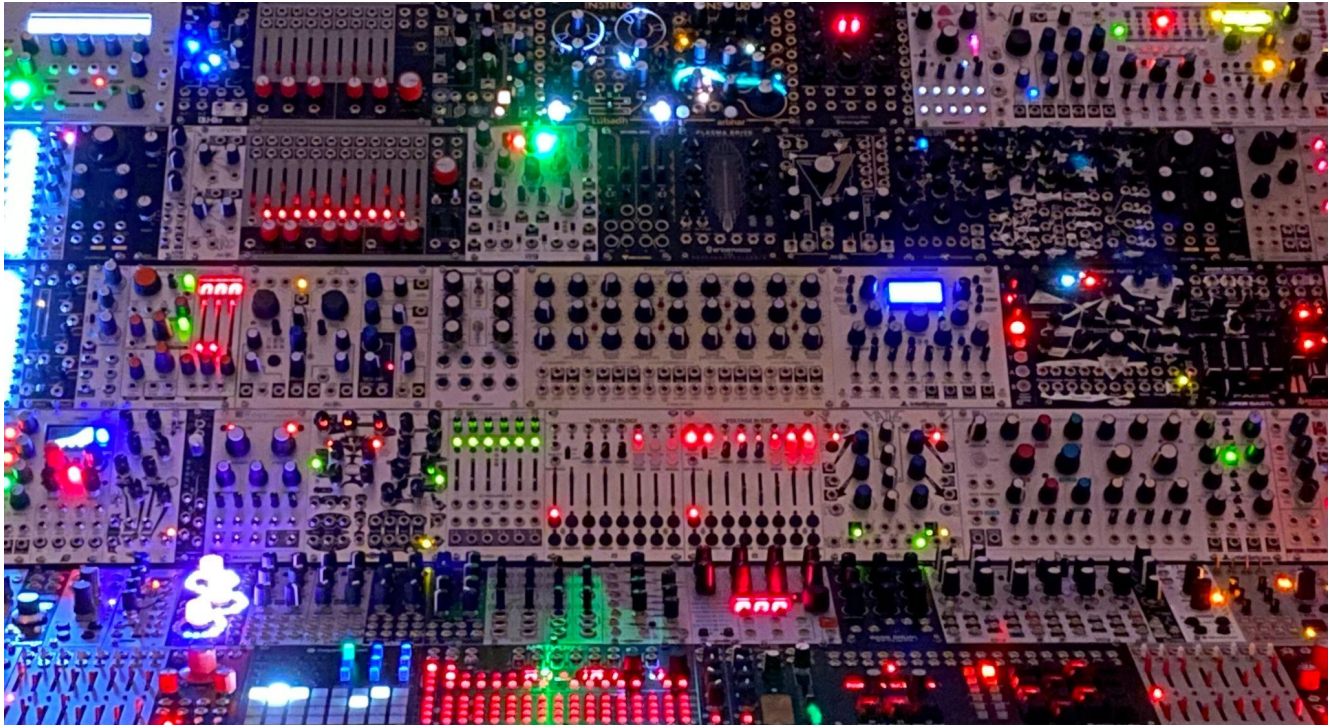


Case Study - The Submodular Systems, Studio Console



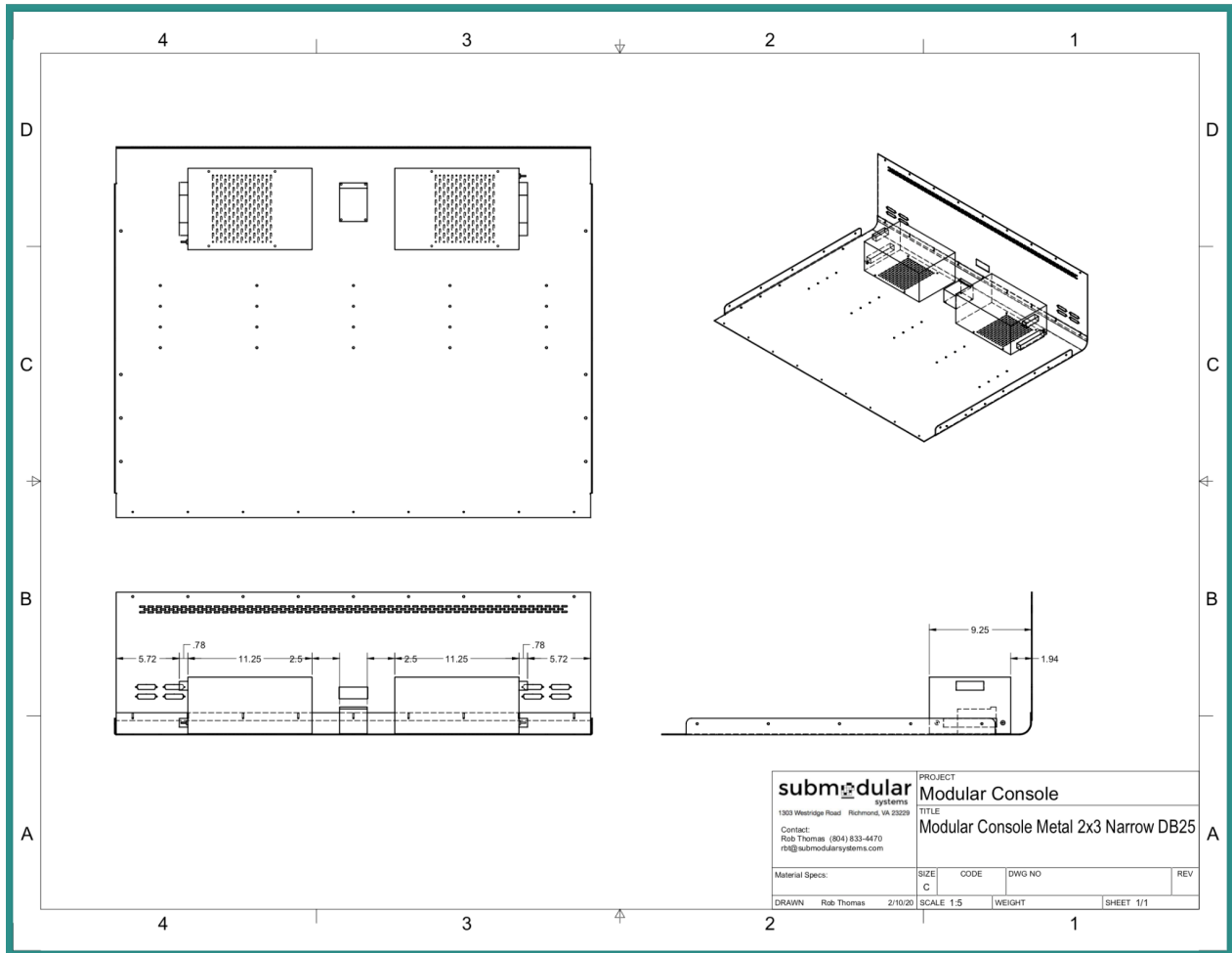
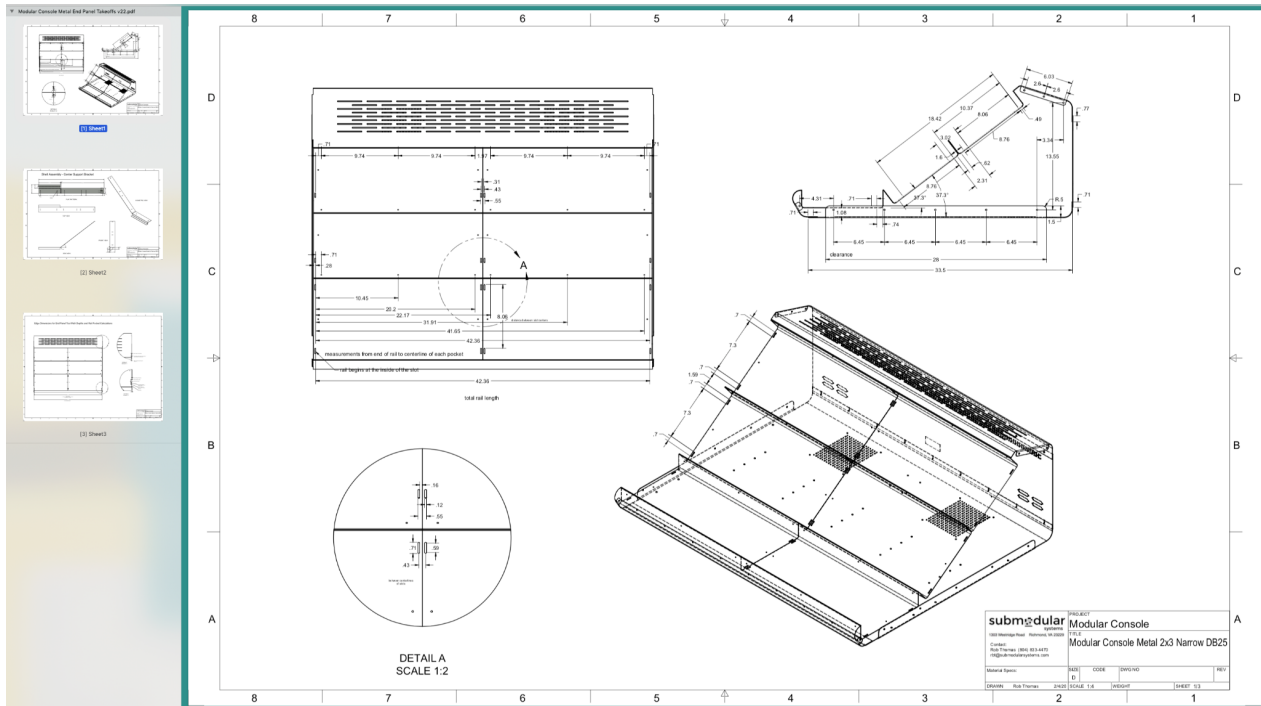
The Submodular Systems, Studio Console was a 7 month project in 2020 commissioned by a well-known LA musician that aggregated 6 of our Shadow case shells into a consolidated studio mixer footprint with room for 1200hp and 18u worth of Eurorack synth modules featuring ultra low ripple Acopian Power Supplies, used by the Aerospace industry, all mounted on a motorized desk frame. All designs and drawings were done in-house as well as machining of some final components like the end panels made from Richlite phenolic paper laminate.

Key challenges in the design were that all parts were made at various locations or from various manufacturers like the Acopian power supplies, buss bars, clips, cables and other components and would never get a “test fit” at the Submodular MicroFaktory or any other field verifications until arriving at the artist’s studio where they would be assembled by the artist himself and who had only basic mechanical skills. So no special machinery, fixtures or exotic tools would be available to assist in that assembly as there would be in a normal production environment. Think of it then, as a giant Lego set. And the Legos had to fit!

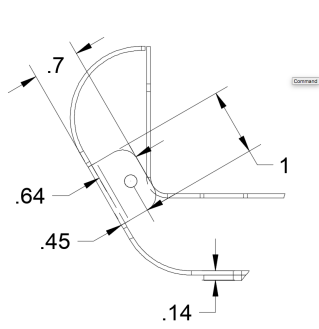
As a result of those logistics, every sheet metal part had to match up to its 3rd party component exactly and to military spec, for everything to work. To that end Industrial Designer, Rob Thomas, used a combination of CAD and 3D programs including Fusion360, Blender and Vectric Cut2D Pro to create the final drawings sent to fabricators as well as the tooling and GCode specifications for the in-house CNC machine operated by Rob himself. Also created were many renderings and details to guide the fabricators and eventually the artist in the creation and assembly of a highly complex group of parts with extremely challenging tolerances.

Here are some of the examples of the complexity of the hundreds of CAD and tooling files involved over the life of the project from concept to final fabrications files as well as some shots of the final assembly with and without modules and posted on social media.

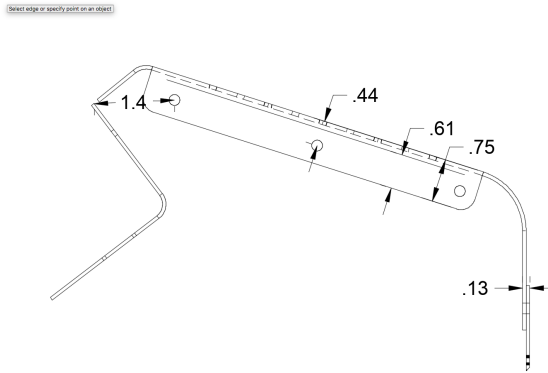
CAD - Drawings Sent to Outside Fabricators



Critical Bend Radius Details

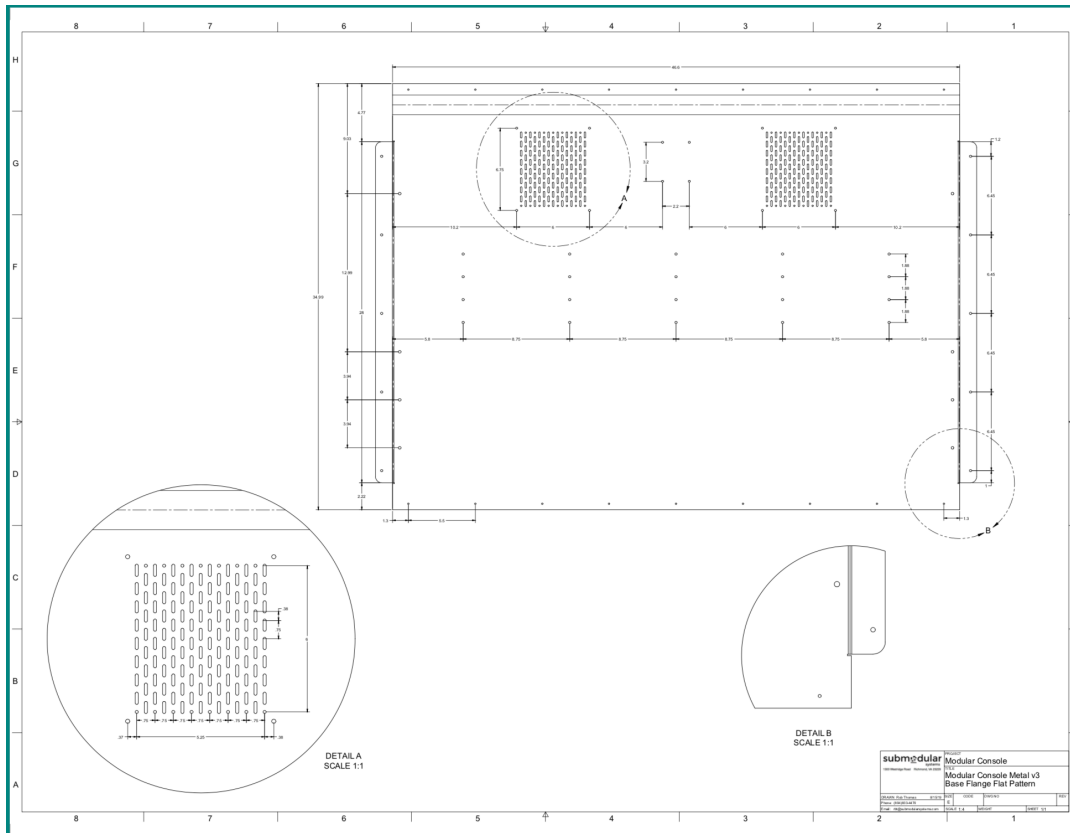


DETAIL D
SCALE 1:2

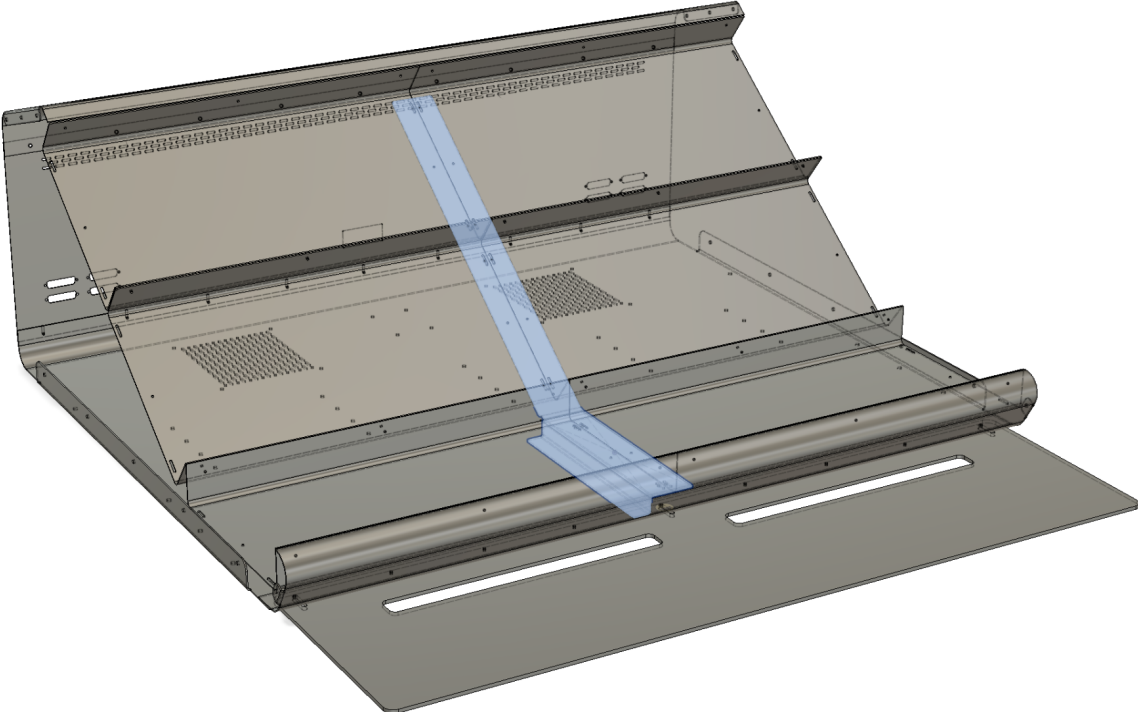
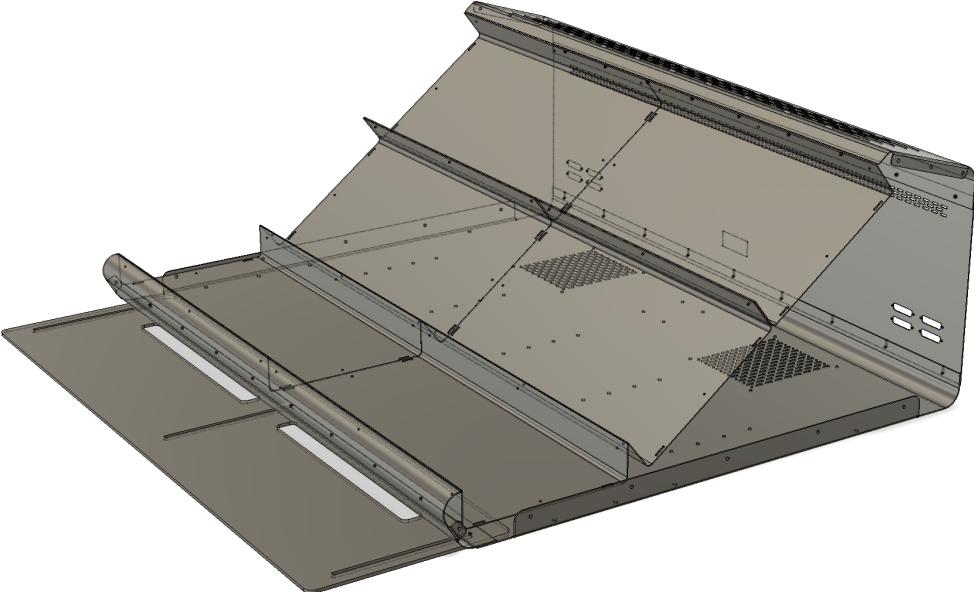


DETAIL E
SCALE 1:2

Flat Panel for Layout for Laser Cutting



Renderings for Fabrication and Assembly Communications



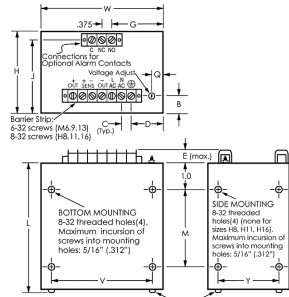
Renderings with Component Data Sheets for Client Communication and Approvals

AC-DC single output

- Series A**
High Performance (model numbers begin with the letter A)
- [Download 3 Data](#)
 - UL Recognized
 - CE Certified
 - Five Year Warranty

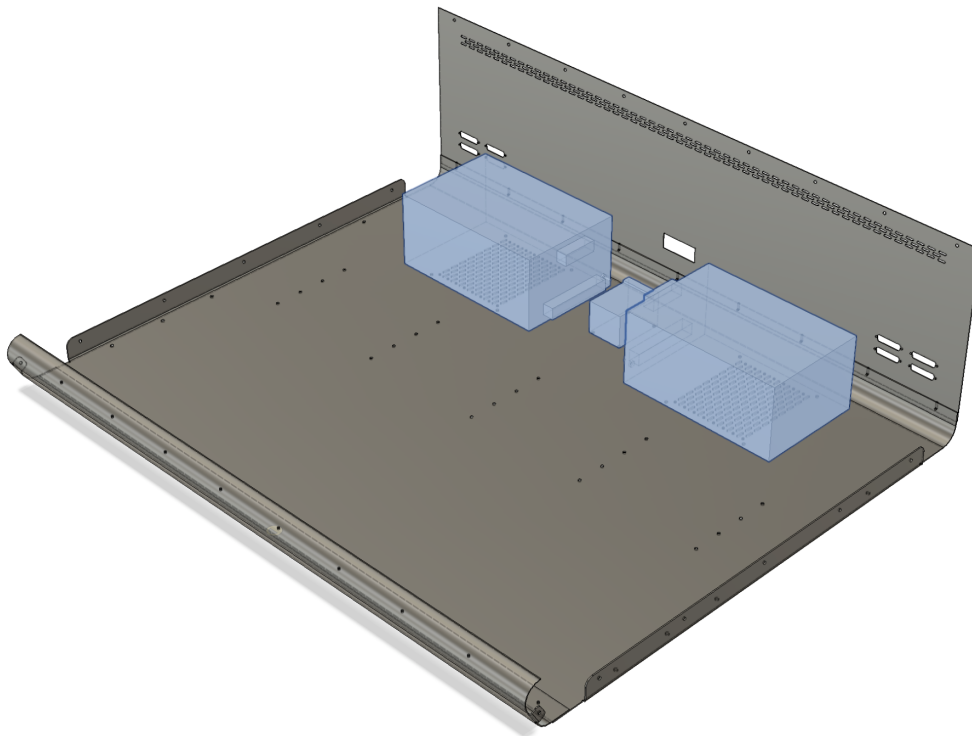
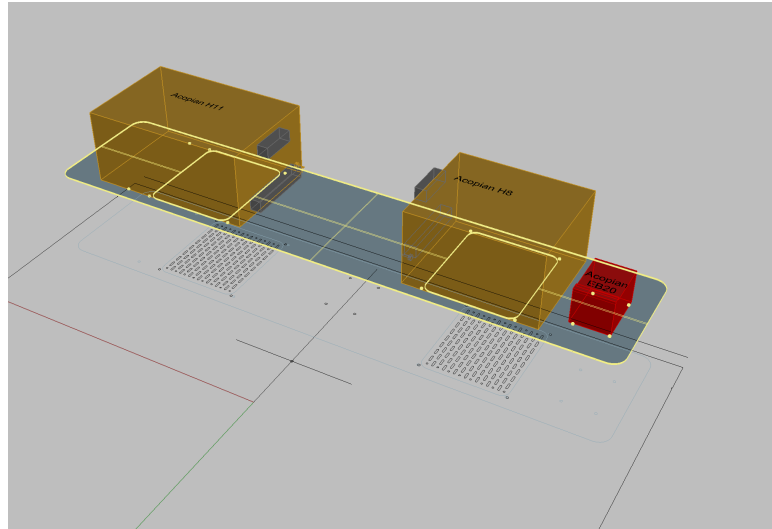
DRAWING

(All dimensions in inches)

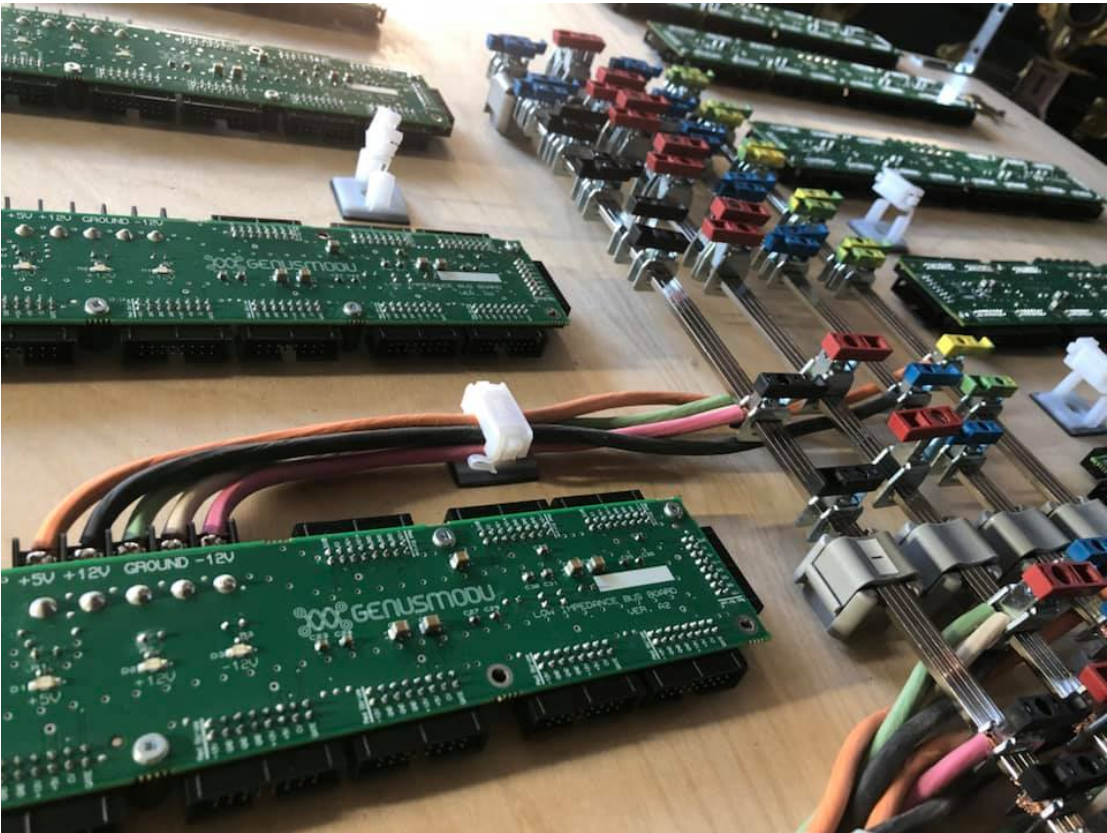


For **REAR MOUNTING**, remove original screw(s) and use 8-32 type F self-tapping screws. They should extend at least 5/16" (0.312") into the power supply case.

Case Size	L	W	H	M	V	Y	X	Q	R	C	D	G	J	Approx. Weight
M6	6.59	5.12	3.44	4.8	4.3	3.8	.58	.5	.75	.375	1.44	2.19	3.89	4 lb., 4 oz.
M9	9.25	5.12	3.44	6.8	4.3	3.8	.58	.5	.75	.375	1.44	2.19	3.89	7 lb., 4 oz.
M13	13.25	5.12	3.44	10.8	4.3	3.8	.58	.5	.75	.375	1.44	2.19	3.89	13 lb.
M8	8.75	7.37	5.12	6.8	6.75	4.56	.78	1.12	1.25	.562	2.25	3.57	4.72	13 lb., 8 oz.
M11	11.25	7.37	5.12	8.8	6.75	4.56	.78	1.12	1.25	.562	2.25	3.57	4.72	18 lb., 4 oz.
M16	16.88	7.37	5.12	11.8	6.75	4.56	.78	1.12	1.25	.562	2.25	3.57	4.72	26 lb.



Client Assembly Photos



A Perfect Fit!



Submodular Studio Console Loaded Up and Ready to Rock!

