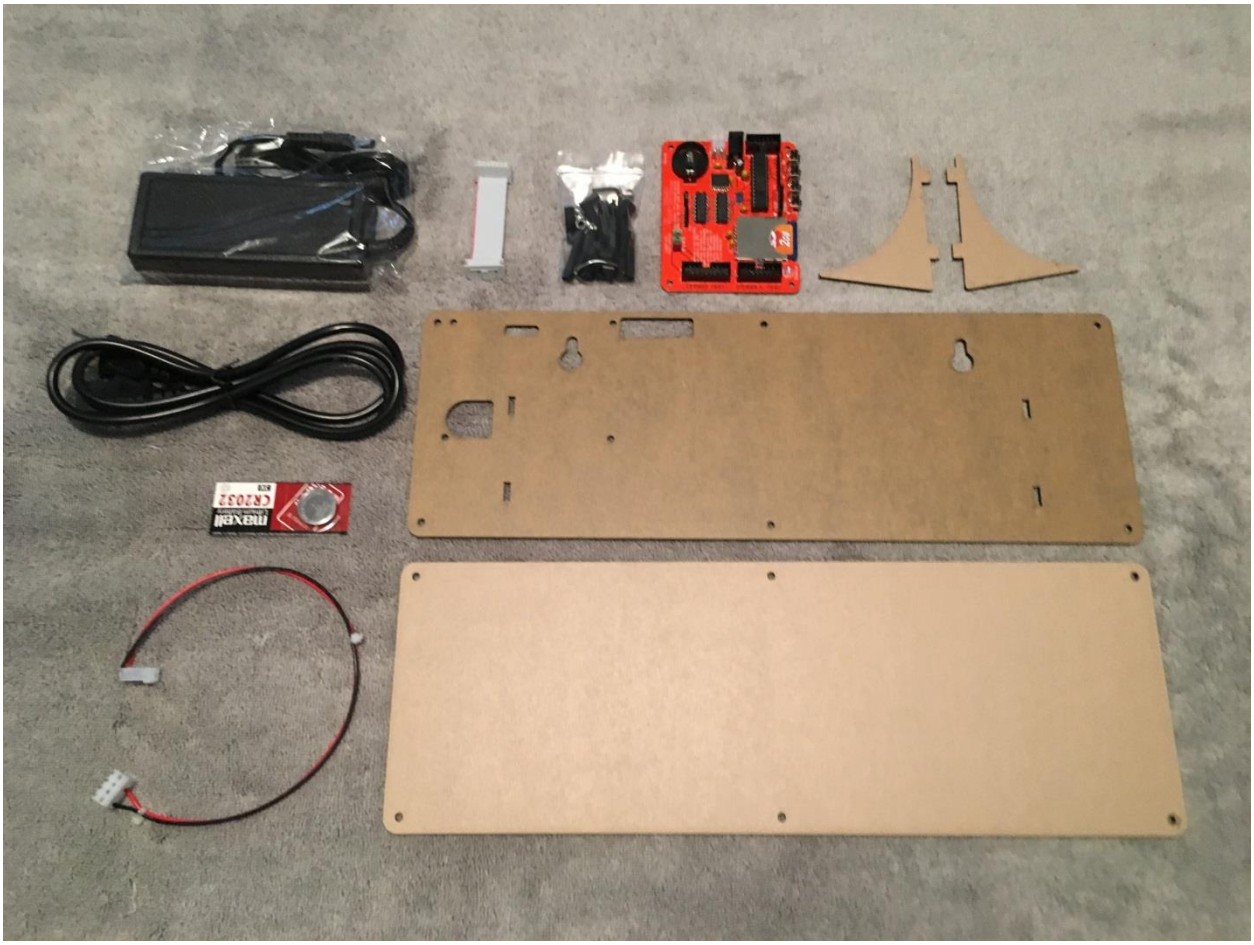
RUN-DMD small panel assembly guide

v1.1



The kit includes the following:
- 4pc set of custom, laser cut acrylic panels with detachable desktop legs
- Run-DMD EDGE board (modified with a lower profile terminal block to supply power to the stern display)
- 8amp, 5v power supply w/ ac cord
- 2032 lithium ion disc battery
- 2” long data cable (14-pin)
- 10” long power cable, (2-pin female molex to 4-pin female molex)
- M3 x 20 mm black oxide button head screws (qty: 6)
- M3 x 8 mm stainless flanged button head screws (qty: 14)
- M3 x 1 mm nylon washers (qty: 4) **[not shown]**
- M3 x 7 mm nylon round spacers (qty: 6)
- M3 x 12 mm nylon hex stand-offs (qty: 4)
- M3 x 20 mm nylon hex stand-offs (used for "thin" desktop configuration) (qty: 6)
- M3 x 30 mm black nylon hex stand-offs (used for desktop or wall mount configuration if your panel has the cable restraint connector) (qty: 6)
- 2mm (M3) Allen key tool

NOTE: The only thing not included in the kit (and required) is an actual Stern LED display panel

BEFORE STARTING

It's a good idea to ground yourself (regularly) and discharge any static electricity prior to handling the both the display and run-dmd boards. If you own a ESD (electro-static discharge) strap, wearing one can greatly reduce damaging the electronics on the boards. Also, make sure you have a clear work space that is large enough to assemble everything. Laying a soft cloth or towel down first will help to avoid damaging/scratching the acrylic panels.

STEP 1:

Peel the protective paper off of both sides of the rear acrylic panel. One side (the backside) of the panel has a matte finish to help keep your clock from looking like a greasy mess when your friends pick it up to admire it :)

NOTE: When handling the acrylic panels, try and grasp them by the edges when removing the protective paper (and when handling them in general) to avoid fingerprints. Some static will be generated when peeling the film (grounding yourself from the beginning will help reduce the dust from gravitating to the acrylic panel.

You may also notice some white 'dust' on the pieces. This is residue from the laser cutting and can be easily removed with a soft, lint-free or microfiber cloth. I tend to use both a microfiber cloth and a 3D Swiffer. Do not rub the plastic hard, as you'll only risk scratching it and building up more static.

STEP 1a (optional):

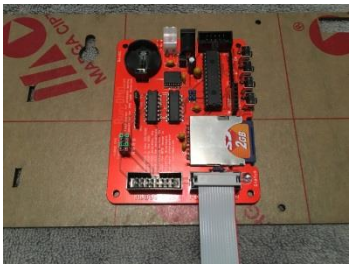
If you plan on setting the clock up on a desktop, you may find it easier to attach the enclosed "legs" before any assembly is completed. The tolerance between the slots on the rear panel and tabs of the legs has been engineered to be very tight and provide a sturdy base. And like the rear panel, one side of each of the legs is glossy, and one side, matte.

Tip: They have been cut so that you assemble the clock with either the matte sides facing outward (or inward) as you so desire.

STEP 2:

With the cut-outs positioned on the left side (as shown in the image here), insert the (4) of M3x12mm stainless screws through the acrylic panel, place the 1mm washers on the other side of the panel and secure them to the (4) M3x12mm hex stand-offs using the provided Allen key tool

NOTE: When tightening the screws, be sure NOT to overtighten and risk cracking the acrylic panels. My suggestion is to use your fingers to "snug" everything up and then using the Allen key, apply another ½ to 1 full turn to snug them up. In building these kits, I've found that I can securely tighten everything with the exception of the black oxide M3 x 20mm screws by hand.

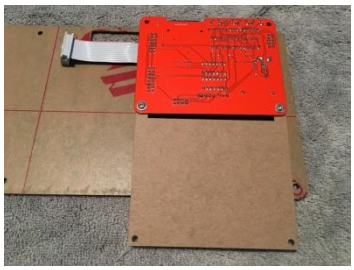


STEP 3:

Attach the 14-pin wide ribbon cable to the Run-DMD EDGE board into the socket labeled "PINBALL DMD". The cable is keyed so that it can only fit one way. The red (pin 1) stripe on the cable should be located near the status LED (right side of the cable, as shown in the image to the left).

STEP 4:

Align the 2 extended tabs of the insulator sheet between the hex stand-offs and the Run-DMD EDGE board as shown and secure the components using (2) of the M3x12mm stainless screws. Fold the insulator sheet up, securing it to the remaining 2 hex stand-offs (over the Run-DMD EDGE board) using another (2) of the M3x12mm stainless screws.

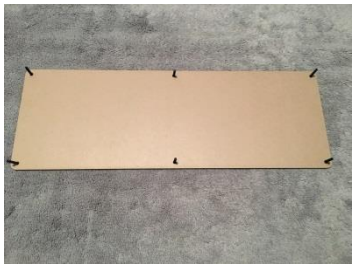
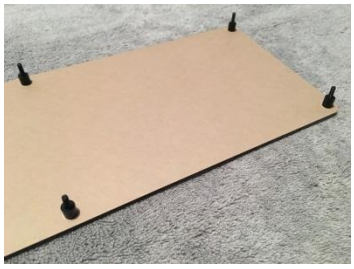
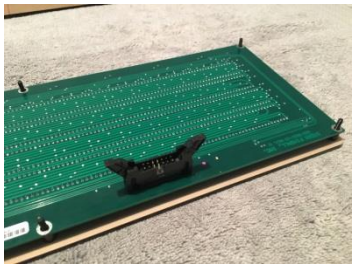
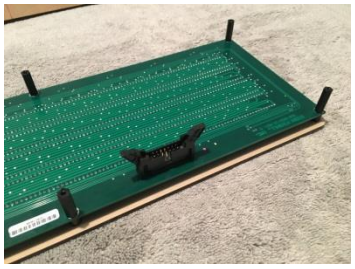


TIP: The fit for the insulator sheet is rather tight (and will be corrected in a later run), however if you position it on top of the board and then screw it down, you should have enough slack to fold it over and secure it to the top screws so that it covers the back side of the Run-DMD EDGE board

NOTE: Due to the tight tolerances used in the clock assembly, this insulator sheet has been included to prevent any unnecessary electrical contact between the backsides of both the Stern display panel and the Run-DMD EDGE board

STEP 5:

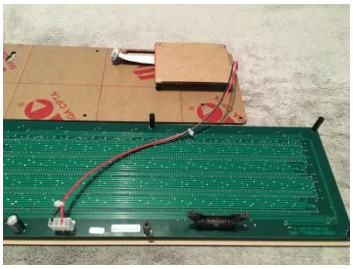
Peel the protective paper off of both sides of the front acrylic panel and attach it to the Stern display panel using the (6) M3x20mm black oxide screws, (6) 7mm round spacers and (6) M3x20mm hex stand-offs. The 7mm round spacers, sandwiched between the front panel and the display, provide enough clearance to keep the display from making contact and rubbing against the acrylic panel

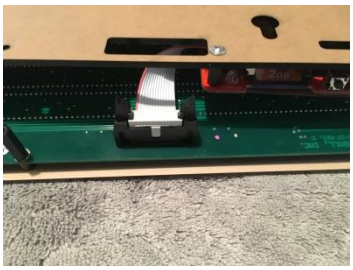
NOTE: if you plan on hanging the clock on the wall and your Stern display has a restraint clip surrounding the 14-pin connector (as shown in the 3rd image above), you will need to use the (6) longer (30mm) hex stand-offs instead of the shorter (20mm) ones. This will increase the clock's overall "depth", but protect, and conceal the connector.

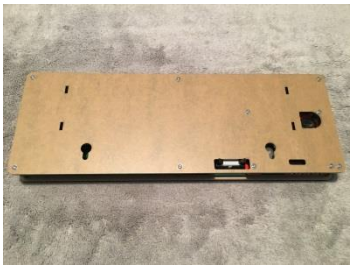
STEP 6:

Connect the 2-pin end of the provided power cable to the Run-DMD EDGE board and the 4-pin end to the display. The connector has been keyed to only fit one way (the black wire connects to the terminal labeled '-' on the Run-DMD board) and the 4-pin end of the power cable to the stern display as shown.



With a half twist, connect the 14-pin data cable to the back of the display. This end of the cable is also keyed and can only fit one way.





STEP 7:

Finally, secure the two halves together from the backside of the rear panel using the remaining (6) M3x12mm stainless screws

Troubleshooting

If you see the following after powering on the clock for the first time, unplug the power and then perform the following:

Press and HOLD the button labeled '+' (which is the second button from the right edge when the display is facing you) while powering up the clock until you see this image.
Then press the 'OK' button (the one closest to the right edge) to lock in the settings.

Removing the desktop legs

The acrylic pieces used in the kit, while sturdy, are still somewhat brittle. If you wish to remove the legs, I recommend the following procedure. Separate the panels (by removing the 6 screws holding the two halves together) and then disassemble all of the components from the rear panel until the legs are the only parts attached to the rear panel.

Setting the panel on a flat surface with the legs facing upwards, press down firmly and evenly (as shown here) to [pop] each of the legs out of the slots. Afterwards, pull them upwards to completely remove them.

DO NOT attempt to remove the legs by grasping and pulling them out of the rear panel (as shown in the images below). Doing so will most undoubtedly break them (as shown in the right image). As the larger tabbed section comes free, the stress applied on the rest of the leg will result in it breaking into two pieces, leaving the smaller section still locked into place.