

# Designing a Series100 Back Panel

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The two ends of the Series100 enclosure are the same so strictly speaking you could put a “front” panel on both ends if you like, but often you don’t need the space or the cost of another circuit board. To fill this need for a simpler solution, the Series100 design point includes support for a back panel. Back panels are the same shape and size as front panels but they are made from a single piece of opaque acrylic and have no associated circuit board or PCB mounting holes.

Since the design is so simple you could just cut out a back panel piece by hand. You could drill it for connectors that have a round mounting hole, like a barrel jack. Then again, some connectors, like USB, have a more complex cutout shape, and the panel itself is a squashed hexagon, not rectangular. These additional complexities mean that, for me at least, getting a laser cut panel will result in a much better looking project than if I tried to fabricate the back panel by hand.

Use the steps below to create the back panel design files. Note that we’re still using Eagle even though we’re not designing a circuit board.

1. Using Eagle CAD create a new schematic file. Add the component “SERIES\_100\_BACKPANEL” (SB0029) from the “StdBxLibrary.lbr”. Place the component anywhere on your schematic.

**NOTE: At this time the SERIES\_100\_BACKPANEL is in the “StdBxLibrary\_BETA\_.lbr” until it has been validated.**

2. Click the “Generate/Switch to Board” button. You will get a dialog stating that your board file does not exist. Click “Yes” to create the board file from the schematic.
3. When the layout editor opens it will show the default board outline generated by Eagle. Delete the default board outline.
4. Click the “Layer Settings...” button and show layers 51, 244, and 246. Click “OK”.
5. Move the Series100 back panel so that the component origin is on the layout editor origin (the cross-hair). Once the board outline is moved you can click the “Zoom to Fit” button to make the board outline fill the edit window.
6. Click the “Switch to Schematic” button to go back to the schematic editor.
7. In the schematic editor add the rest of your back panel components. Components designed specifically for the back panel are noted in the component description. Most other components will not work since they mount to the PCB which is not there in this case.
8. Switch back to the board layout editor and place the components that you added. You don’t need to connect the components on the schematic or route them since there is not circuit board. Also, the components have an outline on the tDoc layer showing the size of the component. Don’t place components too close to the edges of the panel.
9. You can get a preview of your front panel layout by clicking on the “Layer Settings...” button and making layers 244 and 246 visible. Click “Apply”. This might give you a very cluttered view. To simplify the edit window and see the back panel more clearly, click the “None” button, then re-

enable layers 244 and 246 and click “Apply”. Now you can see just the back panel items. When you are finished editing which layers to view, click the “Ok” button. Note that you cannot edit layers that are not visible.

10. Once you have your front panel laid out you can output the StdBx laser cutting and engraving files. NOTE: Just like outputting GERBER files, you do this only when your design is ready to be fabricated.

To output the StdBx files, click the “Run ULP” button in the layout editor. In the dialog that pops up choose “cam2dxf.ulp” and click “Open”. Next an open-file dialog will appear. In this dialog choose “StdBxSeries100.cam” and again click “Open”. Next another dialog will open with a Help tab. Click “OK” at this dialog. You will see some activity in the layout editor window, but pretty quickly that stops. If you then look in the same folder as the schematic and board layout you will see two new files, *myBackPanelDesign\_Bottom* and *myBackPanelDesign\_Top*. For the back panel you will only use the *myBackPanelDesign\_Top*.

11. That’s it. You have designed your back panel.
12. See “**Ordering the Back Panel**” to get your back panel fabricated.