

Assembling the Bourns PTL adapters is fairly straight forward. However, this guide includes a few tips to ease the assembly process.

Tools required include a standard soldering iron suitable for electronics work, a small flathead screwdriver, small needle nose pliers, and a set of sharp cross cutters for snipping the SIL header pins. An optional pair of bent nose tweezers can also prove useful in aligning the pins.

The general assembly process involves soldering SIL pins and the PTL into the adapter board, then soldering on the spacer board. It's much more efficient to perform these steps batch-wise for the entire kit.

Please note that the photos included here are from the original prototype boards which may look slightly different than the production boards you have purchased.

- 1) Lay out the Spacer boards, all oriented in the same direction, on the include EVA foam sheet.



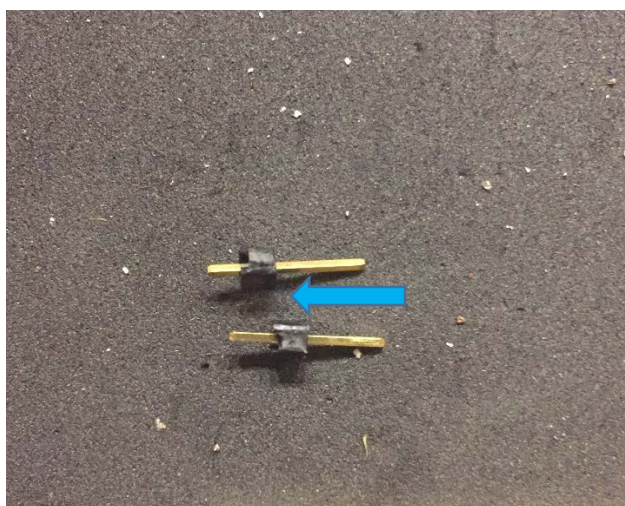
- 2) Layout the required SIL pins for each board: 2 (two) double pins, and 3 (three) single pins for each board.



- 3) Note if you need to cut pins from a row of SIL header pins, the easiest way is as follows: Hold the group of pins you are cutting, squeezing the long side of the pins firmly between your fingers. Using the cross cutters, snip about half way through the v-scored notch on the pin row. This will leave the pin body intact, and prevent the cut pin from shooting out of sight.



- 4) For the single pins, better slider alignment can be achieved if you adjust the length of the pins protruding from the pin body. Normally, the pins have about 1/3 length under the body, and 2/3 above it. Holding the pin between your thumb and finger, press the short end of the pin down on a hard surface and slide the body down slightly. The end result should be something like 1/4 of the length is below the body, and 3/4 is now above it. This is a minor adjustment, but prevents the slider from touching the pins and not sitting flat on the adapter.



- 5) Now, using the Spacer as a jig, insert the double pins into each set of double holes on the ends of the spacer board. Insert the

LONG side of the pins down into the foam. Try to insure the pins are vertically straight and not leaning.



- 6) Insert the single pins into the holes labeled CTS, inserting the LONG side of the pin into the foam. Try to insure the pins are vertically straight and not leaning.



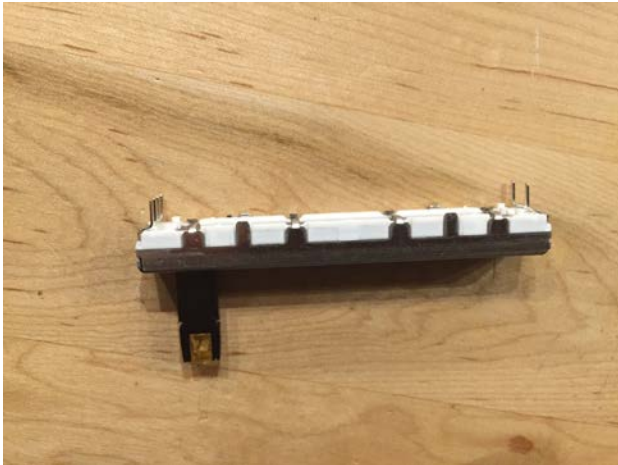
- 7) Now for the toughest / most 'fiddly' part: fit the adapter board onto the pins. There will not be very much of the pin protruding from the adapter board once fitted. It is easier to work from the side with the two CTS holes first. Lean the adapter down onto this side, aligning the pins. Sometime rocking back and forth can help trap the pin in the hole. The final two pins are typically the hardest ones. Using tweezers to shift these around can help. After a few you'll get the hang of things.



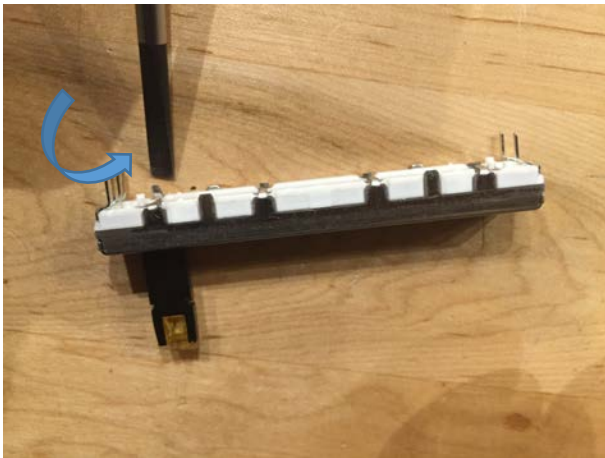
- 8) Once the adapters are fitted on top of the pins, proceed with soldering in all seven pins into the adapter boards.



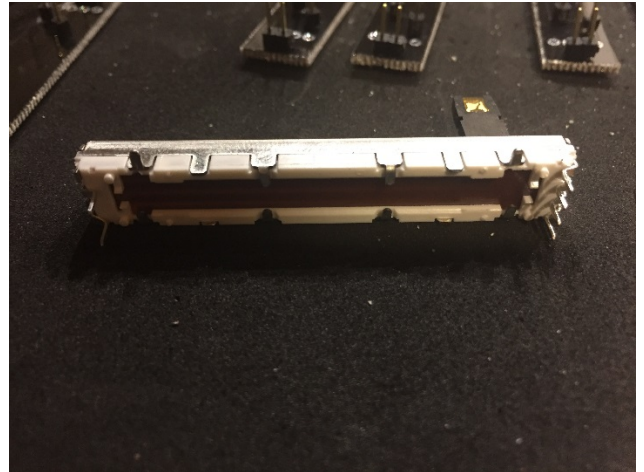
- 9) Once complete, remove the adapter board with pins from the spacer. It is a good idea to clean any leftover flux from the top of the adapters.
- 10) Before installing the PTL sliders to the adapter board, the PTLs must be slightly modified to prevent the case from shorting to the CTS pins. It is possible to install the sliders without performing this step if great care is made to assure the case doesn't touch the pins. But, I've found it's much easier just to bend the PTL retainer tabs out of the way.



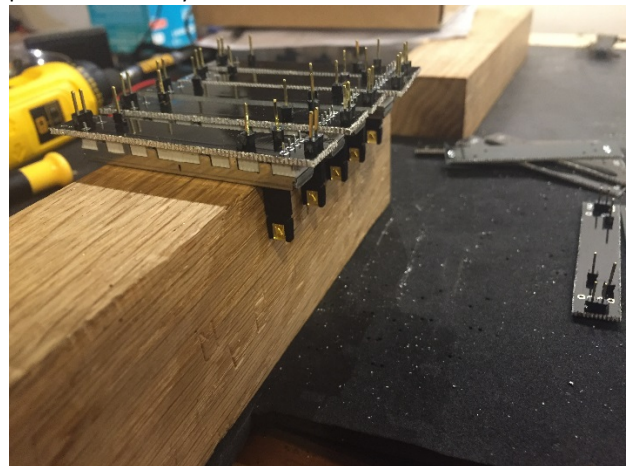
- 11) With the PTL slider laying on its side with the four pins to your left and shaft pointing towards you, pry open the lower retainer tabs with a small flathead screwdriver.



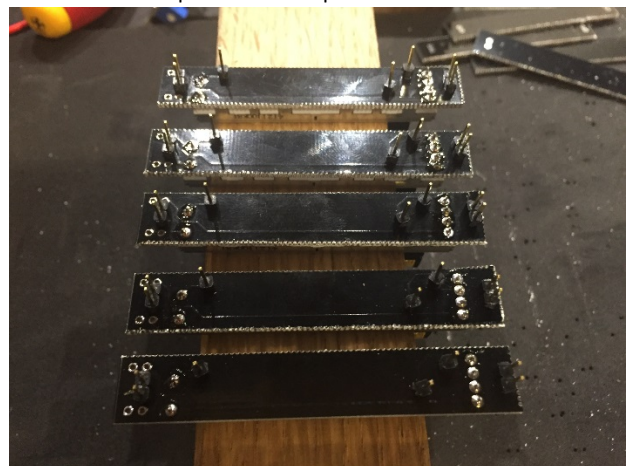
- 12) Once bent away from the body, use needle nose pliers to complete a 180° bend so the tab is now pointing away from the slider.



- 13) Next, fit the modified PTL slider into the top of the adapter board. They only fit in one direction. Using a block of wood or edge of a bench, lay the sliders upside down with the shaft pushed all the way to one side.

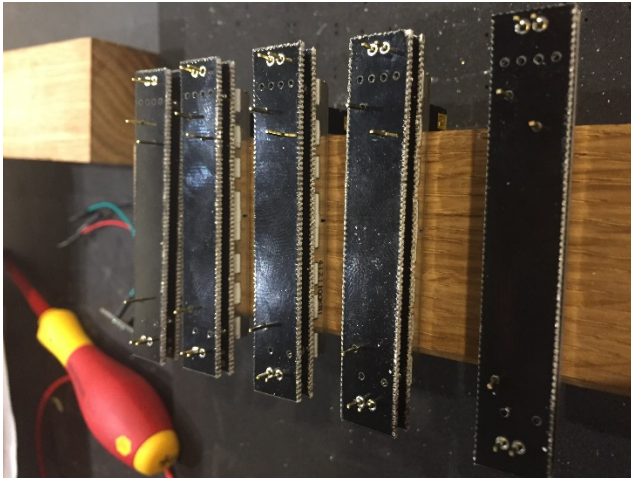


- 14) Solder in the PTL pins to the adapter board.

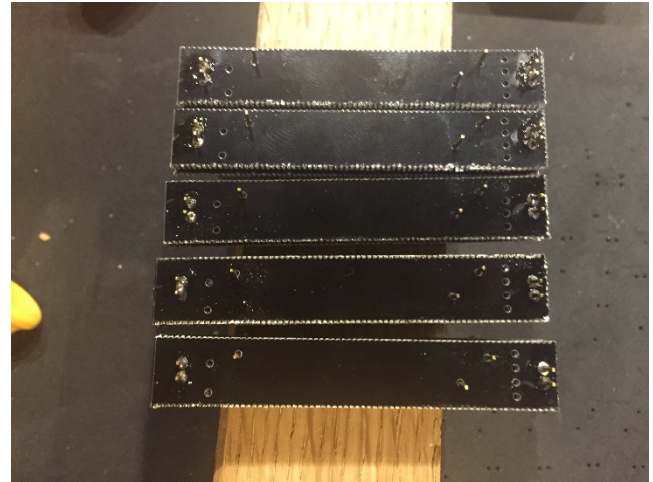


- 15) With the PTL pins soldered, now is a good time to clean any flux from the boards.

- 16) With the boards clean, fit the spacer boards to the PTL adapters, again arranging them upside down on a surface edge.



- 19) Once the fit is good, solder in the remaining pins. Then, finally, reflow the initial pin that was tack-soldered in order to insure a good joint.



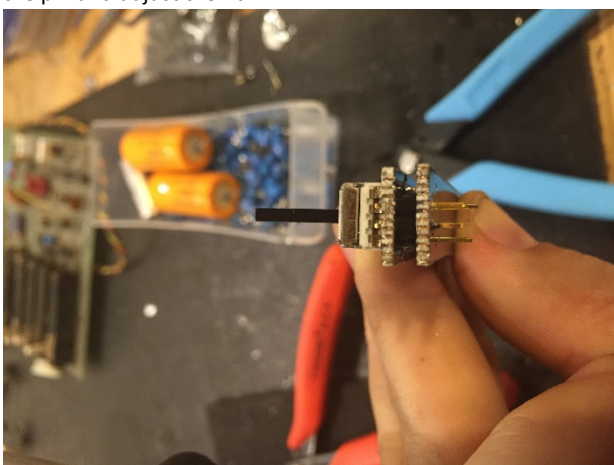
- 17) To achieve a good board alignment, tack-solder in one of the pins on the edge of the Spacer board.



- 20) Clean any remaining flux from the bottom of the boards. The PTL assemblies are now ready to install into the ARP board.

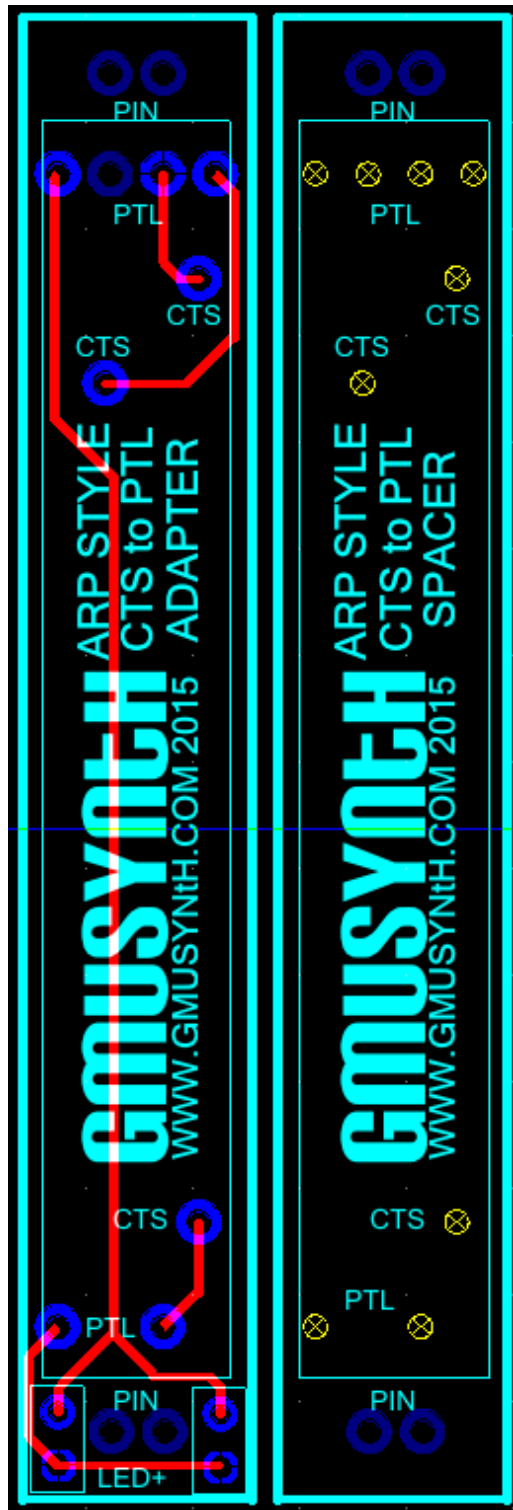


- 18) Inspect the assembly for board alignment. If necessary, re-wet the pin and adjust the fit.



- 21) The adapters include holes for daisy chaining power for the LEDs. Each side of the adapter includes a positive and ground that is repeated on the opposite side. These are intended to be wired together with a jumper soldered into the top of the PCB (which are plated holes.) Right angle connectors can be used for wiring in SIL connectors for connecting between boards.

PTL ADAPTER AND SPACER:



LED DRIVER BOARD:

