QCX Extruded Aluminum Case
By: Rick Williams
VE7TK
(Revised: February 25, 2018)

First my thanks to John, PD7MAA, for his excellent article on installing the QCX in a small aluminum case.

http://pa-11019.blogspot.ca/2017/08/qrp-labs-qcx-5-watt-cw-trx-kit.html

The case I used was ordered from http://www.banggood.com (P.N. 1211844) and measured 110 mm long by 88 mm wide by 38 mm high.

This case requires NO modification to the **length** of the 12mm M3 nylon spacers used with the kit. The existing spacing is almost a perfect fit in this case. However, the case will need some minor modifications to fit the legs and accommodate the LCD display. (See my additional note below.) These are well documented on John's blog.

Modifications made to my build included:

1. I mounted the potentiometer, encoder and different push button switches off- board.
2. To enable easy access I added headers for ALL controls mentioned in (1) above.
3. I did NOT use the power connector that came with the kit. Instead I ran a short power cord with *PowerPole* connectors.
4. As suggested by PA7MAA, I did not use the stock BNC connector.

Hans (G0UPL) has planned ahead for off-board mounting of the controls (see section 3.68 / Page 61 of the manual). By mounting the pot and encoder off board I did not need to build extenders. However, the pot shaft needed to be shortened about 5 or 6 mm (I used a cut-off disc and my Dremmel Tool). The amount depends on your choice of knobs.

> **Note:** I found that the off-board mount for the controller was too close to the board edge to fit into the case. I modified the top of the case close to the controls by removing the "grove" using the same method as described by PD7MAA to accommodate the display.

I replaced the on-board style push buttons with some inexpensive chassis mount NO (normally open) momentary contact switches.

In the space set aside for the power connector I located a toggle switch. I routed the power cord through a grommet, under the PC board and up through the location of the on-board potentiometer to the switch on the top side of the PC board.

Originally I labelled the case and sprayed it with coating of clear satin paint. It became quickly evident that for some reason the clear paint would not adhere to the case.

I sanded off all the clear paint, cleaned the case with paint thinner and primed it with a metal primer. I followed this up with 2 coats of black glossy paint. Labels were then applied and 2 coats of clear gloss paint followed.

You'll note that the QCX is now black in colour to match the new addition to my QRP station, a **Four State QRP Tuner**. http://www.4sqrp.com/4stuner.php

QCX – Showing On/Off switch and LM7805 heatsink attachment
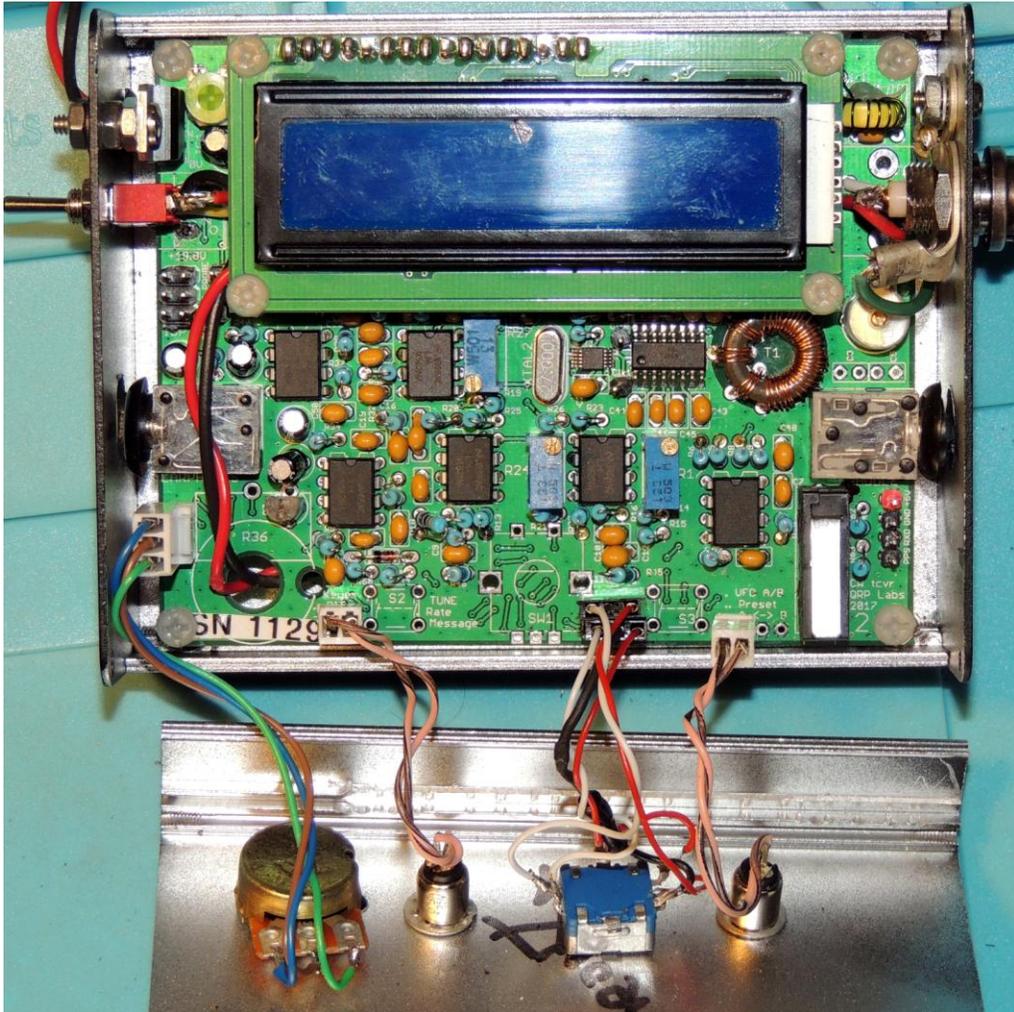
Interior view showing right side and headers for off-board connectors.
Note: The 7805 is attached to the left side of the case as a heatsink.
I added two 4-40 nuts as spacers.

I used a Molex (pins are readily available) polarized 3-pin header and housing for the audio, 2-pin polarized housings for the push-buttons (built my own header) and built a polarized header for the encoder. Here's what the board looks like without the housings plugged in.
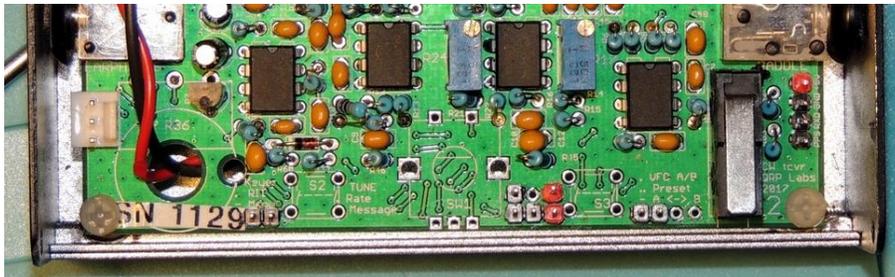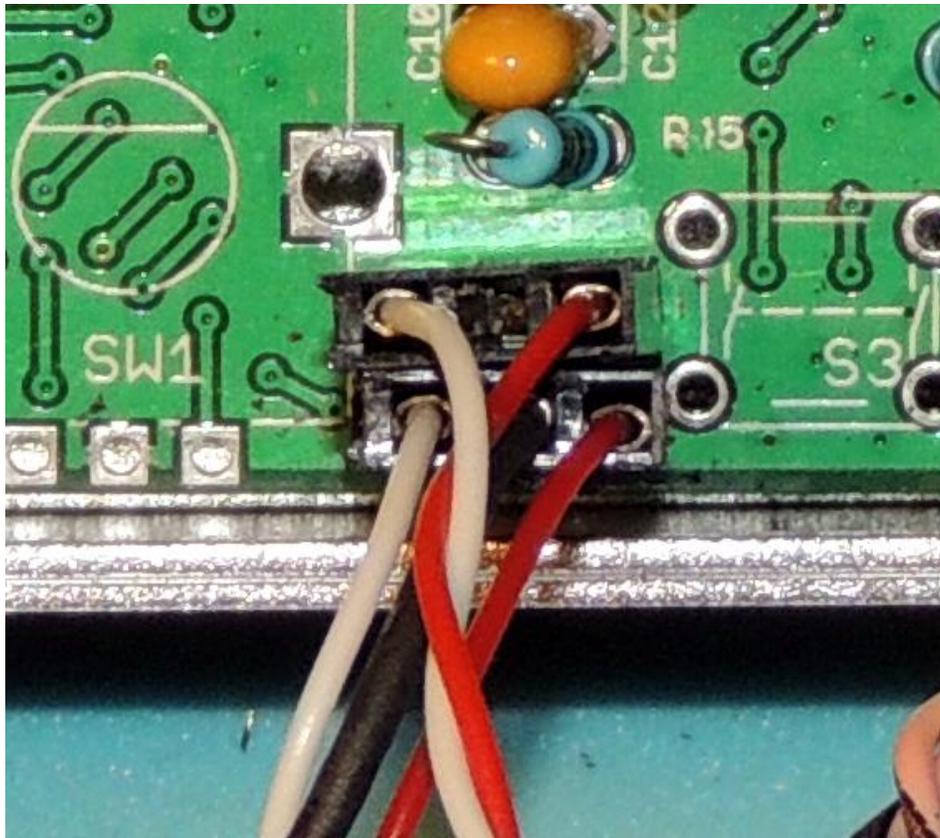
For the encoder connection I used a pair of RED pins from a breakaway header on two of the encoder connections and a similar RED pin on the GPS (5 VDC) header. Polarized headers would have been nice BUT space was too limited. The encoder RED header pins mate with the RED wires on the appropriate housings.

For the push-button interconnection I used a I used a polarized 2-pin Molex housing. Since space was limited AND these connections do not require a polarized plug, I cut off the polarizing ears with side-cutters.

You can see that the off-board controls are not always directly over the on-board location. This was done to accommodate the headers and the larger knobs. The following are the hole locations on my build. All dimensions are from the left side (audio pot side) of the top panel and refer to height from the front exterior edge of the top panel.

Control	From L-edge	From Front edge
Audio Pot	0.75 in / 19 mm	0.77 in / 19.6 mm
Select Button	1.5 in / 38 mm	0.75 in / 19 mm
Tune/Step	2.4 in/ 60 mm	0.82 in / 21 mm
Exit Button	3.2 in/ 80 mm	0.75 in / 19 mm

Note: All these measurements are approximate and apply to my installation.
PLEASE check your installation carefully before drilling.

As luck would have it, I recently purchased a 1 kW LDG autotuner and was offered a free QRP balun! So here's the complete station (less antenna, paddles, feedline and battery)!

Finally a *HUGE* thank you to Hans Summers, G0UPL, for a great kit and fantastic support!

73, Rick
VE7TK