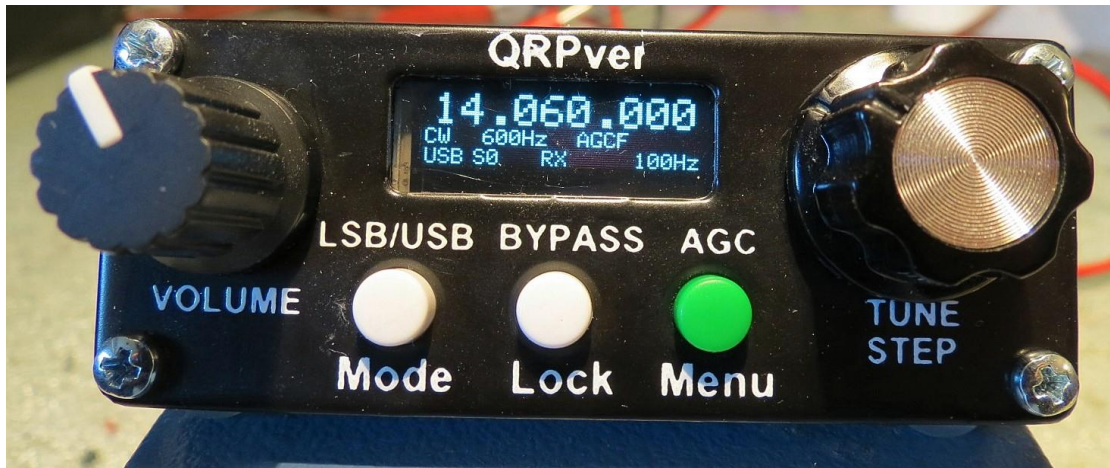


## QRPver 20M Transceiver Review

By Edward R. Breneiser, WA3WSJ

I was looking around for a door prize for the Boschveldt QRP Club MOC 2018 Event and found a unique QRP site. The website is QRPver.com and they sell transceivers, kits etc. Right away the QRPver caught my eye as it's a very small rig with lots of features many of which are on larger radios. The price is right at \$190 USD so I ordered one on 20m.



After about a month or so the radio arrives and I check it out. Again, the first thing I notice is the size. At 4" x 2-3/8" x 1-1/8", this thing is very small. It comes with a power cord and I also ordered a microphone as most of the connections to the radio require a 3.5mm 4-pin plug. Here in the US most are 3-pin plugs.



So I turn it on and try the menu system. Seems like all I can do is change menus by rotating Tune/Step Knob. The directions indicate that by pushing the Tune/Step Knob in each menu item may be changed to your preferences, but nothing for me. So after a few emails to Yurii, I have permission to check out what I think is a bad Step switch. After opening the radio I do indeed find the switch on the rear of the encoder pushed back. The small fingers holding the switch on to the encoder are all bent back as if it took a hit in shipping. So I snap the switch into position and bend the fingers down to keep it in place.

I again turn on the radio and now the frequency step value changes on the display! All seems to now work with the menus. After checking out the menu systems, first thing I do is to check the power output and it's a good four watts. I also plug the microphone in and it works so now on to CW Mode. I now need an adapter to go from 3.5mm 4-pin male to 3.5mm 3-pin female as all my paddles have 3-pin male plugs. After checking a few local stores, I find Staples selling iPhone 3.5mm 4-pin ear buds buy one get fifty percent off the second one. So I buy two ear buds and a 3.5mm female splitter for a total of \$26.00 USD. Now I have to cut and wire so I cut the ear buds off one set and cut one 3.5mm female wire off the splitter adapter and wire both up for my paddle adapter. The other set of ear buds I save as they work with the rig.

I now plug the paddle adapter cable into the rig and my paddles in the other end and try to send Morse Code. Well, it didn't go very well so I go to the menu system and adjust as follows:

CW Shift- 600hz

CW Tone Control- ON

CW Key Interval- 80

TX by CW Key- 20 (wpm)

I now can send Morse, but the keyer is a little clunky and takes me a few minutes to get use to it. After a few minutes I'm sending pretty good Morse, but with some mistakes. They need to clean up the timing of the keyer circuit, as it's good, but needs work. Maybe if I play around with the menu items it would improve. You may also use a straight key with this rig. But, if you want to change the keyer to a straight key, you have to go into the menu system and change "cw key interval" to "manual." I then put this function back to "80" for my paddle, but I had to reboot the radio before it would change from straight key to the paddle function.

I now check out the sensitivity of the receiver. They spec it at .4uv and that's around where it is for my radio. Maybe .35uv and I do hear a signal at .15uv and a workable signal at .25uv. I listen on air in the SSB mode and the audio is loud really clear!

Here are the specifications for the transceiver:

- Power supply in the 10-14 (13.8 Nominal)
- Current consumption in receive mode with an average volume of 100 mA
- 600-800 mA in transmission mode (mean 700)
- Receiver sensitivity better than 0.4uv
- Transmitter Output Power 3 W nominal. (Max 4 W)
- Low-pass amplifier Output Power 0.7 W
- Intermediate Frequency 6 MHz
- Band crystal filter bandwidth 2.9 kHz at -6dB
- Switchable LP filter (**400-2900** Hz) with a fairly steep slope.
- Carrier suppression more than 50dB
- Suppression of non-operating side, more than 45 dB

**Functional:**

- LSB / USB
- CW / SSB / DIGI
- Two AGC mode (Fast / Low)
- Signal strength indicator (S-Meter)
- Vertical / semi-automatic keyer
- Turn on / off key for CW transmission
- Enable / disable the transmission of AF signal at the input. For digital modes (DIGI-VOX)
- The offset frequency for CW
- Self-control for CW
- Lock encoder
- Indication of low voltage

**Additionally:**

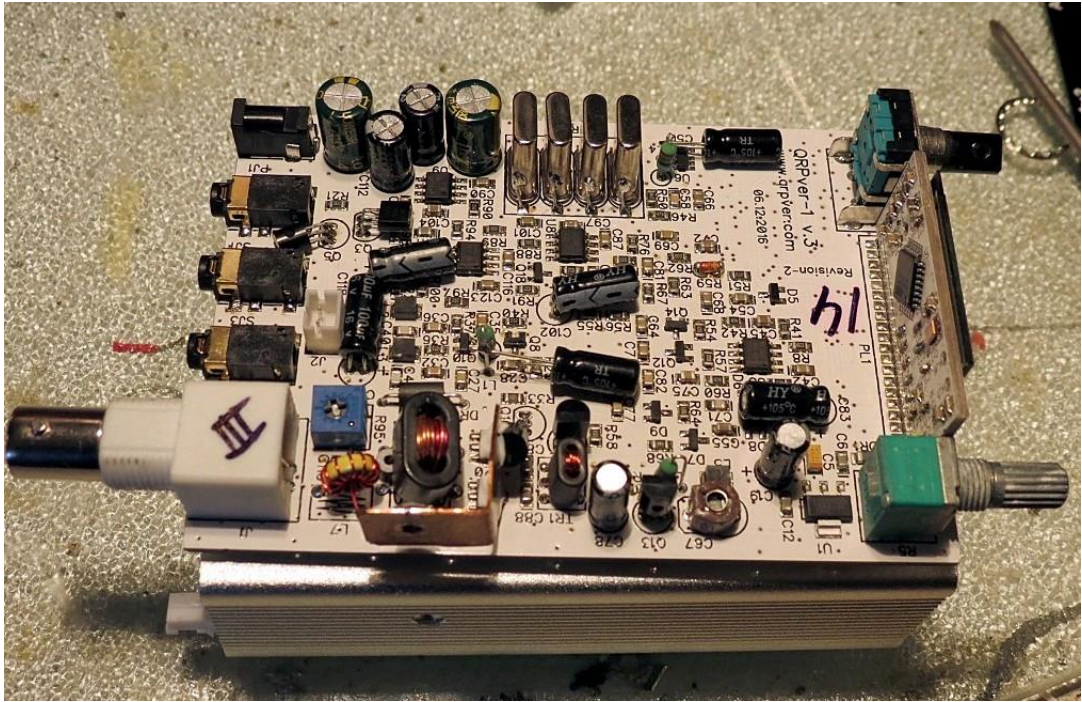
- Volume control
- Encoder
- Built-in speaker

Includes power cord length of about 21" terminating with a 3.5mm DC Plug

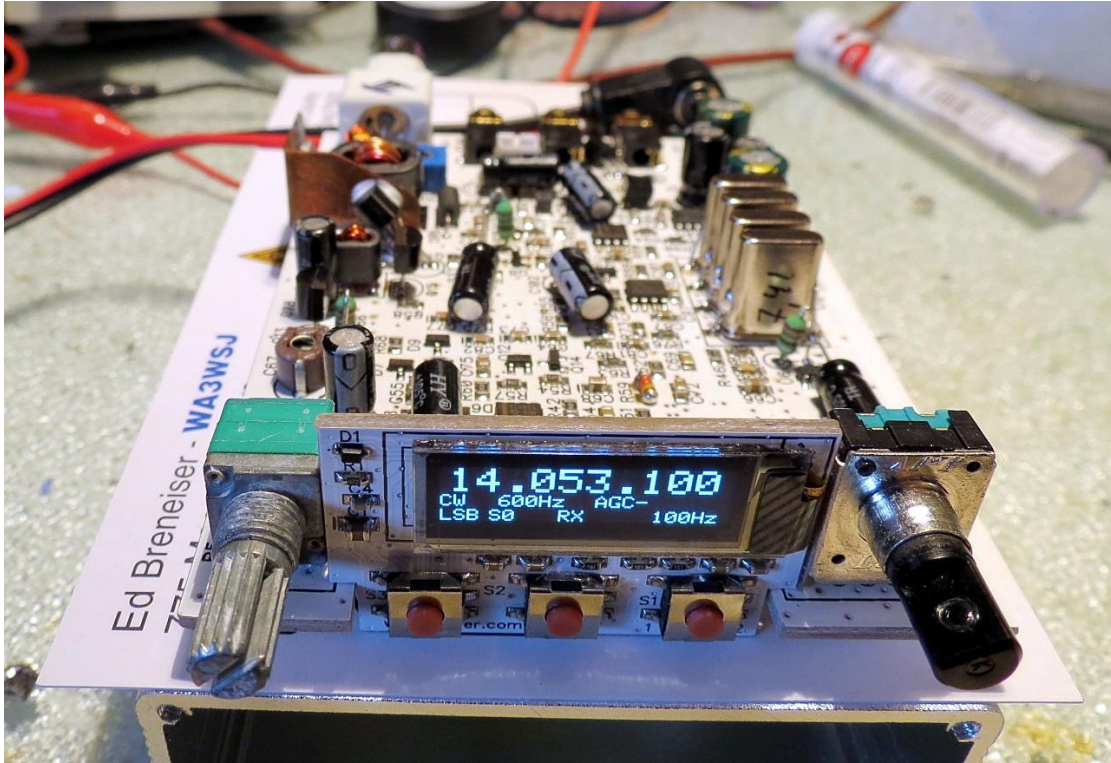


**QRPver 20M Transceiver Rear Panel**





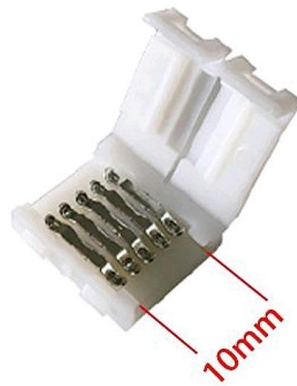
Tranceiver inside built with SMT!



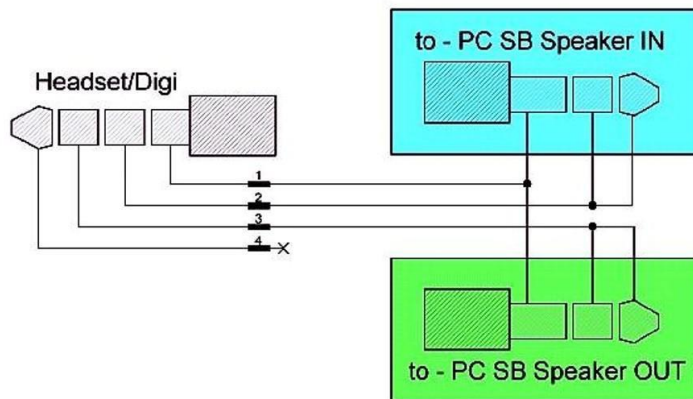
## QRPver 20M Digi Operation on PSK31

Before I can check out how this rig works on any digital mode, I need a digi cable. So I go to the QRPver.com Website and start to order one. The price seems great at \$15 USD so I proceed with the order. But, as I go to check out, the price is now over \$40 USD! Seems like shipping and handling out of the Ukraine is through the roof! So, I cancel the order and start to find the parts to roll my own cable.

I find a 3.5mm 3-pin male six foot cable at Walmart for around \$4 USD and buy one. I then cut it in the center and now have two three-foot cables. These will be my audio in and audio out from my computer. I then go on eBay and purchase ten 3.5mm 4-pin male plugs for around \$8 USD. I then find an LED extension 5-pin plug (20 ea,) on Amazon for about \$8 USD. So my total is now \$20 USD and I have supplies to make additional cables.



My plan is to use the LED connector as a junction box to wire all the 3.5mm cables together or make a Y-Cable one male 4-pin (radio) to two 3-pin male plugs (computer).



Now that I have all the components wired together, here's what it looks like after shrink wrap.



It's time to see how this rig works on a digital mode so I check it out using FLdigi Software. I pick PSK31 as I have used this mode many times in the past and know what to expect with it. First thing I have to do is adjust the menu settings for use with the digital modes.

Digital Settings:  
TX Digi VOX = 10

This may vary with your computer etc.

I connected by little Acer Laptop to the rig through my cable with little success. I could receive find in PSK31, but the VOX just didn't properly work. I tried all kinds of settings on the radio and computer for a few hours. I kept getting false TX no matter what I did to the radio and computer.

I then tried my large Acer Laptop. After connecting the digi cable to the laptop, I was again receiving fine, but no TX? It wasn't falsing TX so that's a good sign. I then made a simple audio adjustment using the laptop keyboard functions and all worked fine! Nice smooth VOX operation with this laptop. So, you'll need to use a laptop with a better sound card then the cheap little laptops have in them.

Yes, this little transceiver works in CW, USB, LSB and Digital modes! The quality of the audio from the speaker will just blow you away. So for less than \$200 USD this little baby does many things and it does them fine.

I'm testing this transceiver because it will be a door prize for the Boschveldt QRP Club MOC 2018 Event. But I like this little thing so much that I plan to buy one for me to use while hiking etc. Yes, I have an Elecraft KX2, but this radio is just to cool not to use it in the great outdoors.

72,  
Ed, WA3WSJ