SIGNALINK USB Modifications

I have had numerous requests for information regarding mods I have made to my Signalink USB, so decided it might be appropriate to write a short article describing these mods, and include a few pictures.

RTTY Interface

My present radio, an IC-7700, like many of the newer radios, requires you operate your radio in RTTY Mode, in order to take advantage of the special receiver filtering available for RTTY. When operating in the RTTY mode, only direct "FSK keying" will work (AFSK will not), and like so many other transceivers, the direct FSK keying line is wired to the same accessory jack on the back of the radio that provides the audio in/out connections for the digital modes, like PSK. When your Signalink cable is plugged into the accessory jack, you cannot access the FSK keying line ☹

To solve this problem, I mounted a 1/8" mini-phone jack in the back panel of the Signalink USB. I wired the jack, thru a 2.2k current limiting resistor, to a 4N32 opto-isolator. The output of the 4N32 is jumpered directly to the Signalink's cable header, accessing the FSK keying line, and ground leads, going to the radio. The 4N32 is mounted to the inside back panel with a small piece of double-sided sticky tape.

For RTTY operation, I prefer MMTTY and N1MM logger software. MMTTY's options, allows you to select direct FSK keying via a Serial/Com port TxD lead, so all you need to do is extend the TxD lead and ground from your computer to a 1/8" mini-phone plug, and plug it into the back of the Signalink. Now, you can simply change between PSK and RTTY modes.

I have included three pictures below that describe this simple mod.

Signalink Performance Improvements

While attempting to use our Signalink USB's for remote access using Skype, several friends and I discovered there was audible tones, and trash in the noise floor. Upon searching the web for an explanation, we discovered Peter-OZ1PIF's article describing several mods that improve it's performance.

Here's a link to Peter's Web page describing his research and mods for the Signalink USB::

http://www.frenning.dk/OZ1PIF_HOMEPAGE/SignaLinkUSB-mods.html

I wish to thank Peter OZ1PIF for all of his wonderful work.

For those of us in the USA, interested in making Peter's mods, I will provide a Mouser Parts List at the end of this write-up.. The improvement in lowering the noise floor and frequency response is well worth performing these mods.

Since I did not have a small inductor to place in series with the 5V USB power, I chose to just bypass the 5V supply line with a 100uf tantalum cap, which seems to work well. A small inductor could easily be constructed by winding several turns around a ferrite bead or small toroid core.

The audio matching transformers I used (ETAL P-3356) were provided by a friend from India, and are not readily available here in the US, so I am providing the part number for the Triad xfmr that Ed, K6ED used when performing his mods. Bend the transformer leads to match the pads on the pc board, and tilt the transformer, so you can solder the inside leads, then bend it down and solder the leads closest to the edge of the PC board. Any good quality transformer should do the job. The Signalink pc board is stenciled showing the primary winding side. Make sure you install the transformers in the proper direction.

The three 220pf disc ceramic caps are used to bypass the USB lines coming from your PC. They are located on the bottom of the PC board. Peter used SMT components, but I am "OLD" and found the disc ceramic caps easier to work with ☺

Mouser P/N	Quantity	Description	Price
553-TY304P	2	600 ohm Matching Xfmr	$5.56
80-T356A475K10AT	1	4.7uf 10V Tantalum Cap	$0.34
80-T351F336K10AT	1	33uf 10V Tantalum Cap	$0.73
80-T350J107K010AT	1	100uf 10V Tantalum Cap	$2.75
81-DE2B3KH221KA3B	3	220pf disc ceramic Cap	$0.14

I have included a couple of pictures showing the yellow tantalum capacitors, and transformers I used.

Good Luck, and I am sure you will be happy with the improved performance of your Signalink.

Thanks Again Peter.

73s/Frank/K7SFN