RI-1 Description:

The RI-1 is a radio interface board designed to be used with the AllStar Link or Ham-VOIP systems.

The RI-1 board is an excellent way of getting a low cost, professional looking interface, with options. This board is designed to be used with several modified FOB's that are currently on the market. The main FOB design is for the SANWU Free Drive USB sound card. This is one of the cheapest non-potted FOB currently for sale. This FOB is easy to modify for use with the RI-1.
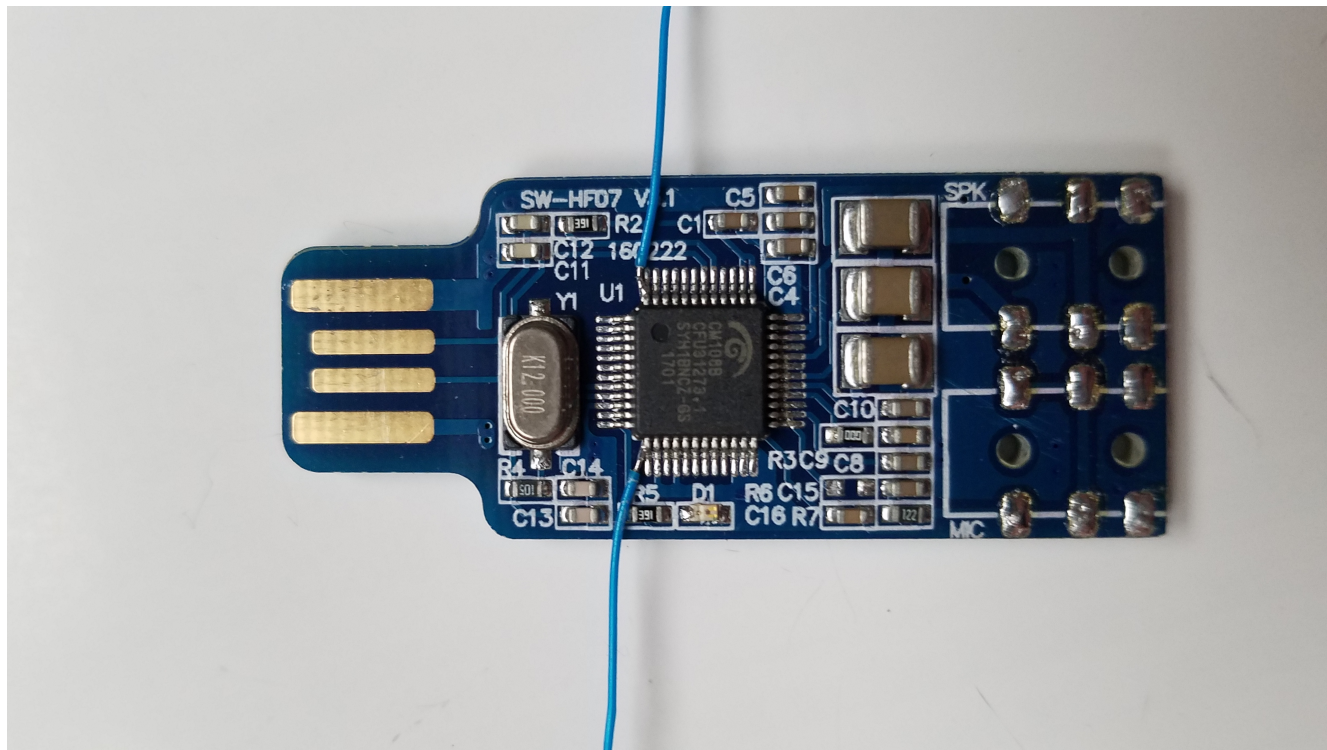
After modifying the FOB it is soldered into place directly on the surface of the RI-1 board. The input is then through a separate USB connector and the outputs are via a female DB-9. The RI-1 board has an onboard audio amplifier based one the LM386 IC, for when you need the extra power to drive a radio that requires more input than the FOB can provide, such as the Yaesu DR-1X. The amount of power amplification is selectable by the supplied voltage from the power jack. (5V-12V) In normal operation the voltage provided by the USB port is plenty to drive most radios. The RI-1 allows for adjustable TX audio and RX audio by adjusting VR1 (TX) and VR2 (RX). PTT is via a 2N2222 transistor.

The DB-9F has taps on 4 pins to allow the end user the option of wiring other options or mods into the radio connector directly from the board. One of the pins tapped on the DB-9 is Pin 9. This pin can be used to supply power for the operation of the board from the DB-9 connector. This allows for the user to provide voltages above the USB 5v to get more audio amplification directly from the radio or repeater being used instead of a separate power supply.

Construction:

There is no specific rhyme or reason to building the board. Just use your best judgment, avoid solder bridges and cold joints. Good technique will yield the best results.

Keep some of the longer leads that will be trimmed off other components for use as connection leads for the FOB to the board. Using normal insulated wire is always an option but not necessary.

For proper use of this board the 1/8" (3.5mm) connectors on the FOB need to be totally removed. Also remove the bias resistor **R6**. A normal fine point soldering iron will work but a hot air soldering station will provide great results with proper use. Connections for the FOB are labeled on the board per use. The USB connections are inline with the pins on the FOBs for the USB connectors. Some FOB's with metal USB connectors will have to have the connector removed in order to connect the FOB up correctly. The SANWU FOB can be soldered directly to the FOB's USB pads. The TX Audio, RX Audio, and Ground leads go through holes directly inline under the FOB on the RI-1 board.
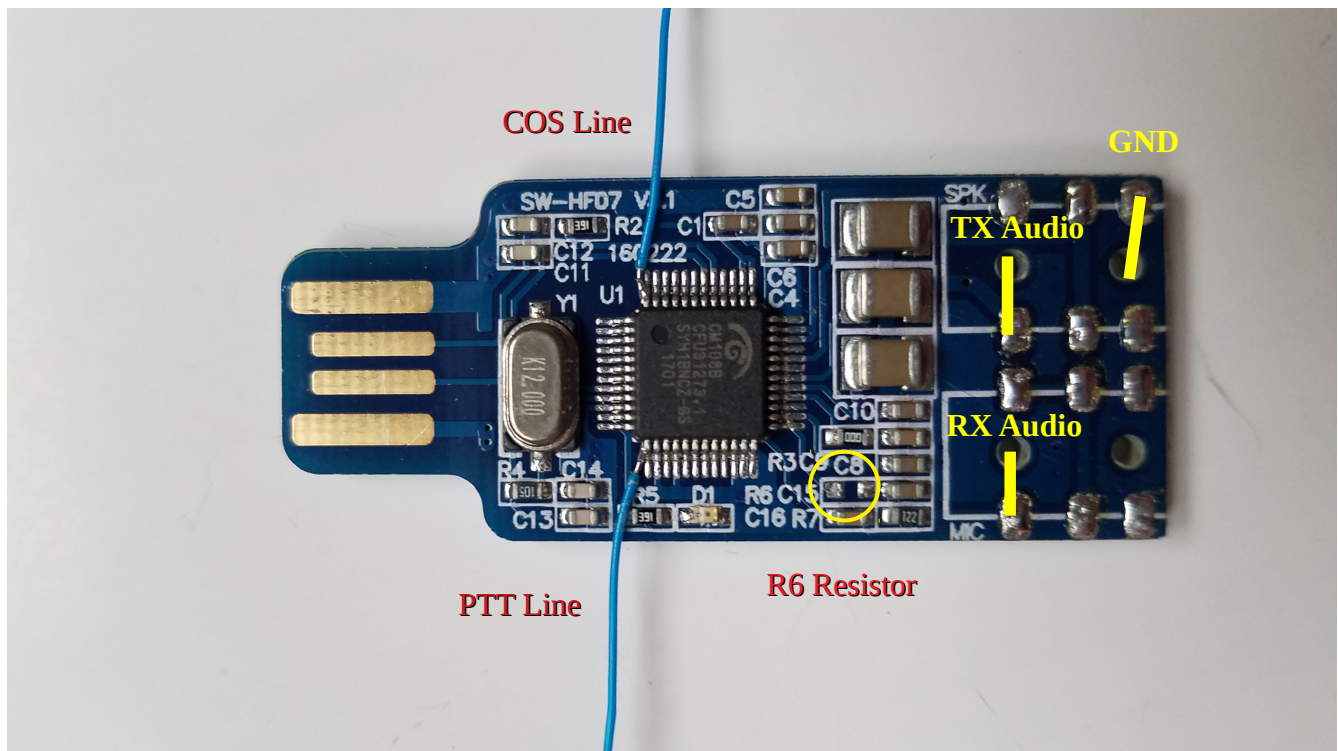
After assembly of the RI-1 board place the jumpers on JP1 and JP2 correctly per your individual use. JP2 is the 2 pin jumper that allows for use of power from the DB9 connector pin 9. If you are not powering the board from the radio then do not jump pin 1 & 2 of JP2 just leave the pins unconnected by placing the jumper on one pin only.

JP1 is the power select. If using the normal power from the USB connector place the jumper on the side marked "B". If powering the board with either the DB9 pin 9 or the power jack place the jumper on side "A".

NOTE: it JP2 is connected and JP1side "A" is jumped then whatever voltage is at DB9 pin 9 will be at the center connector of the power jack.

After this you can proceed to setup the audio levels per the AllStar instructions. If you need more audio to drive a particular radio place JP1 On side "A" and increase the voltage on the power jack up to 12V DC.

DB9 Pins 1, 4, and 7 have soldering pads included on the board for additional options that may be warranted.

The DB-9F pin-out is below:

Pin 1 – Open
Pin 2 – TX audio
Pin 3 – COS
Pin 4 – Open
Pin 5 – PTT
Pin 6 – RX audio
Pin 7 – Open
Pin 8 – Ground
Pin 9 – Open (Power source – optional)