Technical Details & Assembly Note: Advance Sound Card Interface

Sound Card Interface is a simple device to connect your PC to the Radio. In an effort to minimize computer noise entering sensitive radio section, efforts are made to isolate DC and AC paths of the Audio generated to & from sound card.

SC2 is a simple but advanced interface useful for all digital communication, including Echo Link.

Completed SC2 Sound Card Interface:
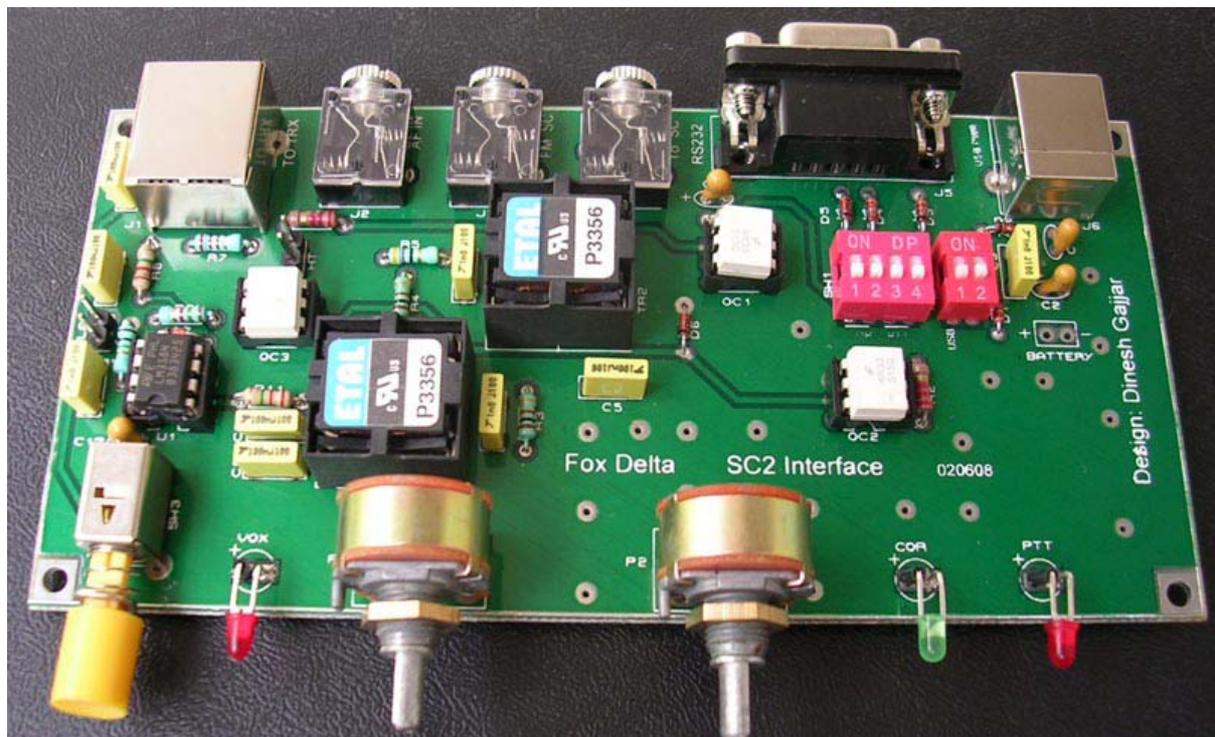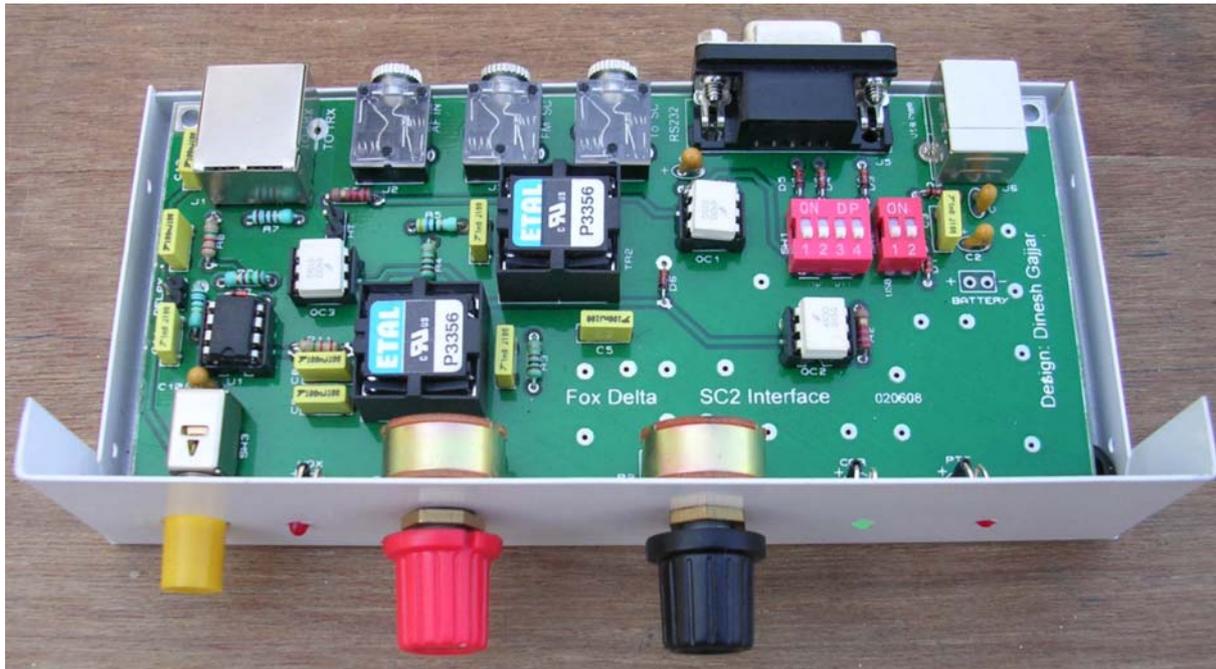
SC2 is now supplied with simple powder coated metal case:

Circuit Details:

Sound card interface is basically designed for use with your radio transceiver. There are lots of free software available for digital mode operation to radio amateurs. This gives a very good reason to start thinking about digital communication. You may find links to free software at:
http://hamradiosoftware.foxdelta.com

Basically, there is not much in a schematic of this interface. Interface is using two 600:600 ohms isolation transformers (Microphone & Speaker line) and Two Opto Couplers for PTT & COR. With this we have achieve an isolation of system grounds between PC and the radio.

Sound Card Interface is basically like this:
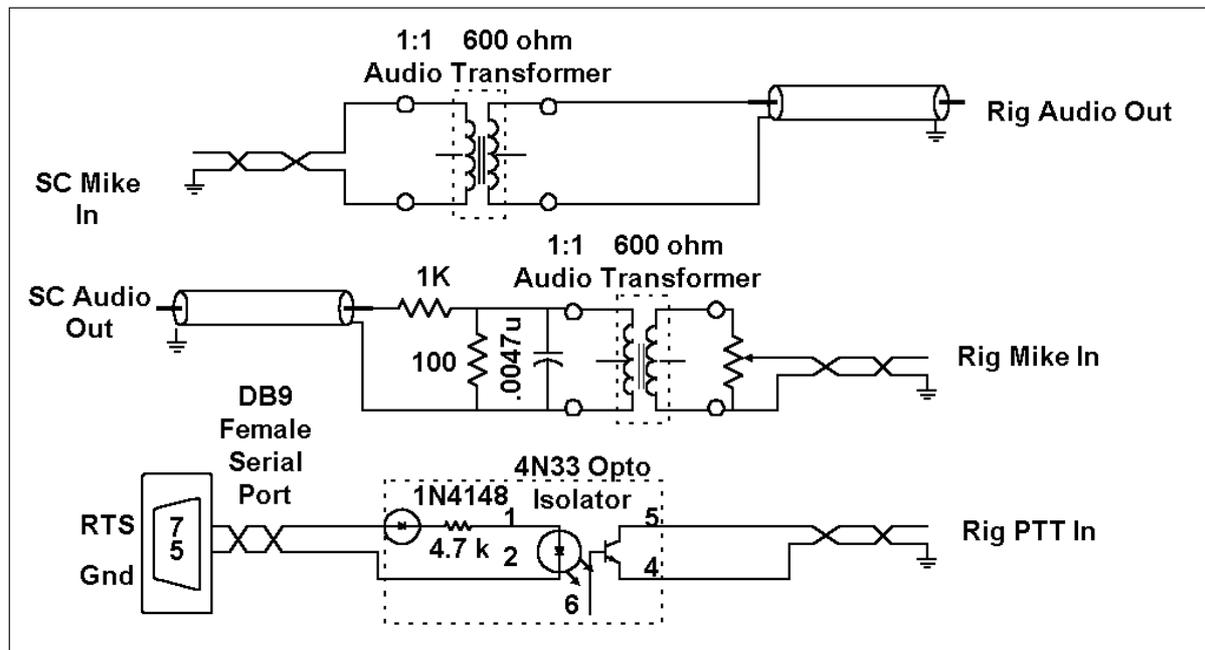
Above schematic represents a concept of a basic sound card where an attempt is made to isolate PC Ground from RIG Ground by way of using Transformers for audio paths and Opto Isolator for PTT.

SC2 Further Addresses following:

1. **Includes an Op.Amp for VOX Operation (Requires 8V DC from rig)**

2. **Uses D9F connector for RS232 interface (Baycom, AGW etc)**

3. **Uses RJ45 Modular connector for your Transceiver**

4. **Accepts Speaker audio from rig to back panel 3.5mm jack.**

5. **Opto Isolated COR for Echo Link operation**

6. **Ability to select DC Power requirements for SC2 from COM or USB***
   (* use of USB 5V for COR pull-up only)

Schematic of SC2:
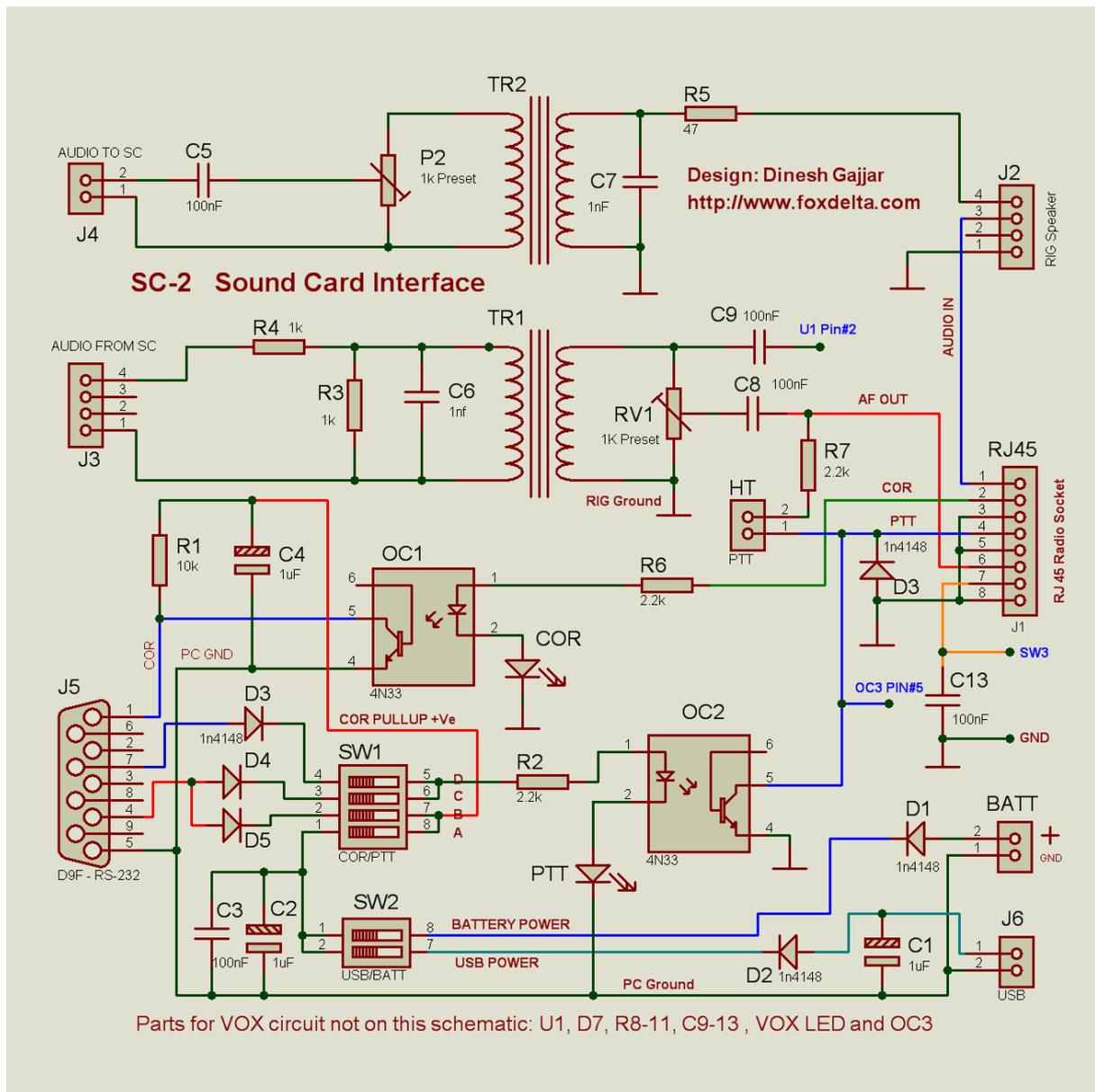
Schematic details:

Audio Isolation:
Two audios, from & to Sound Card are isolated by quality Transformers.

PTT & COR Isolation:
4N33 Opto Couplers are used for isolation of PTT & COR from PC Ground.

Ground Isolation:
PC and Transceiver are 100% isolated.

Power for Soundcard:
No power is required for sound card to function for most applications except echolink operation.

SW1: PTT Control:

This switch selects data coming from COM port.
You may select SW1 position C if PTT is expected at pin 4.
If your program generates PTT at pin 7, switch on "D"

SW1: COR Control

R1, C1 and OC1 requires +5 to +9V for active pull-up for echolink operation.
This may be achieved from three sources:

A. If COM port pin 4 is generating steady +9V (Running at DTR script for example) switch on SW1: B. This will power the COR pull-up.
B. If this is not possible, you have two more options by way of SW2:

You can obtain pull-up voltages from a battery or from your USB port. (Or using USB cable to supply 9V)

1. By selecting SW2 for battery, 9V battery can provide required pull-up for echolink COR.
2. By selecting SW2 for USB, you may connect your USB cable to supply +5V.

Silk Snap:
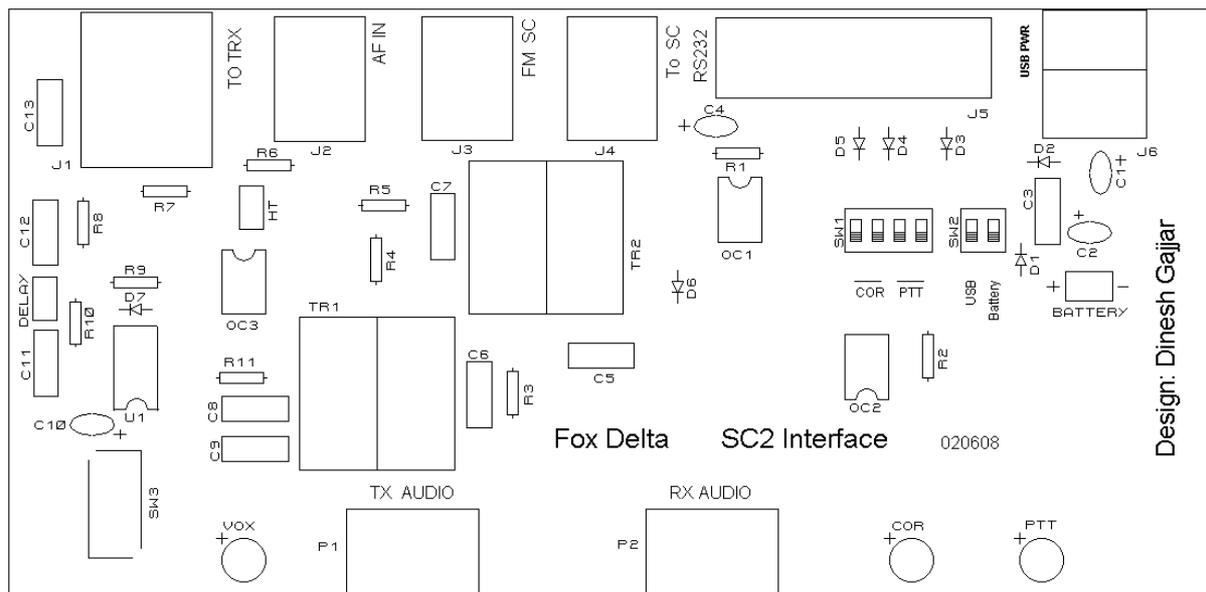
RJ45 Connections:

RJ-45 Male
Plug

8 7 6 5 4 3 2 1
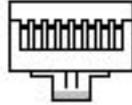
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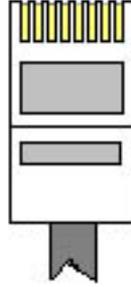
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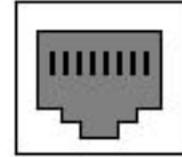
RJ-45
Female

Am I forgetting something? I hope not!!

Basically, this is a final output of a previous SC1 Sound Card Interface and TinyEcho interface, with addition of few parts here & there.

I hope design and kits will be useful to many.

73s Dinesh Gajjar / 14th Feb 09

Please visit project page at: http://www.foxdelta.com