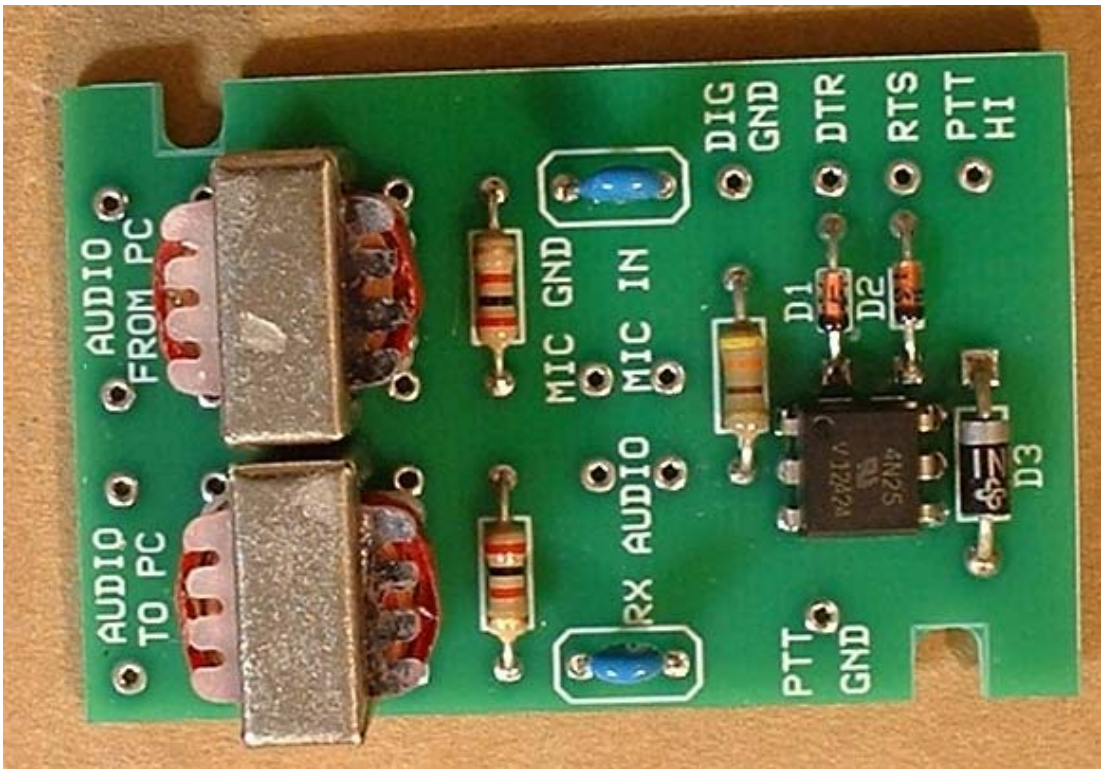
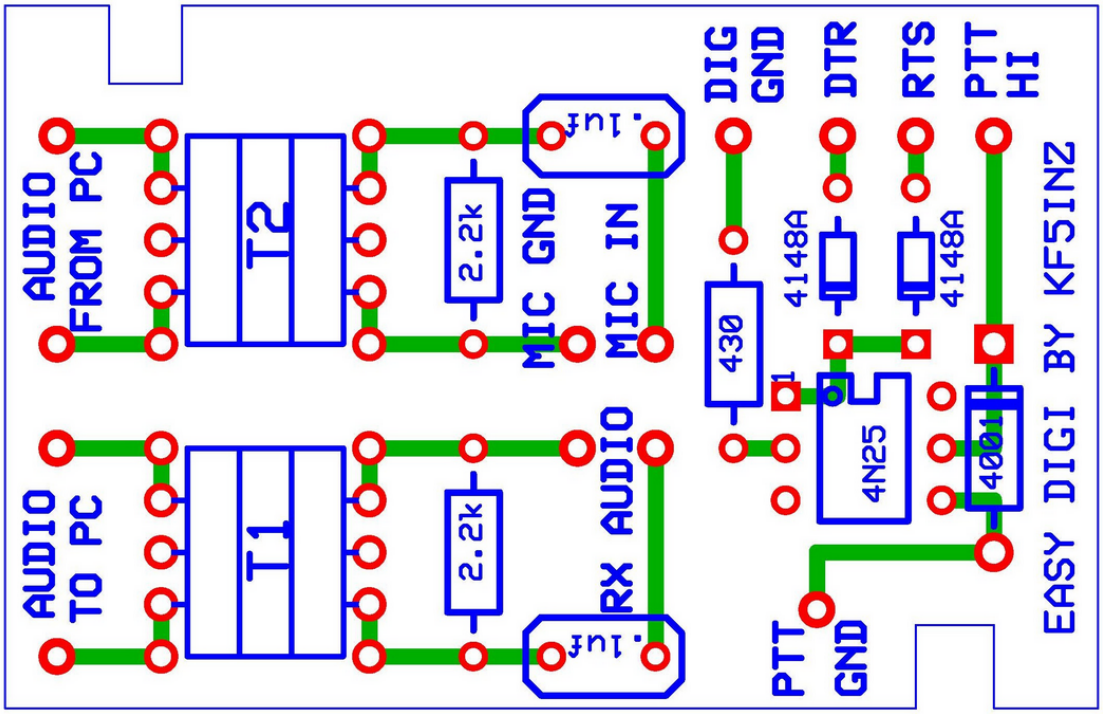
Simple Computer Soundcard to Radio Interface



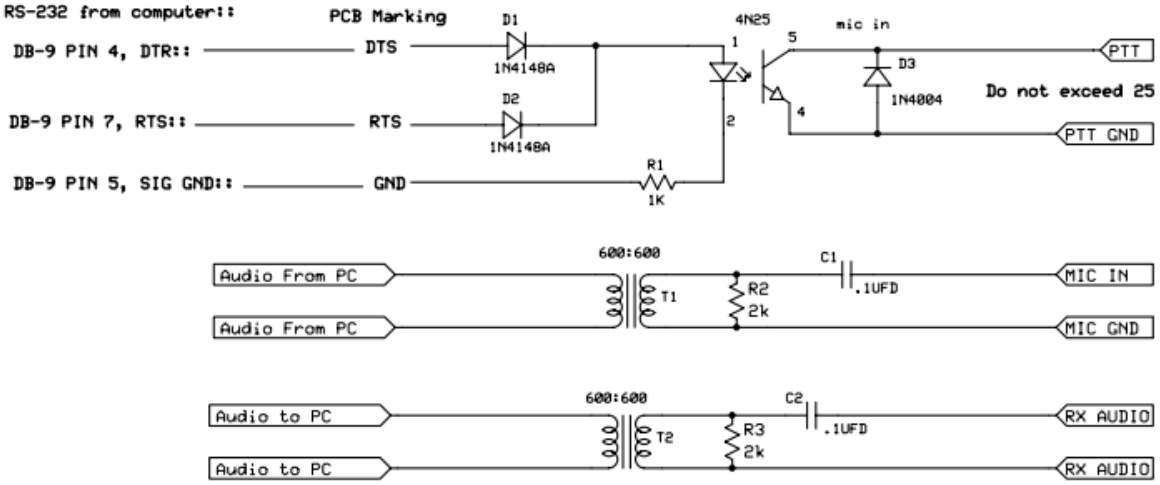
KF5INZ Easy Digi Interface circuit board

The left part of the board is the audio input/output through 600/600 ohm transformers, the right part of the board holds the PTT circuit using the RTS or DTR pins from the RS232 computer interface.



COMPUTER END OF BOARD

RADIO END OF BOARD



Do not exceed 25 volts or 50 ma on the push to talk contacts.

INSTALLATION INSTRUCTIONS

Wire the interface to your radio as indicated in the above diagram. Be sure to not cross any wiring.

Connect the RS-232 Connector to a DB-9 serial port on your PC, or, you can use a USB to Serial adapter.

If using a USB to serial port adapter, be certain to install the adapter per instructions received with the adapter

Start up your software program and configure the "COM" port to address the serial connection to the interface.

Adjust the audio output of your sound card to approximately 30% of full scale.

Set your software program to "TRANSMIT", and adjust the microphone gain on your RADIO to the power level

you wish to transmit, but do not overdrive your transmitter. Monitor the ALC reading, and as soon as you begin to see

movememt of the ALC meter, back your microphone gain off until the ALC meter no longer reads any activity.

The above applies to HF SSB activity. For FM Transcievers, adjust the output level of your sound care for best

audio quality on the receive end being careful not to overmodulate your fm transmitter.

Adjust the audio output level of your received audio to the appropriate level for the software program you are using.

Pretty much that easy, enjoy!

KF5INZ		
Easy Digi PCB		
C. Wareham	Rev 1.0 05/26/2011	Page 1 of 1 Pages

KF5INZ Easy Digi Interface

No, we didn't re-invent the wheel, we just made a convenient, single board, isolated, digital interface that works for almost all of the digital modes on HF and VHF/UHF. Works with DIGIPAN, FLDIGI, MTTY, MMSSTV and most all other sound card programs! Work PSK-31, PSK-63, RTTY, SSTV, NBEMS, plus many other modes on your HF or VHF/UHF rig. Please note that the RTTY mode is RTTY(AFSK) as produced by MTTY software.

This interface will NOT directly drive any type of printer, it simply interfaces your radio to your computer with isolation. All operating modes need to be sound card based.

Nothing new about this technology, it consists of two 600 ohm line transformers for audio input and output from your pc to your transceiver, and an opto-coupled push to talk circuit that works off of an RS-232 port on your computer.

- **Transformer coupled audio eliminates ground loops and AC hum on your signal**
- **Opto Coupled push to talk circuit also eliminates ground loops and false triggering of your PTT lines.**
- **Very small size, can be incorporated inside of many radios, with only your RS-232 cable coming outside of the radio.**
- **Weighs less than 3 ounces**
- **High quality FR-4 single sided, solder masked, silk screened Printed Circuit Board**
- **Compatible with most modern ham radio transceivers.**

These interfaces have been tested on the following radios:

Kenwood: TM-271, TM-621, TM721A, TR-7400, TR-7850, TR-7950, TS-120, TS-130, TS-440, TS-450, TS-480SAT, TS-530, TS-820S, TS-870, TS-930, TS-50

ICOM: IC-208H, IC-706, IC706MKIIG, IC-746 PRO, IC-781, IC-2100H, IC-2200H, IC-2820H

YAESU: FT-817, ft-747, FT-857, FT-2800M, FT-2000

ALNICO DX-77

COBRA 145GTL-DX (10 METER RADIO)

ELCRAFT K2

QUANSHENG TG-UV2

and others. If your radio is not listed here, you probably can use this interface with it. Please send us an email and tell us what radio you want to use. We will respond within 24 - 48 hours.

Simply hook up per the enclosed wiring diagram and load your software, configure your com port, turn on the radio and have fun on your favorite digital mode!

Parts List

1N4001 diode	1
1N4148A diode	2
2.2K 1/4W resistor	2
430 ohm 1/4W resistor	1
4N25 optocoupler	1
0.1 uf capacitor	2
600:600 audio transformer	2
Circuit board	1
Enclosure	1

Other Options/Modifications

- Use 2K variable resistors for R2 and R3 so that levels can be set for TX and RX audio without changing the computers soundcard settings.
- Use a standard connector for the radio cable (RJ-45?), and then several cables can be made up to suit the different radios you wish to use the interface with.
- Incorporate an inexpensive USB sound card dongle into the project.
- Incorporate a cheap USB to serial adapter cable so the RTS/DTR PTT can be used on modern computers with no RS232 serial port.
- Add a compact computer powered 2-port USB hub so that the sound card dongle and the USB to serial adapter can be plugged into it. Then only a single USB cable goes to the computer, and the computer powers the USB hub, RS232 adapter and the USB soundcard dongle, so no separate power supply is needed.
- A “mode switch” to select either the microphone for voice communications, or the computer interface for data communications.

Example of a 2-port USB 2.0 passive hub:
http://www.amazon.ca/Plugable-USB-2-0-Port-Hub/dp/B005HKIDF2

($15.95)

Example of a USB 2.0 to serial adapter cable:
http://www.tigerdirect.ca/applications/SearchTools/item-details.asp?EdpNo=1086963&csid=_61

($17.99)

Example of a USB soundcard:
http://www.tigerdirect.ca/applications/SearchTools/item-details.asp?EdpNo=4323590&Sku=S262-7187

($14.97)