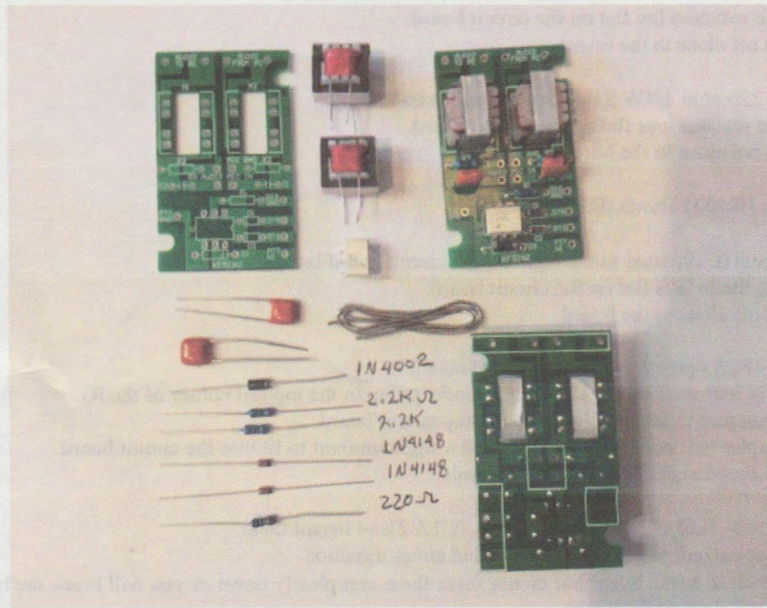# Thank you for purchasing the EASY DIGI™ Board kit by KF5INZ!

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.

This is the newly fabricated board that reduces the height of the board for a better fit in the plastic case we use. Nothing else has changed.

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, only 2 1/16" x 1 3/8" x .625" high, 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, solder masked, silk screened Printed Circuit Board
- Compatible with most modern ham radio transceivers.

These interfaces have been tested on many Kenwood , Icom, Yeasu, and any other brand radios.

 Simply assemble and 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!

ITEMS INCLUDED IN YOUR KIT. PLEASE INVENTORY YOUR KIT.

ITEM	QTY	LOCATOR
1N4001 DIODE	1 ea	D3
(Note: could also contain 1N4002, 1N4003, or 1N4004.)		
1N4148A DIODE	2 ea	D1,D2
2.2K 1/4W RESISTOR	2 ea	R2,R3
220 OHM 1/4W RESISTOR	1 ea	R1
4N25 OPTO COUPLER	1 ea	U1
.1UFD OR .2UFD CAPACITOR	2 ea	C1,C2
600:600 AUDIO TRANSFORMERS	2 ea	T1,T2
PCB	1 ea	
Solder	12"	

It is assumed that you have a 25 – 45 watt soldering iron. Pencil type tips are preferred. Use of a soldering GUN is NOT recommended due to the small sizes of the solder pads and small spacing between pads. You will also need a pair of wire cutters and a pair of needle nose pliers. The 12" of solder supplied should be enough to solder several of these boards – use the solder sparingly – to end up with a professional looking and operating board with no solder shorts. This board should take approximately 15 minutes to assemble and solder.

1.) Using the printed circuit board layout, find the locations for the two 1N4148A Diodes (D1,D2) and install them.
   Observe the polarity. The band on the diode must be oriented to the band on the circuit board layout.
   Bend the leads so that the diodes lay flat on the circuit board.
   Solder and clip the leads off close to the board.

2.) Find the locations for the two 2.2k 1/4W Resistors (R2,R3) and install them.
Bend the leads so that the resistors lay flat on the circuit board.
Solder and clip the leads off close to the board.

3.) Find the location for the 220 ohm 1/4W Resistor (R1) and install it.
Bend the leads so that the resistor lays flat on the circuit board.
Solder and clip the leads off close to the board.

4.) Find the location for the 1N4001 Diode (D3) and install it.
Observe the polarity.
The band on the diode must be oriented to the band on the circuit board layout.
Bend the leads so that the diode lays flat on the circuit board.
Solder and clip the leads off close to the board.

5.) Find the location for the 4N25 optocoupler IC (U1), and install it.
Pin1 of the opto-coupler is indicated by a small circular indentation in the top left corner of the IC.
Orient pin 1 of the opto-coupler to the pin1 location on the circuit board.
The leads of the opto-coupler will need to be bent inward a slight amount to fit into the circuit board.
After installing the 4N25 optocoupler IC, solder the 6 leads.

6.) Find the location for the two .1ufd OR .2 ufd capacitors, (C1,C2)and install them.
The capacitors are NOT polarized, so they can be installed either direction.
Push the capacitors down close to the board but do not force them completely down or you will break the body of the capacitor.
Solder and clip the leads off close to the board.

7.) Find the locations for the two 600 ohm to 600 ohm transformers(T1,T2). It does not matter which side of the transformer goes where.
Install the transformers in the holes on both sides of the transformer. Insure that the frame of the transformer fits flush into the rectangular hole in the circuit board.
Push the transformers down flat against the board and solder the 4 leads of each transformer.

8.) If you use the supplied solder, you do NOT have to clean the circuit board after soldering.

9.) REVIEW:
     a.   Recheck steps 1 thru 7 above to insure that you have installed the correct parts in the correct locations on the circuit board.
     b.   Inspect each and every solder joint to insure there are no solder shorts and that every lead is soldered.
     c.   Insure that all leads have been clipped and that there are no pieces of wires or other debris causing shorts on the circuit board.

10.) Wrap-up:
     a.   *Your board is now complete and ready to be connected to your radio and computer per the enclosed installation drawing.*
     b.) ENJOY the digital modes!

COMPUTER END OF BOARD   RADIO END OF BOARD

RS-232 from computer
                    PCB Marking   D1   4N25
DB-9 PIN 4, DTR:: ——— DTR ———|>|———   1   5   D3   PTT   to PTT input (Hi)
                                    1N4148A   1N4004   DO NOT EXCEED 25 VOLTS
                               D2   2   OR 50 MA ON THE PTT CONTACTS
DB-9, PIN 7, RTS:: ——— RTS ———|>|———   4
                                    1N4148A   R1   PTT GND to PTT input (Lo or Ground)
                                                        220
DB-9, PIN 5, SIG GND:: — DIG GND ———

                          600:600   C1
       AUDIO FROM PC   .1UFD OR .2 UFD   MIC IN to Mic input (Hi)
    from line out of computer   T1   R2
       AUDIO FROM PC   2k   MIC GND to Mic input (Lo or Ground)

                          600:600   C2
       AUDIO TO PC   .1UFD OR .2 UFD   RX AUDIO
    to computer line in   T2   R3   To ext spkr jack of radio
       AUDIO TO PC   2k   RX AUDIO

INSTALLATION INSTRUCTIONS

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

Note: not all USB to Serial Adapters provide true RS-232 Signal Levels, Therefore not all will work with this interface.

This interface needs the RTS and/or the DTR line to go Logic High at least 5 volts in order to activate the optocoupler.

If using a USB to Serial Adapter, be certain to inswtall the adapter per instructions received with the adapter.

Start your software (fldigi, digipan, mtty, msstv, etc) 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. This is important to avoid overdriving your transmitter.

Set your software program to 'TRANSMIT', and adjust the microphone gain of 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 movement of the alc meter

back your microphone gain off until the ALC meter no longer reads any activity. Failure to do this will make your transmit signal too wide and

it will splatter across the band causing unwanted inteference to other signals on the band.

The above applies to HF SSB activity. For FM Transmitters/transcievers/receivers, adjust the ooutput level of your sound card for best

audio quality on the receive end eing carefuyl 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 VII PCB INSTALL |
| C. Wareham | Rev 1.0 | Page 1 of 1 |
| | 10/12/2011 | |