FoxView3 Rev1010: An APRS Stand-Alone LCD Viewer & Position Encoder

FoxView3 REV1010

FOXVIEW3 Rev1010 is latest revision of APRS Viewers for radio amateurs. **FoxView**, **Foxview3** and **FoxView2** received good response and enough feedback from users.

Redesigned FoxView3 is basically a simple stand alone APRS Viewer, just like the original **FOXVIEW**.

FoxView3 Rev1010:

This version is based on modification suggested by **F4EYW/ OM Benoit**. It uses MX614 modem's receiving capability to enhance PIC88's packet reception.

Even after above modification to design, basic objectives of FoxView remains same, like:

1. **APRS Viewer with 4 x 20 LCD**
2. **APRS Position Encoder (Fix Home Position or GPS)**
3. **Built-in "Fill-in" Digi**
4. **APRS TNC (APRS DATA from Radio to PC)**
5. **GPS support (RS232)**
6. **Separate +5V/1A Regulator for GPS**

7. **Free Powder Coated Metal Case**
 8. **APRS Tracker**

Designed with a large 4x20 Characters Back-lite LCD Display, FoxView3 only requires an audio input from your receiver or transceiver and a DC 12V supply. FoxView3 is designed for APRS Demos, general Viewing of APRS Data while moving and Personally, I would love to have this device to monitor APRS activities at my home without using a PC!!

However, looking to interest of the Radio Amateurs to use a GPS with FV3, this function is added in this version.

After all these goodies, it should not cost a fortune. In fact, with few components from here & there and a Free Firmware, you will be able to build this viewer/encoder yourself & enjoy APRS activities.

FoxView3 is basically combination of **FOXVIEW** and **FoxDigi** which proved to be very useful project for Amateur Radio.

Component Side View of FV3 with LCD Removed:
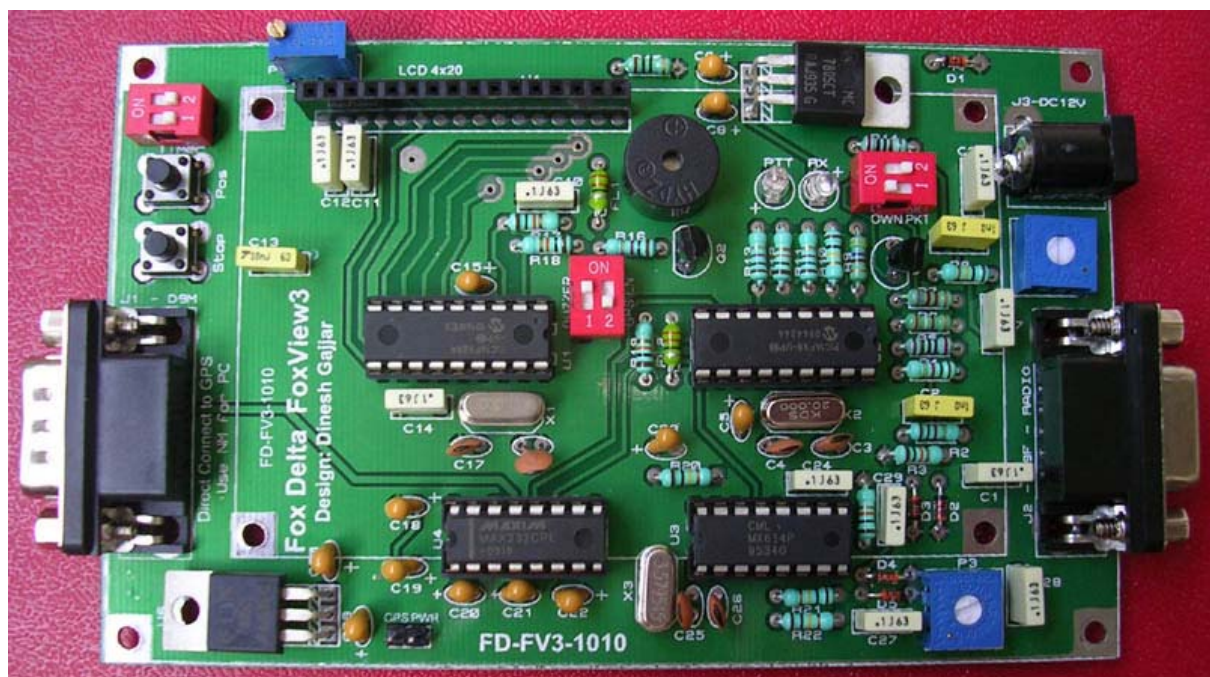
Note: Power may be supplied at J3 or thru the Radio Connector J2 (#7)

Design Change Bases:

It was an effort by **F1SRC** who first merged **FoxDigi** & **FoxView** in one box and effectively used for APRS Viewing and APRS Digi.

His experiement prompted new design where I have merely merged two designs on one board: i.e. **FoxDigi** and **FoxView.**

Here is a picture of the first proto under test by F1SRC:

F4EYW/ OM Benoit made more changes, updated firmware and suggested that we use MX614's RXD to feed received data to PIC88, which otherwise was receiving packets thru it's A/D input port.

Mod increased sensitivity of received packets and now received packets are well filtered thru MX614 and fed to both PIC628A (Viewer) and PIC88 (Position Encoder)

Modified FoxView3 Rev1010 in action with F4EYW Firmware:

Schematics:

Two Schematics are made to accommodate comparatively large circuit of Foxview3 Rev1010.
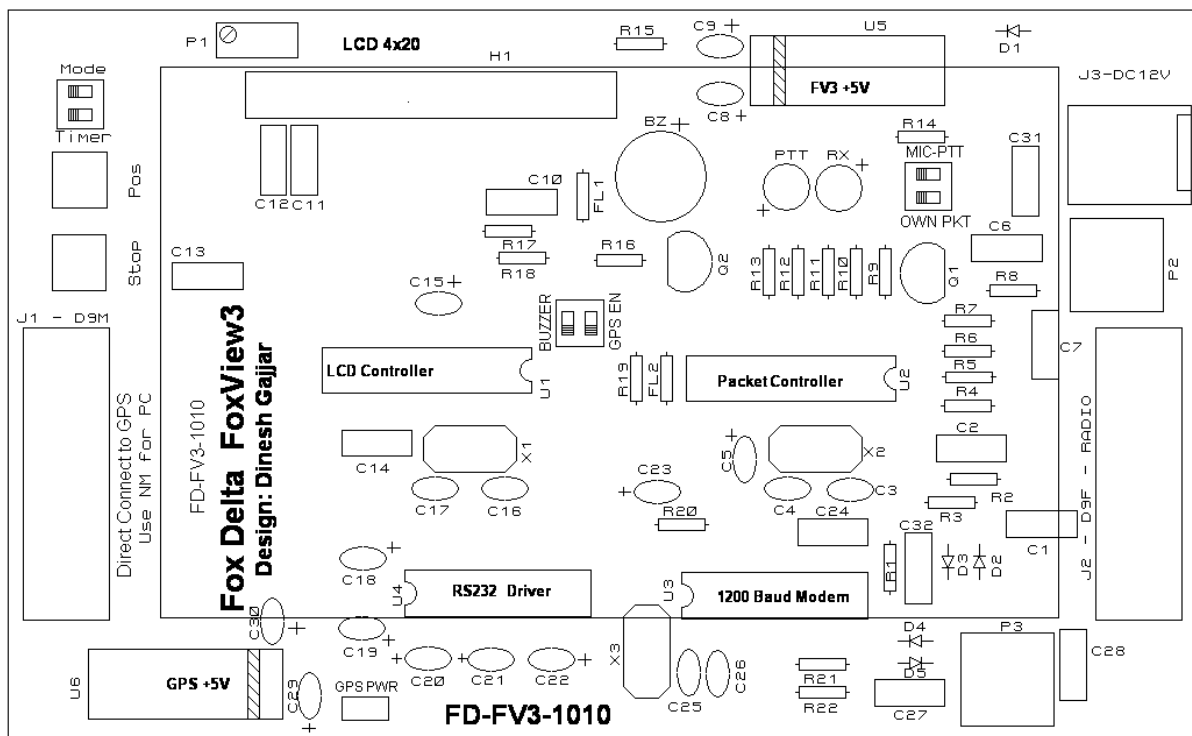
Part A:

This part covers:
1. DC Supply for FV3 and GPS
2. LCD Viewer Section (PIC628A)
3. MX614 Modem

Part2:

This schematic has:

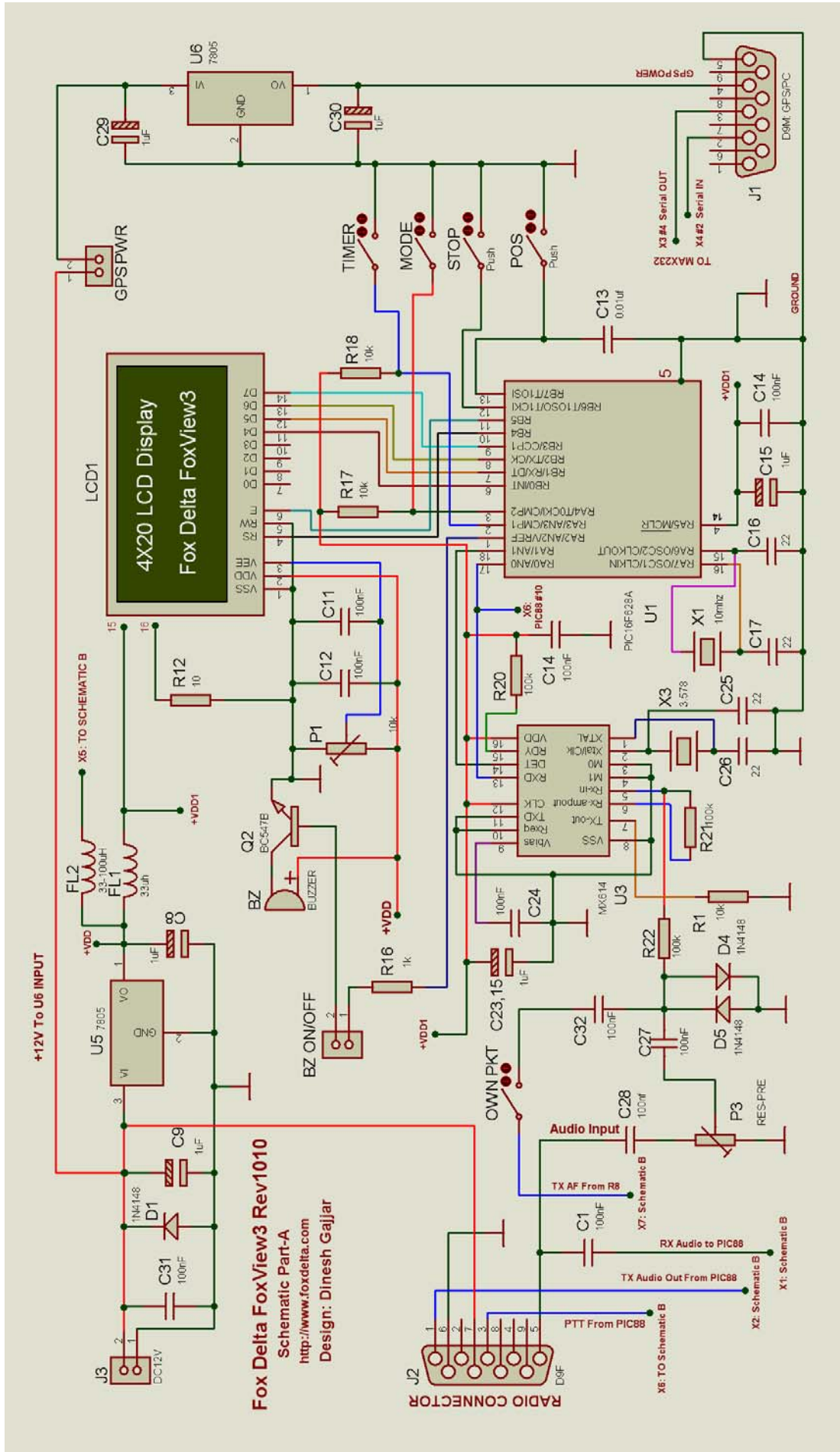1. PIC88 which is a GPS Data Receiver, Digipeater and Beacon sender
2. GPS Interface or Data to PC
3. RS232 Driver

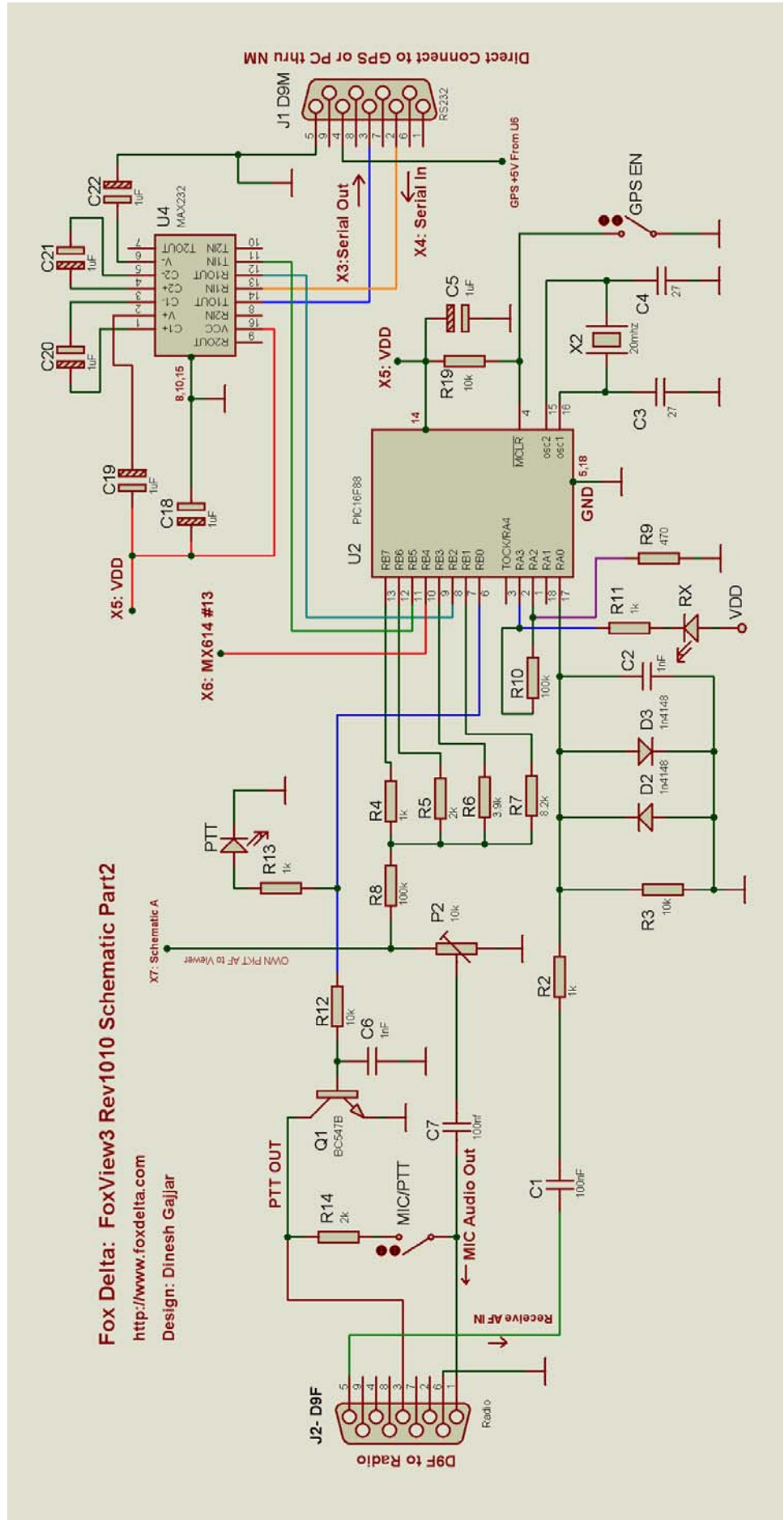## Silk (TOP) FoxView3 Rev1010:

FV3: Rev 1010 uses D9F for Radio and D9M for GPS/PC connection.

FoxView3 Rev1010: LCD Viewer Schematic: Part A

Fox Delta FoxView3 Rev1010
Schematic Part-A
http://www.foxdelta.com
Design: Dinesh Gajjar

FoxView3 Rev1010: Schematic Part 2

Fox Delta: FoxView3 Rev1010 Schematic Part2
http://www.foxdelta.com
Design: Dinesh Gajjar

FV3 Rev1010 Parts List:

Quantity	Check	Part ID / Details
1		**FoxView3-1010 Double Sided PTH PCB**
1		**MAX232 DIP16**
5		**1N4148 (D1, 2, 3, 4, 5)**
2		**RFC 33-47uH (FL1, 2)**
1		**PIC16F628A (U1) with firmware FoxView.hex**
0	X	**MX614 U3 DIP16**
1		**PIC16F88 (U2) with Firmware FoxDigi-614.hex at 4800 or 9600**
2		**18PIN IC Sockets**
2		**16DIP IC Sockets**
2		**7805 (U5, 6)**
12		**1uf/35V Tantalum (C5, 8, 9, 15, 18, 19, 20, 21, 22, 23, 29, 30)**
11		**0.1uf Ploy Capacitors (C1, 7, 10, 11, 12, 14, 24, 27, 28, 31, 32)**
1		**0.01uf Poly (C13)**
2		**0. 001uf Poly (C2, 6)**
6		**22pf ceramic (C3, 4, 16, 17, 25, 26)**
1		**D9Feamle R/A PCB Connector (J2)**
1		**D9M R/A PCB Connector (J1)**
1		**Crystal 20.000MHZ (X2)**
1		**Crystal 10.000MHZ (X1)**
1		**Crystal 3.578MHZ (X3)**
2		**Transistor BC547B (Q1, 2)**
1		**10k Bourns 10T/V Presets (P1) LCD Contrast**
2		**10K Bourns 1 Turn Preset (P2, 3)**
2		**LEDs 3mm (Red, Green)**
3		**2 position DIP Switches (Mode/timer, GPS/BZ, MIC/PKT)**
2		**4mm Push Buttons (Pos/Stop)**
1		**Buzzer**
1		**Set of header: 16pin Male/Female for LCD (Incl. GPS En Hdr)**
1		**Set: 2xNut, 2xBolt & 2xPlastic Spacers for LCD**
1		**LCD 4x20 with Back-Light**
1		**DC Connector (J3)**
1	✔	**Free Powder Coated Metal Case with hardware**
		<mark>Resistors (0.25W 1% or 5%)</mark>
1		**3.9K (R6)**
1		**8.2K (R7)**
2		**2K (R5, 14)**
1		**470 ohms (R9)**
5		**1K (R2, 4, 11, 13, 16)**
6		**10K (R1, 3, 12, 17, 18, 19)**
1		**10 ohms (R15)**
5		**100K (R8, 10, 20, 21, 22)**

73s
Dinesh Gajjar
10th October 2010