



**Fox Delta**

Amateur Radio Projects & Kits

FD - SWM5 - 0815

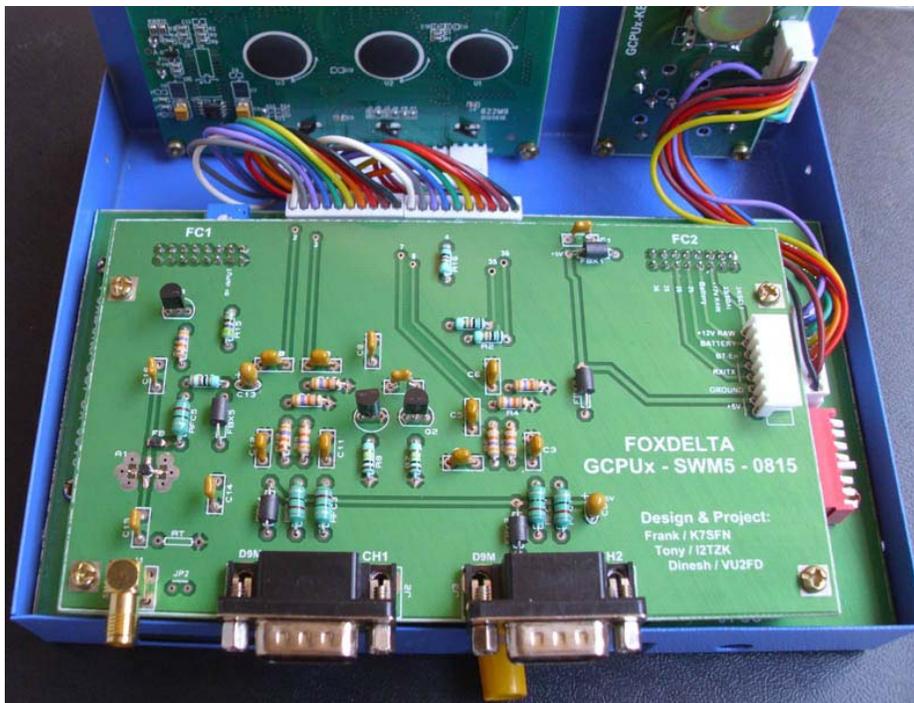
## SWM5-0815: Dual Channel Graphic LCD SWR Meter for HF or VHF

Tech Info Document: [SWM5/GCPUx 0815](#)

Completed SWM5 in a powder coated metal case.



SWM5 BOARD installed over GCPUx board:



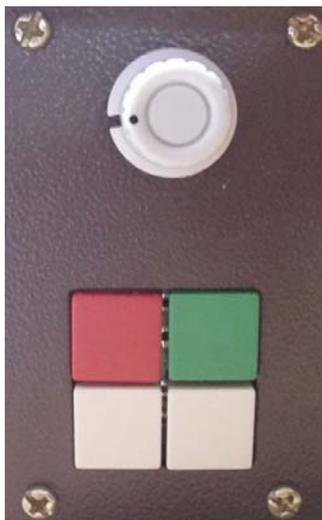
**Optional Battery board fits on roof (cover) of the metal case.**



**Battery board has MAX712 battery charger, ON/OFF Switch, 5V and 3.3V regulators, charging pass transistor and space for NIMh/NiCad battery. (Battery is not included with kit or assembled due to postal regulations.**

**This board also has FRC16 connector for interfacing a Blue Tooth module (Such as BT2+HC05) to communicate with smart phones. (only when FW includes that facility)**

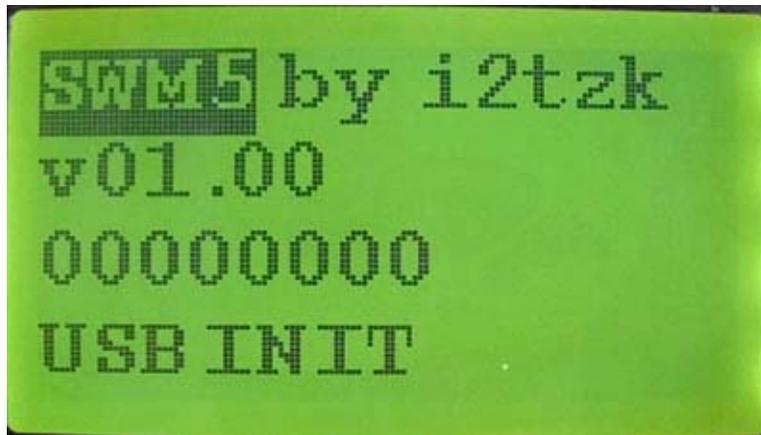
**Four Button Menu and LCD Backlight Dimmer:**



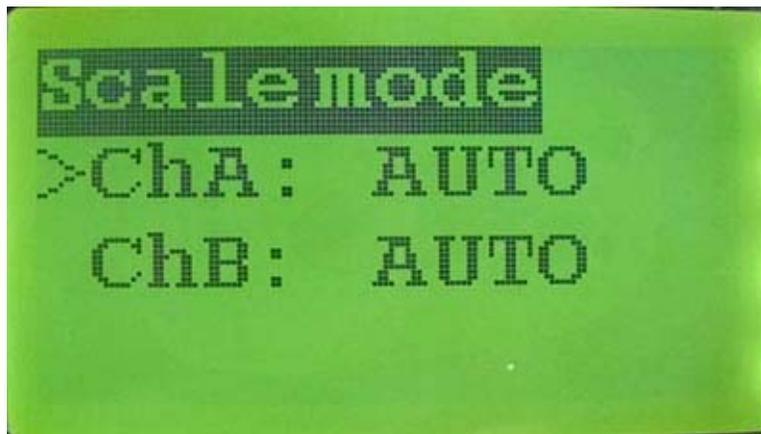
**4 Menu buttons provide Left, Right, Select and Enter commands to CPU**

**Dimmer control for LCD backlight is a manual control to set LCD brightness.**

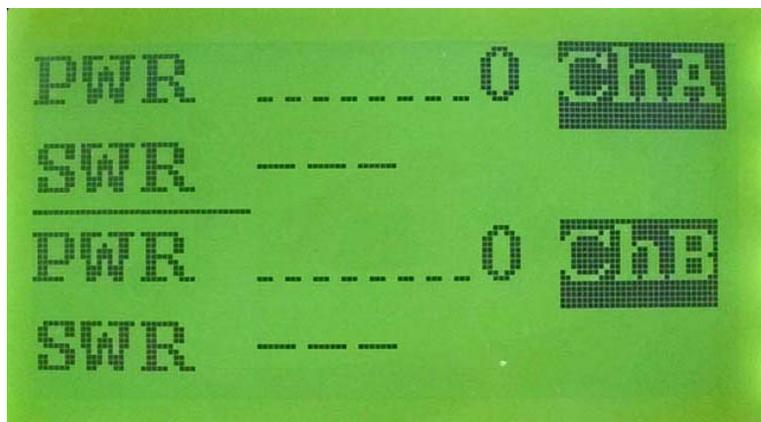
Power ON Menu:



2 Channel TX Power setup:



2 Channel Monitor Screen:



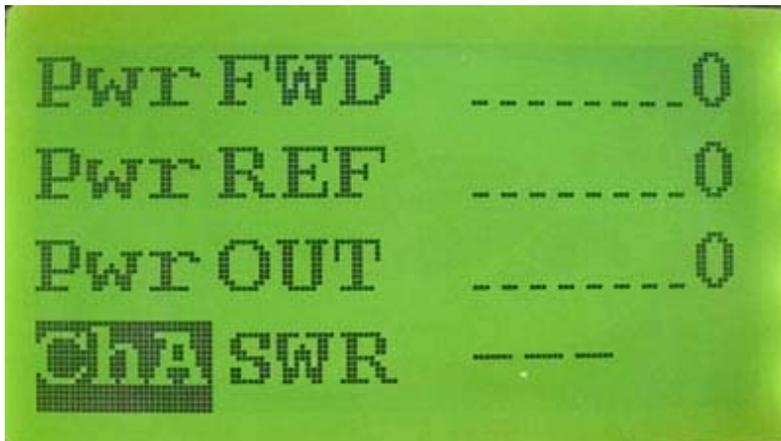
**Channel 1 Menu:**

Ch1 also display Frequency (if SMA or D9 RF is connected from bridge)



Refer to DIP switch setting document to activate frequency display on CH1 menu.

**Channel A or B full detail menu:**



**SWM5 Back view:**



Bottom Push switch = USB / DC12V (+Battery) TOP Push Switch = Battery ON  
Bottom FRC16 = COMM Connector. Top FRC16 = Bluetooth connector

## Basic design concept of SWM5:

SWM5 is basically identical to our last SWR meter “SWM3” with following changes:

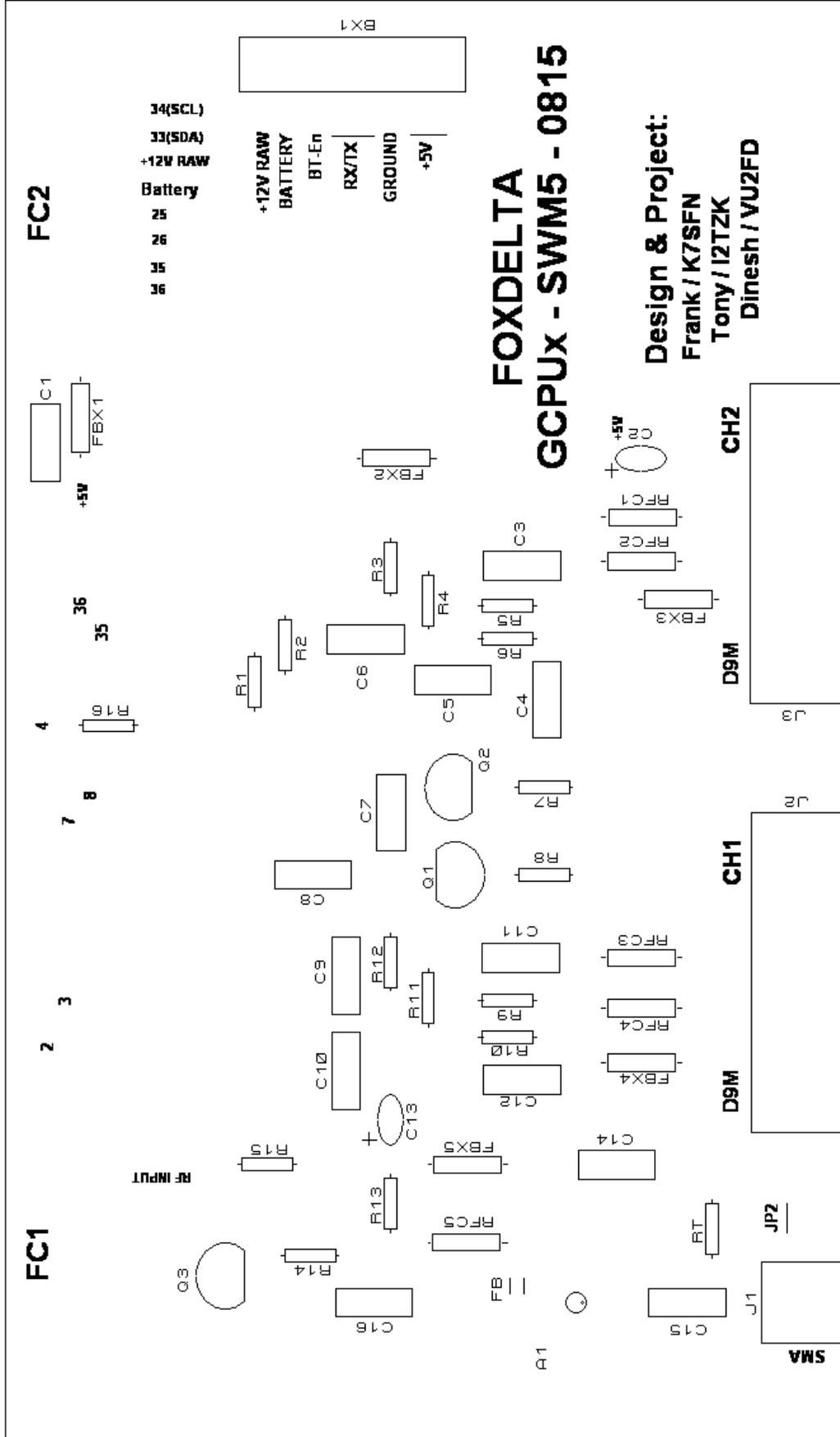
1. Using a Graphic 128X64 LCD with backlight
2. PIC18F4550 CPU, LCD, Menu board and Metal case are common for PM5, SWM5, FC5 and all future projects with Graphic LCD.
3. A simple add-on board, such as SWM5 board, converts GCPuX into an SWR meter (When loaded with suitable FW)
4. Accommodation for 7.2V NiMh or NiCad battery pack (not included with kits or assembled)
5. 2 channel RF power measurements using suitable RF Bridges, such as “HF Dual scale, HFB3/4 or HFB5 type of RF bridge.
6. DIP switches for FW Configuration. Refer to DIP Switch setting details for specific project/FW.
7. Works on DC12V, Internal Battery or USB.
8. Bluetooth interface for use with smart phones. (Requires BT2 adapter with HC05 module available in kit and support by FW)
9. Scaling is under processor control and activates relays in HF Bridge when used with “Dual scale HF Bridge”

## SWM5-0815 KIT PARTS LIST:

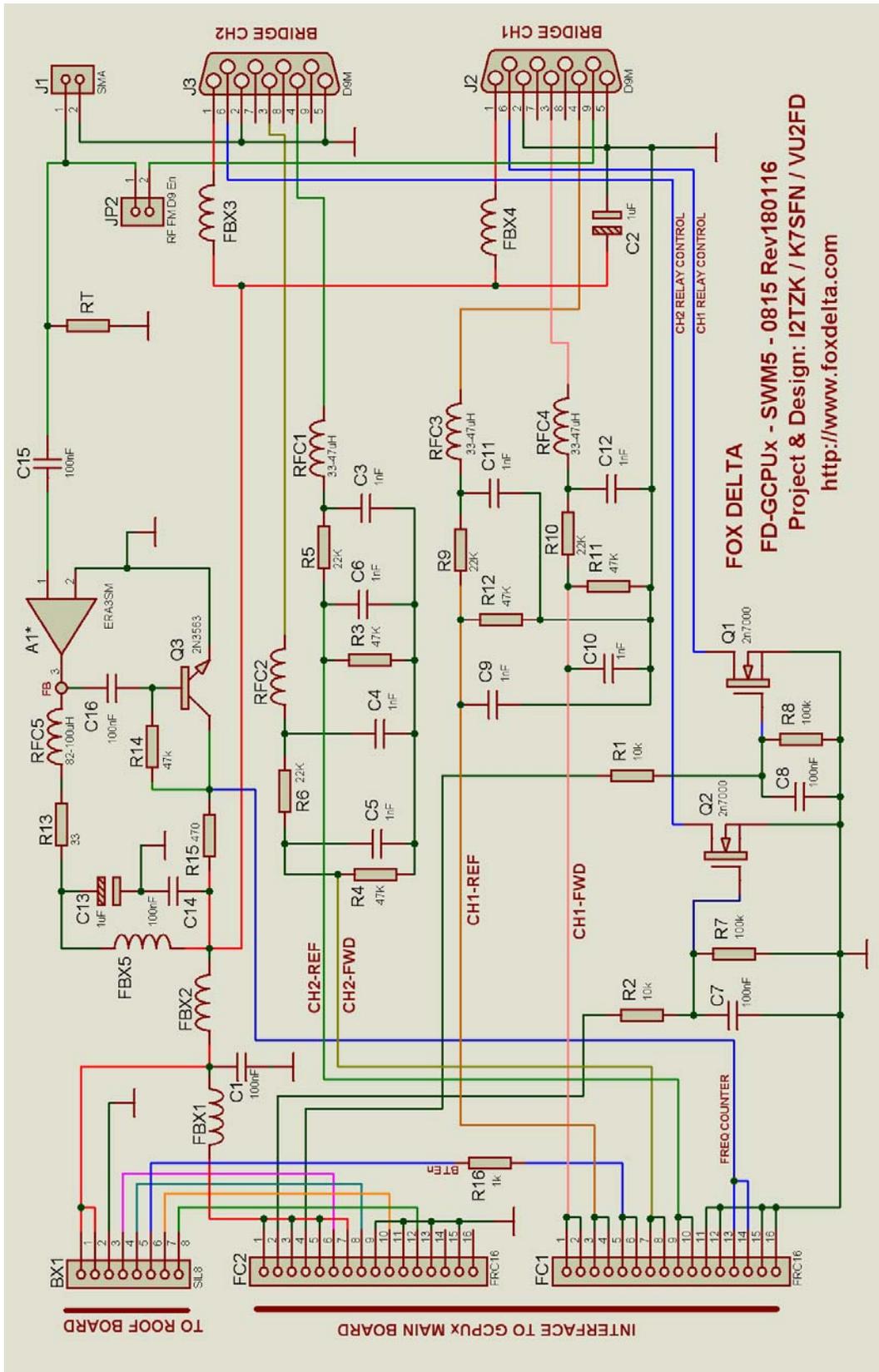
Quantity	Part No.	Part ID
1	PCB	SWM5-0815 DSPTH PCB
1	FC1, FC2	FRC16 PCB Straight Interconnect to CPU
1	BX1	SIL8 PCB Connector (Battery Board Expansion)
2	J2, J3	D9 Male PCB R/A
1	J1	SMA Connector PCB R/A
2	Q1, 2	2N7000
1	Q3	2N3563
5	FBX1 – FBX5	Ferrite Bead Inductors
4	RFC1 - RFC4	33 - 47uH RFCs
1	RFC5	82-100uH
1	Set	PCB Hardware
<b>Capacitors</b>		
2	C1, 13	1uF Tantalum
8	C3, 4, 5, 6, 9, 10, 11, 12,	0.001uF
6	C1, 7, 8, 14, 15, 16	0.1uF
<b>Resistors</b>		
2	R1, 2	10K
2	R7, 8	100K
5	R3, 4, 11, 12, 14	47K
4	R5, 6, 9, 10	22K
1	R13	33
1	R15	470
1	R16	1K
0	RT	RF Input Termination as required by user

Note: SWM5-0815 is an add-on board for GCPuX-0815, together they make an SWR measuring device.

SWM5-0815 PCB SILK:



**SWM5-0815 Schematic:**



73s

Dinesh Gajjar,

Updated: 18<sup>th</sup> January 2016

For more details please visit <http://www.foxdelta.com>