Freq Function Meter v2.4 by
Ivan Dachev and LZ2GL

Frequency meter, which can measure three-diferent frequency at same time
and make some arithmetic functions between them.
This instrument can show frequency on each input, these functions are
displayed on LCD as F1,F2 or F3.
Also it can show F123 which means F1-(F2+F3),
this can be used to measure the exact frequency of all transceivers.
Accuracy of meter is changed through Key S1 and Key S2 to GND.
Displayed function is changed through Key F1 and Key F2 to GND.

JP1 — VHF F1
JP3 — VHF F2
JP4 — VHF F2
JP8 — UHF

C24 1uF, C25 1uF, C26 1uF
C1 100nF, C10 100nF, C14 100nF
R1 500, R3 500, R4 500
Q1 2N4403, Q2 2N4403, Q3 2N4403
Q4 MPF102, Q5 MPF102, Q6 MPF102
R6 100K, R15 100K, R25 100K
C3 47pF, C11 47pF, C17 47pF
D4 4148, D1; D5 4148, D2; D6 4148, D3
R10 1M, R22 1M, R30 1M
R9 300, R19 300, R27 300
R11 100, R23 100, R31 100
C7 47nF, C12 47nF, C19 47nF
C8 470pF, C13 470pF, C22 470pF
R12 820K, R24 820K, R32 820K
R8 1M, R17 1M, R26 1M
Adjust R10 for 5V here
Diode

Freq 1, Freq 2, Freq 3

74HC14
U?A 1 2, U?F 13 12
U?C 5 6, U?D 9 8
U?B 3 4, U?E 11 10

U3 74HC153
14 A, 2 B, VCC 16, +5
1 1OE, 6 1C0, 5 1C1, 4 1C2, 3 1C3
Y1 7
15 2OE, 10 2C0, 11 2C1, 12 2C2, 13 2C3
Y2 9
8 GND
C9 100nF

C4 330nF

Y1 10 Mhz
C28 10-50pF, C6 18pF, C5 18pF
C29 10nF

U2 PIC16F84A-20I/P
16 OSC1/CLKI, 4 MCLR, VDD 14
OSC2/CLKO 15
17 RA0 (Gate)
18 RA1 (Select 1)
1 RA2 (Select 2)
2 RA3 (Up Down)
3 RA4/T0CKI (Freq In)
5 VSS
RB0/INT 6
RB1 (Key F1) R7 100 — Key F1
RB2 (I2C DATA)
RB3 (LCD Strobe) 9
RB4 (LCD Clock) 10
RB5 (Key F2) 11 R13 100 — Key F2
RB6 (Key S1) 12 R16 100 — Key S1
RB7 (Key S2) 13 R18 100 — Key S2
R5 100

VHF / UHF switch JP7

U1 74HC164
9 RST, VDD 14
8 CLK
1 D1, 2 D2
QA 3, QB 4, QC 5, QD 6, QE 10, QF 11, QG 12, QH 13
7 GND

JP2 Header 6 — To LCD
JP5 Header 4
JP6 Header 4
R2 10K
C2 100nF

+5.1 S1 Power Switch
C15 100nF
C18 1nF

U4 SAB6465
2 C1, 3 C2, VCC 8
VEE 4, MC 5
QH 6, QL 7
R28 50
C20 1nF
D7 BAT43, D9
R33 15K
C23 1nF
R29 100
C21 1nF
R34 2,2K

JP9 1 2 — To VHF input

JP7 +9V
D8 4001
VR1 MC7805 IN OUT GND
C16 100nF
C27 10uF
+9, +5