



RTC01C

Radio Transceiver Controller with Si5351

Hambuilder Team :

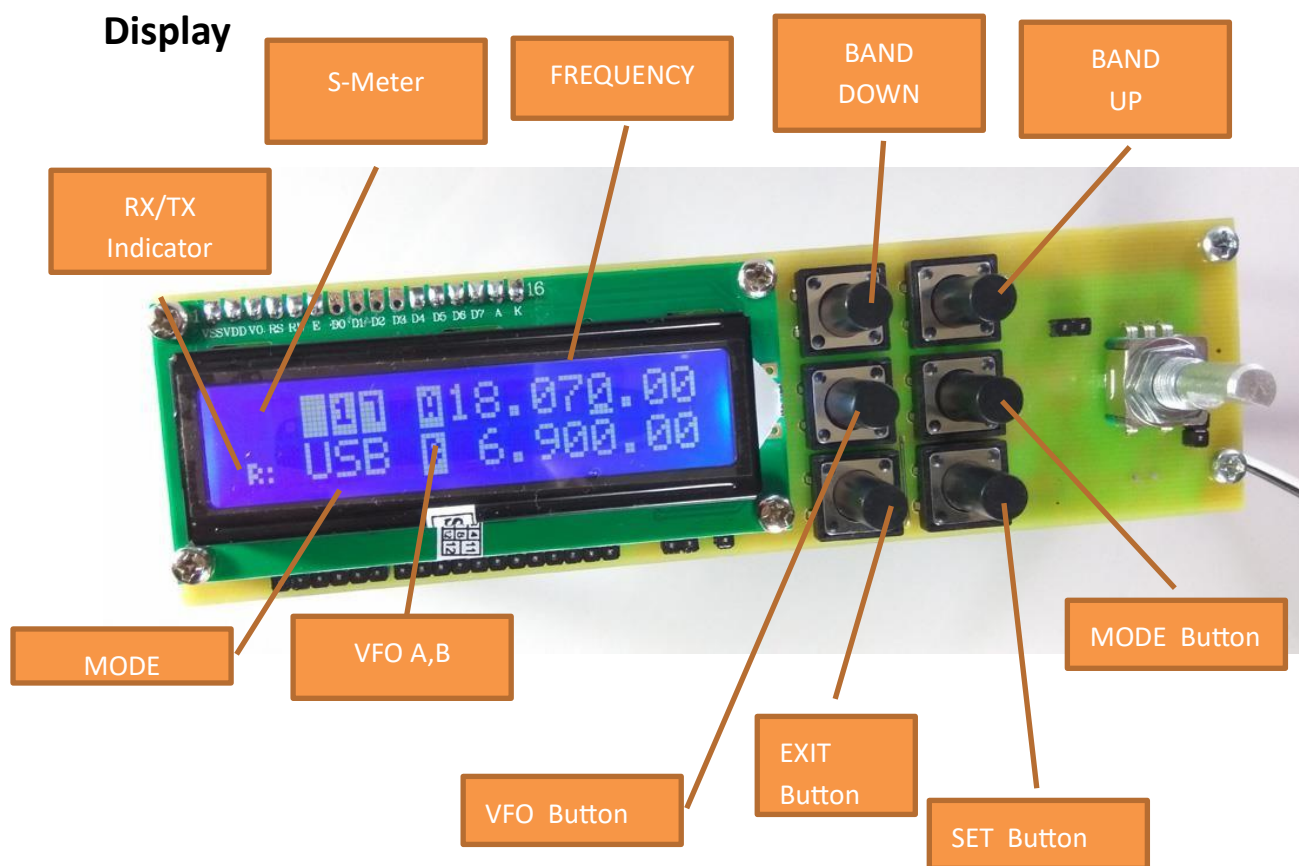
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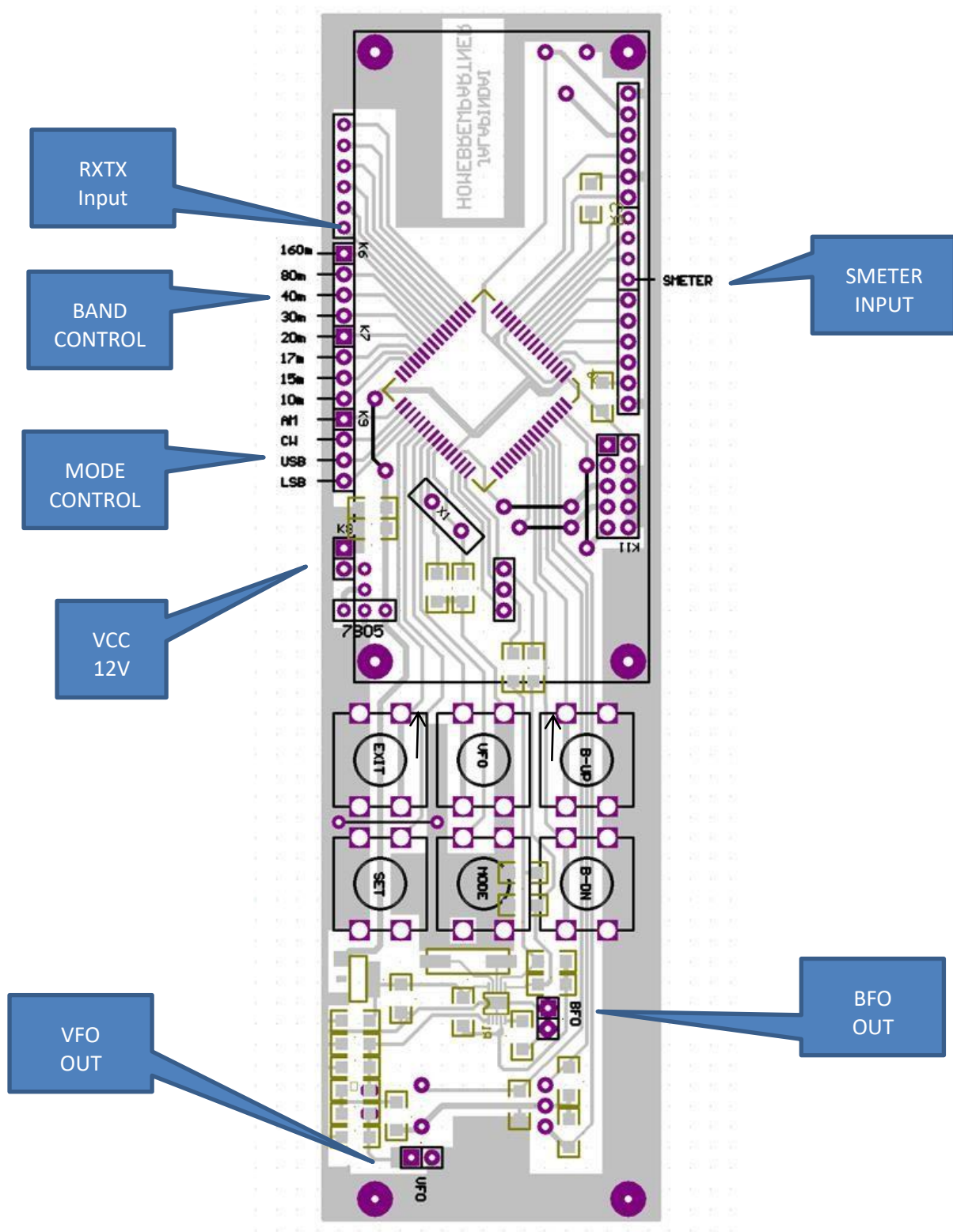


- Frequency, its show Frequency Operation (FO) ○ Its cover 1-30 MHz VFO in SSB, CW mode ○ Its cover 1-30 MHz in SDR mode (VFO 4x30=120MHz)
- RX/TX indicator, its Show transceiver state when TX on RX
- VFO (A,B), show current/active VFO, each VFO frequency saved in EEPROM □ Mode, display modulation/operation mode.
 - LSB = - 1500Hz, ○ USB = 1500 ○ CW = 600Hz,
 - AM/FM
 - SDR = 4xFO
- S-meter, Show signal meter by ADC channel

BUTTON

- Band UP and Band Down use to move between button
- VFO, used to Select VFO
- Mode button use to select modulation mode □ SET, used to setting up :
 - IF value , push rotary untuk merubah step rotary (10, 100, 1K, 10K, 100K ,1M) ○ SSB Offset value
 - Si5351 Correction, for Xtal calibration, adjust corection value until VFO out show 10.000 MHz ○ Band range setting

PIN and CONNECTION



SUPPLY PIN

- 12 V supply, supply input 8-12V, beware do not swap the polarity

INPUT PIN

- **RX/TX indicator** is an input pin for RX/TX state, its accept 5V logic, 0V (low logic mean TX state)
- **Smeter** is an ADC input pin for signal meter . This pin accept voltage level 0-1.1V as minimum to maximum signal

OUTPUT PIN

- **LO OUT/VFO/BFO OUT** is an output pin following this formula
 - **LSB Mode**

$$\text{VFO} = \text{IF SSB Freq} + \text{Display Freq} + \text{BFO LSB Offset (+ RIT on RX) (No RIT on TX)}$$

$$\text{BFO} = \text{IF SSB} + \text{BFO LSB}$$
 - **USB Mode**

$$\text{VFO} = \text{IF SSB Freq} + \text{Display Freq} + \text{BFO USB Offset (+ RIT on RX) (No RIT on TX)}$$

$$\text{BFO} = \text{IF SSB} + \text{BFO USB}$$
 - **CW Mode**

$$\text{VFO} = \text{IF CW Freq} + \text{Display Freq} + \text{BFO CW Offset (+ RIT on RX) (No RIT on TX)}$$

$$\text{BFO} = \text{IF SSB} + \text{BFO CW}$$
 - **AM Mode** $\text{VFO} = \text{IF AM Freq} + \text{Display Freq} + \text{RIT (on RX)}$
 - **AM Mode** $\text{VFO} = \text{Display Freq (on TX)}$
 - **FM Mode** $\text{VFO} = \text{IF FM Freq} + \text{Display Freq} + \text{RIT (on RX)}$
 - **FM Mode** $\text{VFO} = \text{Display Freq (on TX)}$
 - **SDR Mode** $\text{VFO} = 4 \times \text{Display}$
- **BAND Control** are output pins to control LPF/BPF, these pin have 5V logic high when active
 Default bands range are:
 - 160 m 1.800.000 - 1.999.999 ○ 80 m 3.500.000 - 3.999.999 ○ 40 m 6.900.000 - 7.249.999
 - 30 m 10.100.000 - 10.149.999 ○ 20 m 14.000.000 - 14.349.999 ○ 17 m 18.068.000 - 18.067.999
 - 15 m 21.000.000 - 21.449.999 ○ 10 m 287.000.00 - 29.699.999
- **LSB/USB/CW/AM** is an output pin to control USB/LSB when use external BFO

OPERATION

- **Setting IF** (no need if use for SDR VFO on SDR mode only)
 - dial rotary button to set up IF value
 - IF value depend on your transceiver for an example
 - BITX system with 10MHz IF
 - We need setting up IF 10MHz, then adjust later

- **Setting up Correction Value,** ○ Prepare frequency counter, set for 10MHz reading in VFO/LO pin ○ get in to setting menu by pressing Setting button ○ dial rotary button until frequency read out show 10.000.000 Hz ○ press setting button then

EEPROM RESET

Some case EEPROM value are corrupt then we can reset all EEPROM value into factory default

- Push SET button, dial rotary until menu reset show
- Push Set again to reset the setting value