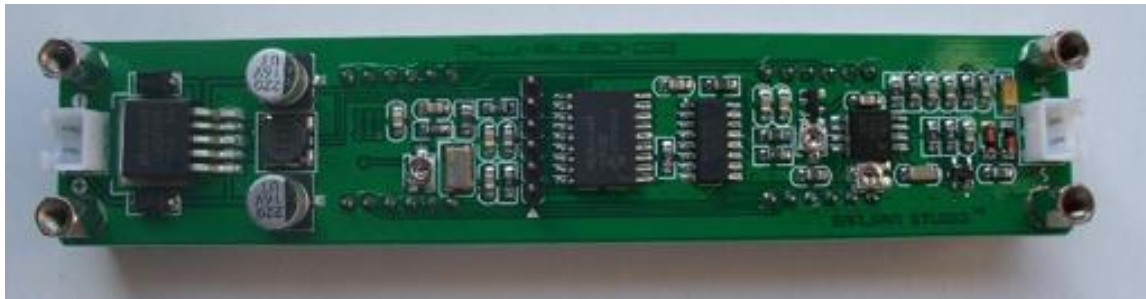
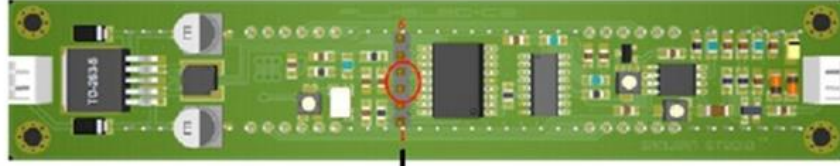


RF Signal Frequency Counter

0.1-60MHz, 20MHz ~ 2.4GHz

<http://www.ebay.com/itm/Blue-0-1-60MHz-20MHz-2-4GHz-RF-Signal-Frequency-Counter-Cymometer-Tester-/181806842808?>

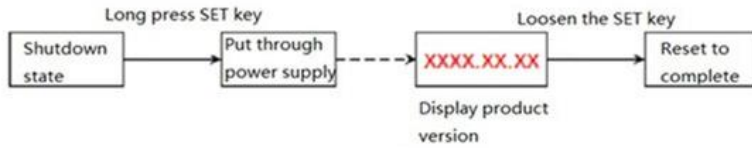




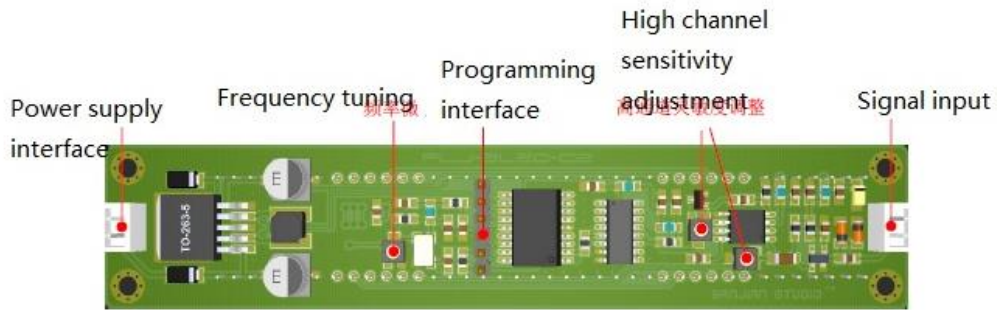
Programming interface ICSP definition:

脚位	1	2	3	4	5	6
定义	VPP	5V	GND	PGD/中频切换	PGC	AUX

System reset



PCB 正面 (3D 视图)



PCB 背面 (3D 视图)

1. Description:

- With Microchip's PIC16F648A, 2.4 GHz frequency meter.
- Using temperature-compensated voltage controlled crystal oscillator (2.5 ppm VC-TCXO).
- Unique gate control and precise time algorithm (non-timed interrupt).
- Gate (display refresh) time 0.01 seconds / 0.1 seconds / 1.0 seconds, real-time display frequency value.
- Single-ended input design, three-channel frequency measurement (low channel / high channel / Auto Channel).
- Dual frequency design, value and IF / down mode can be preset separately.
- Using eight 0.56 inches high brightness digital display, eight adjustable brightness.
- Circuit is simple and reasonable structure, two-button control, simple operation.
- The settings are automatically saved, boot directly call.
- Gate Times
 - 1 second
 - 0.10 second

2. Measurement channels (channels are low impedance)

Low channel

- Measuring range: 0.1 MHz ~ 60 MHz
- Accuracy: $\pm 100\text{Hz}$ (0.01 1s gate time)
- $\pm 10\text{Hz}$ (0.1 seconds gate)
- $\pm 1\text{Hz}$ (1.0 seconds when the gate)
- Low channel sensitivity:
 - MHz ~ 10 MHz: better than 60mVPP
- 10 MHz ~ 60 MHz: better than 60mVPP
- 60 MHz ~ 75 MHz: Not tested

High channel (divided by 64)

- Measuring range: 20 MHz ~ 2.4 GHz
- Accuracy: $\pm 6400\text{Hz}$ (0.01 seconds gate)
- $\pm 640\text{Hz}$ (0.1 1s gate time)
- $\pm 64\text{Hz}$ (1.0 1s gate time)

High channel sensitivity:

- 20 MHz ~ 30 MHz: better than 100mVPP
- 30 MHz ~ 60 MHz: better than 50mVPP
- 60 MHz ~ 2.4GHz: not tested

Auto Channel

Automatically selected according to the input signal frequency high or low channel channel, identifying the frequency of 60 MHz. Such as when the input signal amplitude is greater than 60 MHz shortage cannot automatically select high channel, the channel should manually select high frequency measurement.

3. IF settings

Independent double-IF design, adjust the minimum frequency step of 100 Hz, frequency range 0 ~ 99.9999 MHz, can be set to increase or decrease the IF frequency mode.

4. Frequency reference

- Using 5032 package 13.000MHz Warming voltage controlled crystal oscillator (VC-TCXO), frequency stability of ± 2.5 ppm.

5. Operating voltage

- DC Input: DC 9V ~ 15V (with reverse polarity protection)

6. Current

- Maximum 160 mA (test conditions: ① DC12V power supply; ② red LED; ③ eight brightness)

7. Eight LED display, the highest display eight digits.**8. Eight LED brightness is adjustable, factory set to maximum brightness.****9. Physical Dimensions, Length x width x height: 125.5 mm x 25.5 mm x 21.5 mm****10. Component quality 46 g (NW)****11. Onboard Interface**

- DC IN (Power Interface): HX2.54-2P socket
- RF IN (signal input): HX2.54-2P socket
- ICSP (programming interface): 2.54-6P Pin

N2APB Notes:

Lower PB: "Gate Time Adjustment"

- Tap: Display to 1 Hz (29,600.000 kHz) [1s gate time]
- Tap: Display to 10 Hz (29,600.00 kHz) [0.1s gate time]
- Tap: Display to 100 Hz (29,600.0 kHz) [0.01s gate time]

Top PB: "MODE"

- **Set IF: Sets IF offset frequency**
 - o Lower PB increase selected (blinking) digit
 - If Lower PB pressed again, exit to next Mode
 - o Upper PB moves selected (blinking) digit
 - Pushing PB fully to the right completes the entry
 - o Note 1: To set digits other than 10 MHz, the 10M digit must be changed first in order to select other digits.
 - o Note 2: To decrease a digit, just keep incrementing until number cycles back to desired value)
- **IF Direction**
 - o Lower PB toggles between U and N
 - U: "Up" (Add IF offset)
 - N: "Down" (Subtracts IF offset)
 - o Upper PB to exit
- **CH ... Measurement Channel Selection**
 - o Lower PB changes between Low, High and Auto
 - L: Low Frequency Range (0.1 MHz - 60 MHz)
 - H: High Frequency Range (20 MHz – 2.4 GHz)
 - A: Auto Frequency Ranging
 - o Upper PB to exit
- **DF... Filter [Unknown!]**
 - o Lower PB toggles between ON and OFF
 - ON: "Open" ... Display is 00.000.000 when no input is applied(?)
 - OFF: "Shutdown" ... Random "noisy" display shows when no signal applied(?)
- **L ... LED Intensity Setting**
 - o Lower PB increments the intensity setting from 1 (lowest) to 8 (highest).
 - o Upper PB to exit