

User's manual

Overview

PLJ-8LED-C is a cost-effective digital display. Eight segment frequency display assembly, mainly for Display transceiver and other equipment frequency values can also be used in a conventional frequency measurement. "know as a Frequency counter or Freq counter"

The assembly has a compact, Sophisticated, reliable performance, visual effects, low cost and so on.

Main features:

⊗ A Microchip's PIC16F648A processor, as the core 2.4GHz frequency meter.

⊗ Frequency reference using the temperature-compensated voltage controlled crystal oscillator (2.5 ppm VC-TCXO).

⊗ Unique gate control and precise time algorithm (non-timer interrupt).

⊗ Gate (display refresh) time of 0.01 seconds /0.1 /1.0 seconds optional, real-time display frequency value.

⊗ Single-ended input design, three-channel frequency measurement (channel low / high channel / Auto Channel) optional.

⊗ Dual IF design, value and IF / down mode can be preset separately.

⊗ Using eight .56 inches high brightness LED display, eight adjustable level brightness.

⊗ Invalid zero blanking automatically invalid display filter frequency selectable, optional last bit blanking.

⊗ The circuit is simple, reasonable structure, two-button control, simple operation.

The settings **are saved automatically** and restored, at the next power up.

Technical Parameters:

Max inputs is 700mV (peak), and is bipolar diode clamped.

1. The gate time base. (slow medium and fast this is)

0.01 Seconds

0.10 S

1.0 S

2. Measure the channel (Input pin levels, see, a high impedance)

Low Frequency (freq) channel

Measuring range: 0.1 MHz ~ 60MHz

Accuracy: $\pm 100\text{Hz}$ (0.01 1s gate time)

$\pm 10\text{Hz}$ (0.1 seconds when the gate)

$\pm 1\text{Hz}$ (1.0 seconds when the gate)

Low Freq. channel sensitivity:

0.1 MHz ~ 10MHz: better than 60mV

10MHz ~ 60MHz: better than 60mVPP

60 MHz ~ 75 MHz: Untested

High frequency channel (64 division)

Measuring range: 20 MHz ~ 2.4 GHz

Accuracy: ± 6400 Hz (0.01 seconds at gate time)

± 640 Hz (0.1 1s gate time)

± 64 Hz (1.0 1s gate time)

High channel sensitivity:

20MHz ~ 30MHz: better than 100mV PP

30 MHz ~ 60 MHz: better than 50mVPP

60 MHz ~ 2.4GHz: Untested

Auto Channel (limits)

According to the input signal frequency to automatically select channel high or low channel identification frequency 60 MHz. If the input is greater than 60 MHz When insufficient signal amplitude can not automatically select the high channel, manually select the channel high frequency measurement.

3. IF Settings (this is called, Frequency offset mode)

Independent double-IF design, IF adjust the minimum increments of 100 Hz, the intermediate frequency range 0 ~ 99.9999 MHz, plus the intermediate frequency can be set

Or minus offset IF mode. You can for example offset the reading by your, VFO inside a radio.

4. The frequency reference (this is heated and very stable crystal, we call it a crystal oven)

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

5. Operating Voltage

DC: DC 9V ~ 15V (with a reverse polarity protection) 7805 chip rules.

6. Working current

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

7. Display digits

Eight LED display, shows up to eight digits.

8. Display brightness

Eight LED brightness adjustable, factory set to maximum brightness.

9. Physical Dimensions

Length \times width \times height: 125.5 mm \times 25.5 mm \times 21.5 mm

10. The assembly quality

46 grams (net weight)

11. The on-board interfaces

DC IN (Power Interface): HX2.54-2P socket

RF IN (signal input): HX2.54-2P socket

ICSP (programming interface): 2.54-6P Pin

1. Please check before using the power supply voltage (DC 9V-15V) and polarity before power after confirmation. This Freq, counter module, has a power supply circuit protector in series using Diodes, power supply reverse polarity is blocked this way, but will not have devastating consequences unlike other products that have no protections.

The input is also double back to back diode clamped. And protected over 700mV, @1amp max.

2. Measure the VFO or other signals directly to the 2pin port or an antenna (EMF induced mode)

Connected to same port 2 pins, and ground pin grounded. The antenna can pick up near Field RF signals and count them. Showing you for example, that your transmitter is on frequency . (Ham operators, do this, for sure on old RIGs)

(B) The menu structure: (customer edited)

Details are in the attached JPG, photos.

Top right 2 switches are mode(IF) and set (change/next) marked SET AND Δ buttons.

The modes are, in order of choices are:

IF =(0 to 9) digit blanker. (you can move to any digit left or right) for example say you don't like the flickering last digit, you can blank it or say the 1st digit is never used, you can blank here.

IF =(U or n) This is a frequency off set value. Like if you want to subtract VFO Freq from readings. How to use this mode, I'm not sure, it's obscure to me. But is a nice feature for HAM radio repair technicians or RF engineers alike. I think U is + offset and n is minus offset.

dF = (on or off) -Display filter is an input signal filters 200khz to 30mhz, on or off.

IF= A-H-L) Auto, high , low) Try "A" first and see if that works for you.

L = 1-8 (brightness of display)

The gate rate: is shown as zeros and decimal points on the right side. This mode is set x .000 x.00 and x.0 1sec, .1x and .01sec. gates.

To change modes, one only needs to press the set button until the mode you wish is seen in the display. The attached JPG flow chart photos help here.

(C) Measurement frequency

Test line with the RF IN (signal input) port and the transceiver output of the local oscillator or other test points connected (with attenuator if RF transmitter), LED screen on

Frequency test points can be displayed in real time.

High impedance input design of the components helps to reduce the impact on the local oscillation (VFO,HFO,etc) circuit of the transceiver. "Reduced loading effects from the driven source."

Your test signal or input signal needs minimum level as in all things of this nature.

Your Oscillator output signal (display input) should have a certain strength (greater than 60mV -PP), NE602 / NE612, same as your oscilloscope needs, or it shows a distorted, image.

The signals need to be clean too, if they are full of noise, the input filters may not clean it up enough to count the fundamental signal you wish to count.

Best is 1 Fixed value of frequency inputted.(not sweeping fast or changing fast in freq.)

Owner says:

I don't understand feet or foot words, at all. So I deleted that section.

Photo errors: corrected.

MILD IS WRONG, IT'S MIDDLE FREQ. or MID, Hight, is HIGH.

SET 鍵 Store

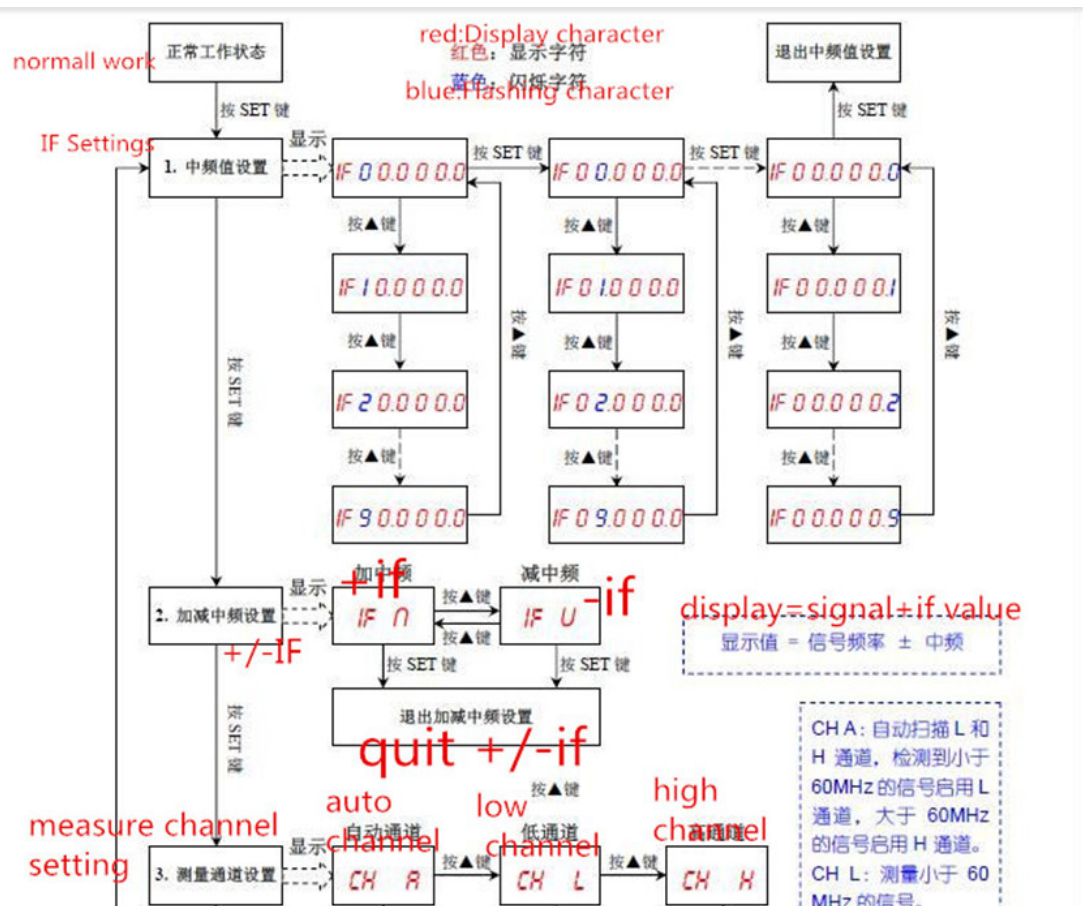


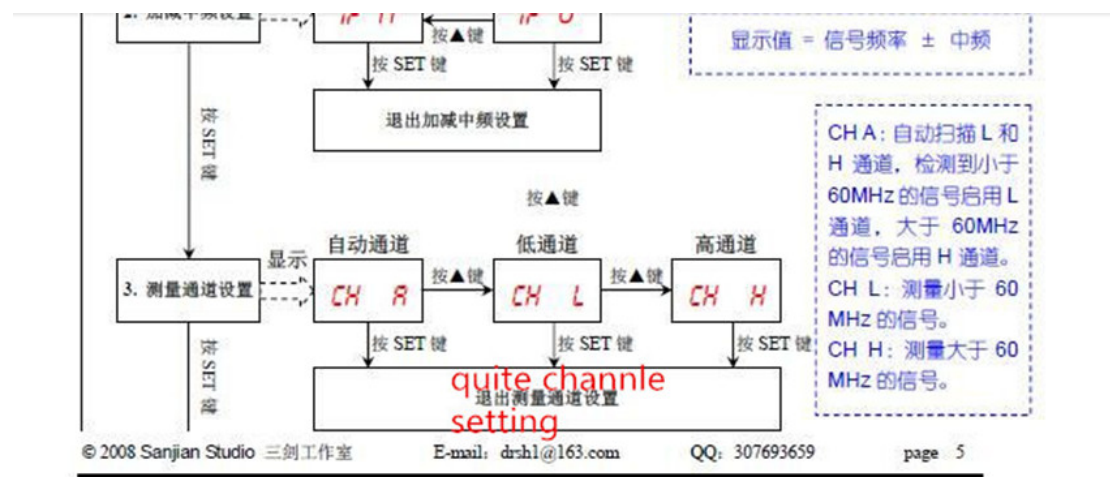
▲鍵
NEXT?



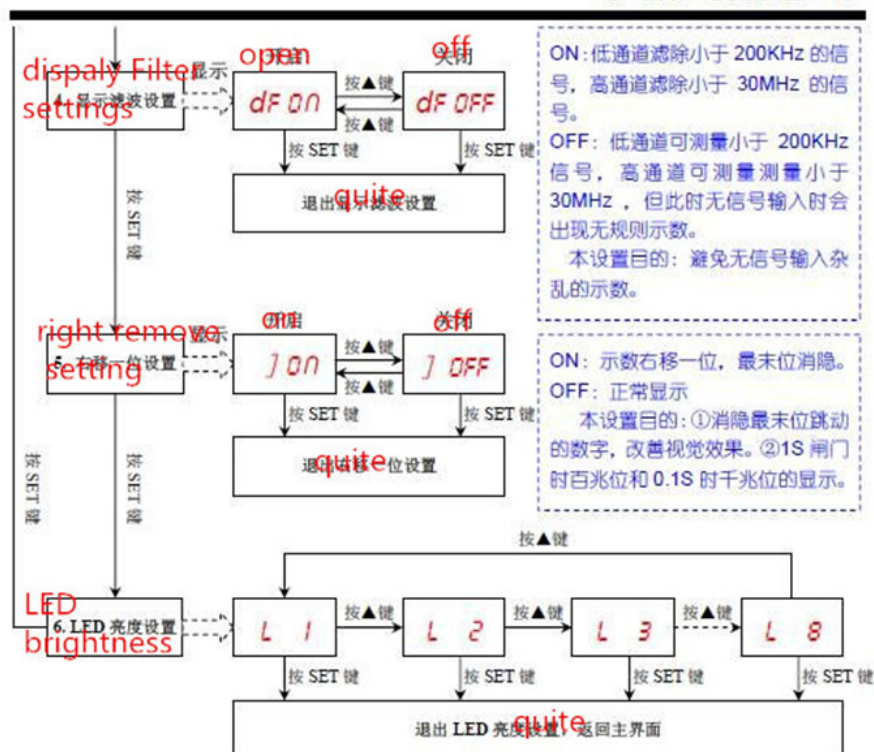
This side are factory calibration Adjustments.
Do not touch.

Do not touch.





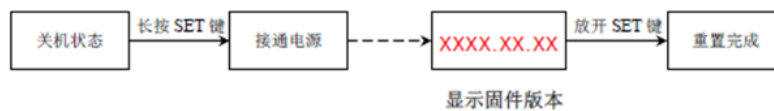
PLJ-8LED-C



Gate time adjustment 闸门时间调整



系统重置



Revised by K5JXH (I love it !) It is the bees, knees ! and dead accurate.

I installed mine in my new designed, Signal generator , with VGA + above + programmable attenuator. Thank you, Sanjian Studio.! 73's to all.