

Frequency display assembly

频率显示组件

PLJ-0802-A

用户手册

Users Manual

V 1.0

SANJIAN STUDIO™

三剑工作室 **Swords studio**

2014年8月

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概 述

Overview

PLJ-0802-A 嵌入式智能频率计专为 HAM 设计的频率测量仪器。其小巧精致，操作简单，工作可靠，主要用于 DIY 收发信机作频率值显示，也可用于常规频率测量。本频率计的主要特点如下：

- 以 Microchip 公司 8 位单片机 PIC16F648A 为核心的高性能 1.2GHz 频率计。
- 频率基准采用温度补偿型压控晶体振荡器(± 2.5 ppm VC-TCXO)。
- 双中频设计，中频值及加/减模式可单独预置。
- 采用 LCD0802 液晶屏显示，最高可显示 7 位数字，频率值无效零自动消隐。
- 防电源反接设计，低功耗电池
- 双按键控制，人机界面良好。
- 各项设置自动保存在 EEPROM 中，下次开机直接调用。

PLJ-0802-A Embedded intelligent frequency meter designed specifically for HAM frequency measurement instruments. Its compact, exercise For a simple, reliable, mainly for DIY transceiver for frequency display, it can also be used in a conventional frequency measurement.

The main features of the frequency meter are as follows: 8

- * In Microchip's 8-bit microcontroller PIC16F648A as the core of high-performance 1.2GHz frequency meter.
- * Frequency reference using the temperature-compensated voltage controlled crystal oscillator (± 2.5 ppm VC-TCXO).
- * Dual IF design, value and IF / down mode can be preset separately.
- * Using LCD0802 LCD display, can display up to seven digits, zero frequency value is invalid automatic blanking.
- * Anti-reverse power supply design, low-power battery scheme.
- * Two-button control, a good man-machine interface.
- * The settings are automatically saved in the EEPROM, the next boot directly call.

技术参数

- 1. 闸门时间
 - 0.64 秒
 - 2. 测量通道
1. The gate time
0.64 seconds

2. Measure the channel
Measuring range: 1 MHz ~ 1.2 GHz Accuracy: ± 100Hz
Channel sensitivity: (HM8134-2 data)

测量范围: 1 MHz ~ 1.2 GHz 测量精度: ± 100Hz

通道灵敏度: (HM8134-2 数据)

Test frequency Sensitivity	测试频点(MHz)	5	10	30	60	100	150	200	300	450
	灵敏度(mV RMS)	35	20	10	3	3	4	8	15	12
Test frequency Sensitivity	测试频点(MHz)	500	550	600	700	800	900	1000	1100	1200
	灵敏度(mV RMS)	14	30	65	80	80	35	175	270	310

- 3. 中频设置
 - 中频可调
- IF Settings
IF adjustable minimum increments of 100 Hz, the intermediate frequency range 0 ~ 999.9999 MHz, can be set to plus or minus IF IF mode.

- 4. 频率基准
 - 采用 5032
- Frequency reference
5032 package using 13.000MHz Warming VCXO (VC-TCXO), frequency stability is ± 2.5 ppm.

- 5. 工作电压
 - 直流输入:
- Operating Voltage
DC: DC 9V ~ 12V (power supply polarity protection)

- 6. 工作电流
 - 启用背光:
- Working current
Enable Backlight: ≤ 55 mA

- 7. 显示位数
 - 最高 7 位数
- Display digits
Up to 7-digit display

- 8. 物理尺寸
 - 长×宽×高:
- Physical Dimensions
Length x width x height: 58mm x 32mm x 27mm

- 9. 模块质量
 - 40 g
- Quality Module
40 g

- 10. 板载接口
- Onboard Interface
RF INPUT (measuring signal input): XH2.54-2P side port outlet
ICSP INPUT (MCU programming interface): XH2.54-6P Pin
POWER INPUT (Power Interface): XH2.54-2P side port outlet
- RF INPUT (测量信号输入): XH2.54-2P 侧接口
- ICSP INPUT (MCU 编程接口): XH2.54-6P 接口
- POWER INPUT (电源接口): XH2.54-2P 方口插座

使用操作

Using the
Operation 2P side
port outlet

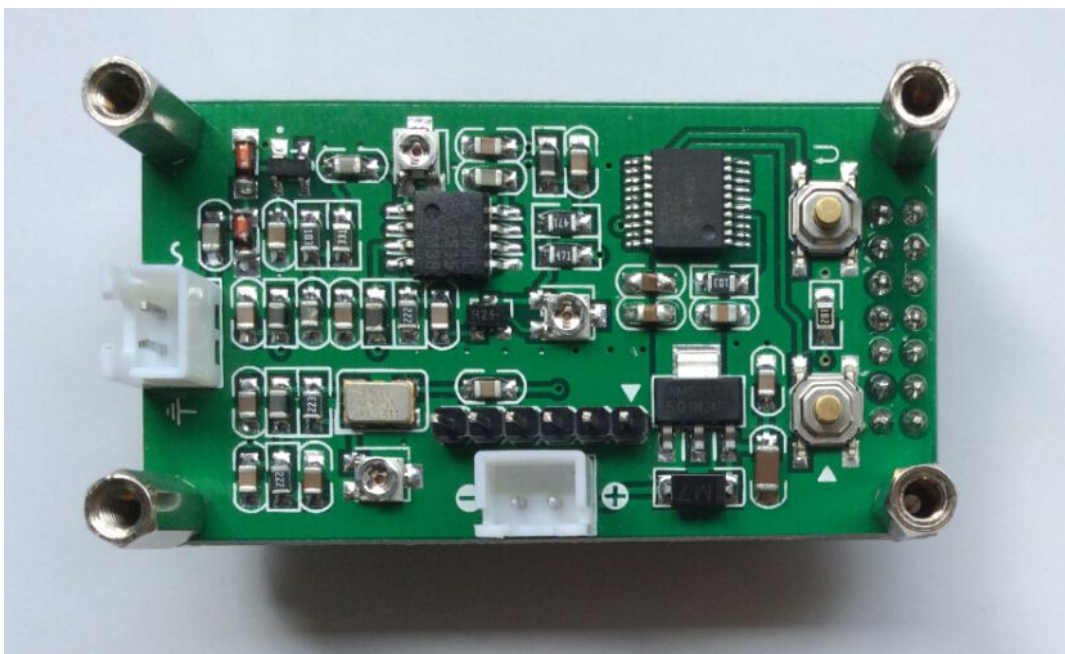
1. This machine
structure

一. 本机结构



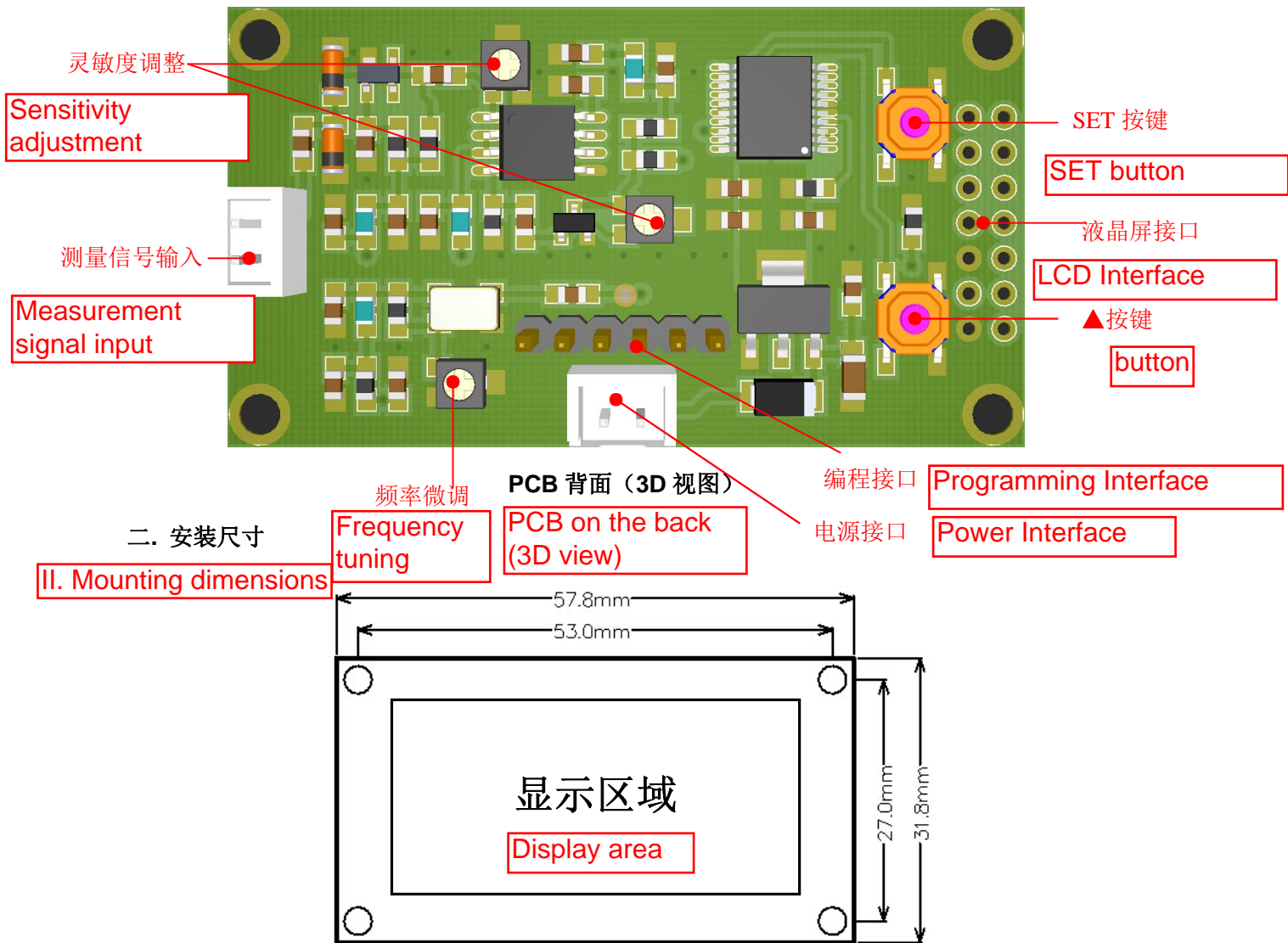
整机正面（实物图）

The whole front (physical map)



整机背面（实物图）

The back of the machine
(physical map)



三. 操作步骤

- (一) 准备工作
1. 使用前请先检查电源极性，电源极性
 2. 测量信号输入
 3. 仪器电源开关
- (二) 功能设置

III. Procedure

(A) preparation

1. Before use, please check the power supply voltage (DC 9V-12V) and polarity confirmation before power and correct. This unit has a foolproof set Meter, reverse polarity power the machine does not work, but will not have devastating consequences.
2. Measure the signal input port side seat 2P access test line (wired) or antenna (inductive mode).
3. Preheat a few minutes until the instrument power on a frequency reference to stabilize before the measurement operation.

(B) the feature set

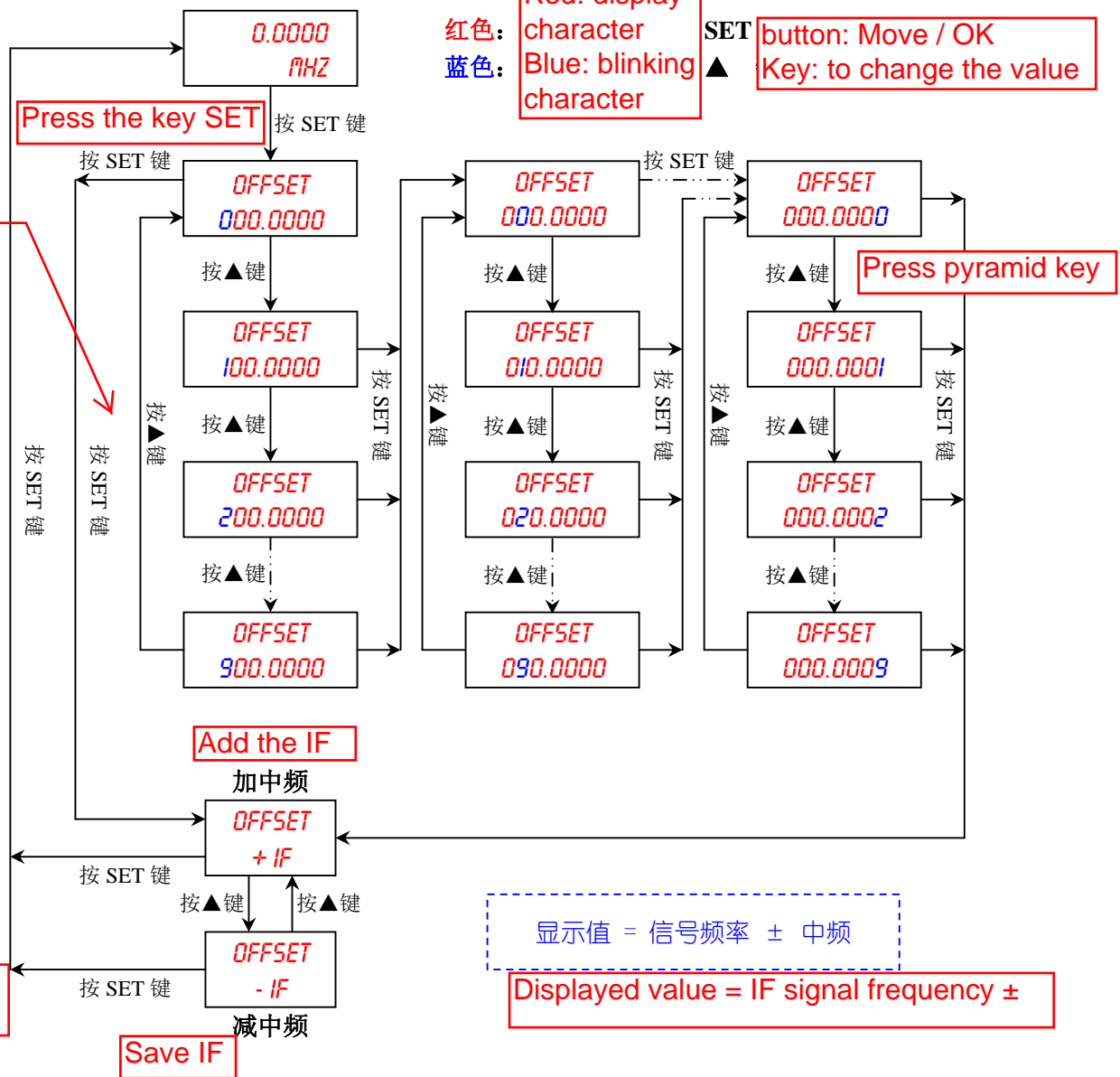
中频设置 IF Settings

Red: display character
 Blue: blinking character
 SET button: Move / OK Key: to change the value

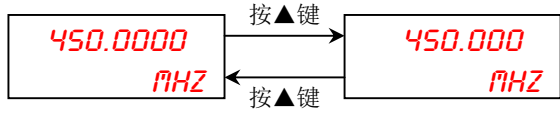
Etc, for key presses

1. 中频值设置
 IF value

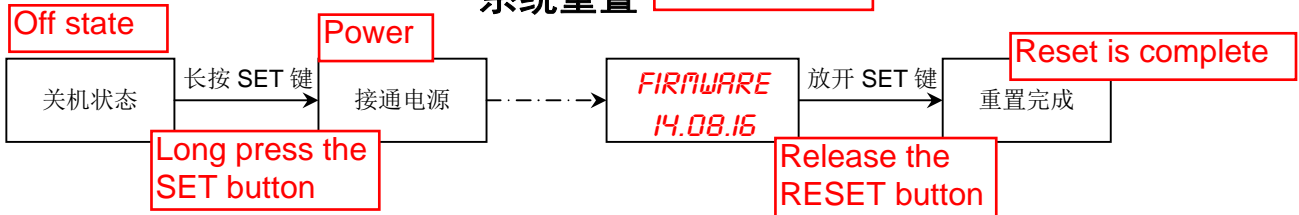
2. 加减中频设置
 IF subtraction settings



显示调整 (右移一位) Display adjustment (right one)



系统重置 System Reset



IF using the first two switches from programming interface ICSP first ④ pin is higher to achieve the first ④ pin set high or left floating

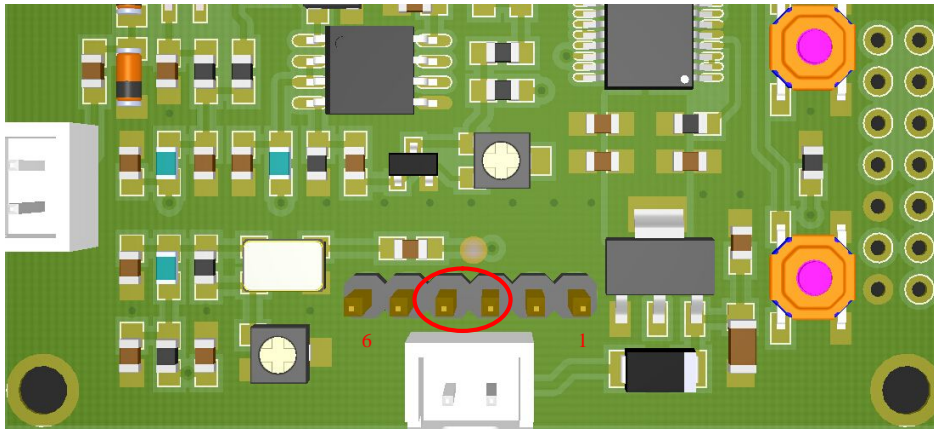
IF first ④ pin is set low when the second intermediate frequency. Two independent IF, IF subtraction value and preset modes, respectively, mutual

Do not interfere. ④ first IF section can be preset when pin is set high or floating, the first ④ pin set low second intermediate frequency can be preset. The first factory

④ pin floating default setting using the first intermediate frequency, intermediate frequency value is zero, up / down mode is reduced. In practice, the first programming interface ICSP

④ ③ feet and pin (GND) with a 2P DuPont line leads (red circle next position), using a switch or microcontroller control programming interface

Electrical interface ICSP first ④ pin level and achieve two IF transceiver Salvo.



编程接口 ICSP 定义:

ICSP programming interface definition:

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

PGD / MF switch

(三) 测量频率

(C) Measurement frequency

1. wired

In measuring signal input port and signal measurement point connection by testing line measurement frequency.

2. Sensing Method

Measuring signal input port connected to the test antenna on the transmit signal frequency measuring device inductively. Such as walkie-talkies, etc.

Radio frequency transmitting device measurements.

Strong radiation measuring signal attenuation resistor wired in series should be, should frequency inductively meter away from the radiation source, in order to avoid

Damage the instrument. This component of the high-impedance input design helps to reduce the impact on the local oscillation circuit of the transceiver LO output signal shall have one Given intensity (greater than 50mV RMS), NE602 / NE612 like oscillation is weak, it may not read stable frequency value.

产品订购

为方便大家测试使用，三剑工作室 SANJIAN STUDIO™ 提供小批量产品，采购请进入
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Products Order

To facilitate the use of the test, swords studios provide small quantities of products, please enter the procurement

Taobao search shops on the main page "swords studio" or Baby "PLJ-0802" Keywords can also directly contact the studio. Scanning capacity

Bag sealing label on the product packaging dimensional code into the network disk can obtain product related technical support.

Kit Description:

n chip devices installed

n reflow process

n Use LCD0802

n nickel-plated copper pillar installation

n No power, no shell

n has finished debugging

packing list:

n host one

n XH2.54-2P 20cm single head line two

n anti-static bag

Precautions:

n Distribution Kit two XH2.54-2P 20cm single head line, as do the color polarity judgment basis, according to the former access

Host socket polarity judgment, read this manual details the use of the contents of an operation.

n The machine has no direct input signal may be zero show that this is normal and does not affect the normal measurement and accuracy.

n Do not place the instrument in hot, humid, dusty environment, and should prevent the severe vibration.

n The machine has been manufactured before the clock reference correction rubidium atomic clock, sensitivity adjustment to the best, do not adjust themselves.

In normal use n

- 在正常的使用情况下保修期为一年。保修不适用于因错误使用、改装等非正常条件下导致损坏的产品。

About DIY

Forum published the full set of data fabrication PLJ-0802, you can directly send PCB Gerber file processing plant.

Programming document has been set bit programming, programming has read most of the programming bit functionality, without human intervention. If your burn

Writer unrecognized, crystal type selected HS, rest of the options can be turned off.

Summary version before all the conditions in the Forum published the programming document added usage restrictions, boot the first 25 times,

Will show "BETA VERSION" restrictions continue, in which case the system reset (hold down the SET key to power) can be restored to use, apart from

Outside, no other hardware and software technology trap.

Attachment: frequency meter data in the previous release [hellocq.net](http://www.hellocq.net)

附：历次在 [hellocq.net](http://www.hellocq.net) 发布的频率计资料

2008-11-03: <http://www.hellocq.net/forum/read.php?tid=189583>

2008-11-04: <http://www.hellocq.net/forum/read.php?tid=189696>

2008-11-05: <http://www.hellocq.net/forum/read.php?tid=189718>

2009-03-30: <http://www.hellocq.net/forum/read.php?tid=200868>

2011-04-27: <http://www.hellocq.net/forum/read.php?tid=264417>

2011-12-14: <http://www.hellocq.net/forum/read.php?tid=282626>

2013-03-22: <http://www.hellocq.net/forum/read.php?tid=312288>

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