

FNIRSI 菲尼瑞斯

LCR-P1

晶体管检测仪

TRANSISTOR TESTER



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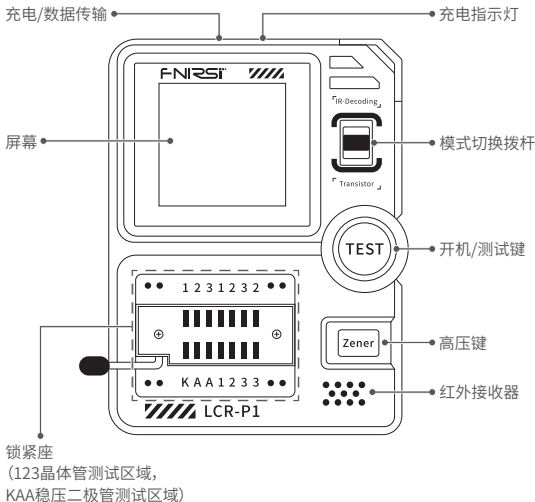
用户须知

- 本手册详细介绍了产品的使用方法、注意事项以及相关事项，在使用产品之前，请详细阅读手册，以便发挥产品的最佳性能。
- 不要在易燃、易爆的环境中使用仪器。
- 仪器更换的废旧电池和报废的仪器不可与生活垃圾一同处理请按国家或者当地的相关法律规定处理。
- 当仪器出现任何质量问题或者对使用仪器有疑问时，可联系“菲尼瑞斯-FNIRSI”在线客服或厂家，我们将在第一时间为您解答。

一、产品简介

晶体管检测仪LCR-P1是一款高精度、多功能的电子测试设备，专为电子工程师、技术人员和电子爱好者设计。该设备旨在检测和分析晶体管、二极管、三极管、场效应管 (FET) 等半导体元件的性能和特性。配备彩屏，能够多元器件的多参数测量，自动识别被测元件的类型及引脚排列，简化操作流程，提高测试效率。

二、面板介绍



三、参数介绍

【3.1】主机参数

产品型号	LCR-P1
显示屏	1.44寸
电池容量	300mAH锂电池
充电规格	USBType-C, 5V/1A
产品尺寸	71×87×28mm

【3.2】元器件测试参数

类目	范围	说明
三极管	$10 < \beta < 600$	放大倍数 h_{fe} , 基极 - 发射极压 U_{be} , I_c/I_e , 集电极 - 发射极反向截止电流 I_{ceo} , I_{ces} , 保护二极管正向压降 U_f
二极管	正向压降 $< 4.5V$	正向压降, 结电容, 反向漏电流
稳压二极管	0.01-4.5V 0.01-32V	(1-2-3测试区) 正向压降, 反向击穿电压 (K-A-A测试区) 反向击穿电压

类目	范围	说明
场效应管	JFET IGBT MIOSTET	· 栅极电容 C_g , V_{gs} 下的漏极电流 I_d , 保护二极管正向压降 U_f · V_{gs} 下的漏极电流 I_d , 保护二极管正向压降 U_f · 开启电压 V_t , 栅极电容 C_g , 漏源电阻 R_{ds} , 保护二极管正向压降 U_f
单向可控硅 双向可控硅	开启电压 $<5V$ 门极触发电流 $<6mA$	门极电压
电容	25pF~100mF	电容值, 损耗系数 V_{loss} , 内阻ESR
电阻	0.01 Ω -50M Ω	电阻值
电感	10uH-1000uH	电感值, 直流电阻
电池	0.1-4.5V	电压值, 正负极性
红外遥控解码	NEC协议红外码	显示用户码和数据码, 并显示对应的红外波形

四、操作说明

【4.1】 开关机



未知/未有元件/或损坏

开机:关机状态下按**TEST**键进入测试界面

关机:在非测量页面长按**TEST**键关机

【4.2】 电容、电阻、电感、二极管、电池测试等两脚元器件测试

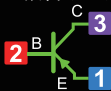
元器件引脚插入两个不同位号的测试孔(1、3或1、2或2、3),下压锁紧杆,按**TEST**键进行测试,会测量结束会显示对应的测试参数几及引脚顺序



【4.3】三极管、MOS管等三脚元器件测试

三个引脚分别插入1、2、3位号测试孔，下压锁紧杆，按**TEST**键进行测试会显示测量结束会显示对应的测试参数以及引脚顺序

三极管 (PNP)

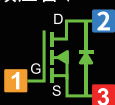


HFE:180

I_e:1.30mA

U_{be}:617mV

场效应管 (N-E-MOS)



V_t:3.30V

C_g:3.75nF

R_{ds}:0.1Ω

U_f:576mV

【4.4】稳压二极管测试

按**Zener**键，进入稳压二极管测试模式，稳压二极管正极插入A位号测试孔，负极插入K位号测试孔(接反测试有插反提示)下压锁紧杆，按**TEST**键进行测试会显示对应的测量结果

稳压二极管



V_{ext}:24.26V

稳压二极管



V_{ext}:0.74V

+/-插反!

【4.5】红外解码

红外解码



地址码0x00FF



命令码0x19E6

上拨模式切换拨杆,进入红外解码测试模式,对准红外接收器发送红外信号,机器会自动进行解码,解码完成后显示地址码和用户码以及波形

五、固件升级

- 关机状态下依次长按**Zener**键(高压键)和**TEST**键(开机键)进入固件升级界面
- 通过Type-C线连接电脑
- 选择固件和当前设备的COM号,点击开始升级
- 升级成功自动重启

固件更新中
update

设备升级界面



连接电脑界面

六、注意事项

- 未给电容放电直接测量在插入锁紧瞬间机器会给电容放电产生火花。该功能只是起到防止忘记放电保护作用，正确使用还是建议先给电容手动放电在测试。
- 在非测量过程中，123锁紧接口属于导通状态，禁止电池直接插入。
- 测量元器件参数不在测试范围测试结果可能会出现非正确元器件类型。

七、生产信息

产品名称:晶体管检测仪

品牌/型号:FNIRSI/LCR-P1

服务电话:0755-28020752

服务邮箱:support@fnirsi.com

商务邮箱:business@fnirsi.com

生产商:深圳市菲尼瑞斯科技有限公司

地址:广东省深圳市龙华区大浪街道伟华达工业园C栋西边8楼

网址:www.fnirsi.cn

执行标准:SJ/T 10333-1993

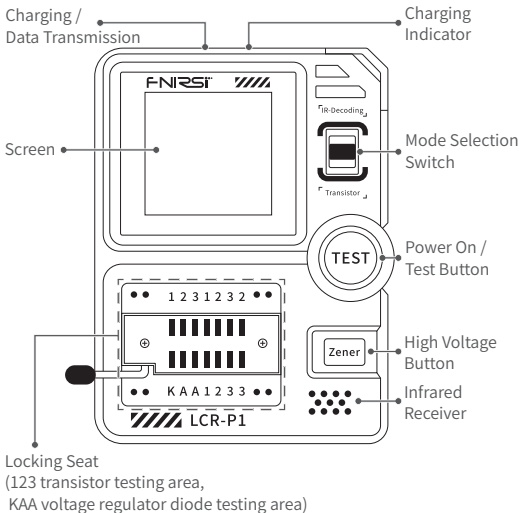
NOTICE TO USERS

- This manual provides detailed instructions on how to use the product, precautions, and relevant information. Please read the manual carefully before using the product to ensure optimal performance.
- Do not use the instrument in flammable or explosive environments.
- Dispose of used batteries and discarded instruments according to national or local regulations; they should not be disposed of with household waste.
- If there are any quality issues with the instrument or if you have any questions about its use, please contact "FNIRSI" online customer service or the manufacturer. We will resolve your issue promptly.

1.PRODUCT INTRODUCTION

The Transistor Tester is a high-precision, multifunctional electronic testing device designed specifically for electronic engineers, technicians, and enthusiasts. This device is intended for detecting and analyzing the performance and characteristics of semiconductor components such as transistors, diodes, triodes, and field-effect transistors (FETs). Equipped with a color screen, it allows for multi-parameter measurement of various components, automatically identifies the type and pin arrangement of the tested component, simplifying the operation process and enhancing testing efficiency.

2.PANEL INTRODUCTION



3.PARAMETER INTRODUCTION

【 3.1 】 Host parameters

Product Model	LCR-P1
Display Screen	1.44 inches
Battery Capacity	300mAh lithium battery
Charging Specification	USB Type-C, 5V/1A
Product Size	71×87×28mm

【 3.2 】 Component Test Parameters

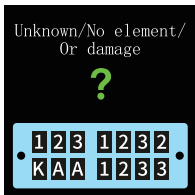
Category	Range	Explanation
Transistor	$10 < \beta < 600$	DC current gain h_{fe} , base-emitter voltage drop U_{be} , I_c/I_e , collector-emitter reverse cutoff current I_{ceo} , I_{ces} , forward voltage drop U_f .
Diode	Forward voltage drop $< 4.5V$	Forward voltage drop, junction capacitance, reverse leakage current.
Voltage Regulator Diode	0.01-4.5V 0.01-32V	(1-2-3 Testing Area) Forward voltage drop, reverse breakdown voltage. (K-A-A Testing Area) Reverse breakdown voltage.

Category	Range	Explanation
Field-Effect Transistor	JFET IGBT MIOSTET	· Gate capacitance C_g, drain current I_d at V_{gs}, forward voltage drop of protective diode U_f. · I_d at V_{gs}, forward voltage drop of protective diode U_f. · Threshold voltage V_t, gate capacitance C_g, drain-source resistance R_{ds}, forward voltage drop of protective diode U_f.
Unidirectional SCR Bidirectional SCR	Turn-on voltage $< 5V$, gate trigger current $< 6mA$	Gate voltage
Capacitor	25pF~100mF	Capacitance value, loss coefficient V_{loss} , equivalent series resistance ESR.
Resistor	0.01 Ω -50M Ω	Resistance value.
Inductor	10uH-1000uH	Inductance value, DC resistance.
Battery	0.1-4.5V	Voltage value, polarity.
Infrared Remote Control Decoding	NEC protocol infrared code	Display user code and data code, and display corresponding infrared waveform.

***SCR:**Silicon Controlled Rectifier

4. OPERATING INSTRUCTIONS

【 4.1 】 Power On / Power Off

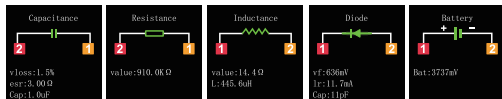


Power On: Press the TEST button while in the power-off state to enter the testing interface.

Power Off: Long press the TEST button on any non-measurement screen to power off.

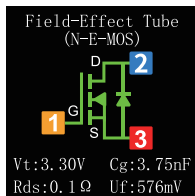
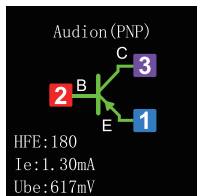
【 4.2 】 Testing of Two-pin Components such as Capacitors, Resistors, Inductors, Diodes, and Batteries

Insert the component pins into two different numbered test holes (e.g., 1, 3 or 1, 2 or 2, 3), press down and lock the clamping rod, then press the TEST button to initiate testing. Upon completion of the measurement, the corresponding test parameters and pin sequence will be displayed.



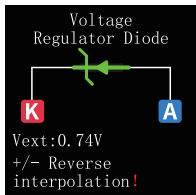
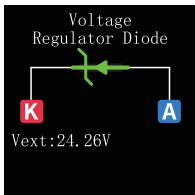
【 4.3 】 Testing of Three-pin Components such as Transistors, MOSFETs, etc

Insert the three pins into test holes numbered 1, 2, and 3 respectively. Press down and lock the clamping rod, then press the TEST button to initiate testing. Upon completion of the measurement, the corresponding test parameters and pin sequence will be displayed.

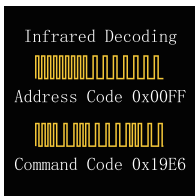


【 4.4 】 Testing of Zener Diodes

Press the Zener button to enter Zener diode testing mode. Insert the anode of the Zener diode into test hole A, and the cathode into test hole K (there will be a reverse connection prompt). Press down and lock the clamping rod, then press the TEST button to initiate testing. The measurement results will be displayed accordingly.



【 4.5 】 Infrared Decoding



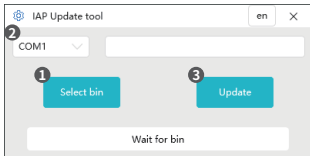
Switch the mode selection switch upward to enter Infrared decoding test mode. Aim the device at the Infrared receiver and send an Infrared signal. The device will automatically decode the signal. After decoding, it will display the address code, user code, and waveform.

5. FIRMWARE UPDATE

- Power off the device, then press and hold the **Zener** button (high voltage button) followed by the **TEST** button (power button) to enter the firmware upgrade interface.
- Connect to a computer via Type-C cable.
- Select the firmware and COM port of the current device, then click 'Start Upgrade'.
- The upgrade will succeed and the device will automatically restart.

固件更新中
update

设备升级界面



连接电脑界面

6.PRECAUTIONS

- When measuring capacitors without prior discharge, sparks may occur at the moment of insertion and locking, which can discharge the capacitor. This function serves as a safety measure to prevent forgetting to discharge capacitors before testing. However, it is still recommended to manually discharge capacitors before testing for proper usage.
- During non-measurement processes, the 1-2-3 locking interface is in a conductive state, which prohibits direct insertion of batteries.
- Testing component parameters outside the specified range may result in incorrect identification of component types.

7.CONTACT US

Any FNIRSI's users with any questions who comes to contact us will have our promise to get a satisfactory solution +an extra 6 months warranty to thanks for your support!

By the way, we have created an interesting community, welcome to contact FNIRSI staff to join our community.

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