

Keithley 4200 软件Clarius简 易操作指南

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刷卡开机之后，Keithley测试软件Clarius自动启动进入如下界面（上一位同学测试的项目，需要重新建立自己的测试项目或者调出已经建立的项目）
第一步，点击Projects

The screenshot displays the Clarius software interface. The top toolbar includes icons for Select, Configure, Analyze, Run, Stop, Save, Tools, Projects, My Settings, and Learning Center. A blue arrow points from the text '第一步，点击Projects' to the 'Projects' icon. The main window shows a project named 'res2t#1' with a table of test results and a graph titled 'Two Terminal Resistor I-V'.

	Time	AI	AV	RES
1	225.4328E-3	20.1403E-9	1.0001E+0	143.5297E+6
2	274.7598E-3	20.7697E-9	1.0001E+0	
3	324.4128E-3	19.8379E-9	1.0001E+0	
4	374.0953E-3	19.1736E-9	1.0001E+0	
5	423.7730E-3	21.5252E-9	1.0001E+0	
6	473.4222E-3	19.1187E-9	1.0001E+0	
7	523.0780E-3	20.4792E-9	1.0001E+0	
8	572.7414E-3	20.1116E-9	1.0001E+0	
9	622.4201E-3	21.0921E-9	1.0001E+0	
10	672.1017E-3	19.5793E-9	1.0001E+0	

The graph shows a linear relationship between Resistance (Ohm) and Time. The fit equation is $Fit1(Lin) y=a+bx$ with parameters $a=0.0E+00$, $b=0.0E+00$, $1/b=∞$, and $xint=NaN$. The resistance value for Run454 is $RES = 4.40667e+10$.

弹出projects界面，选择Creat New，新建项目

The screenshot shows the Clarius PC Edition software interface. The main window displays a graph of Resistance (Ohm) versus Time. A red arrow points to the 'New' button in the 'Projects' dialog box. The dialog box lists several projects:

- zhangcankun from probe station (Migrated from 4200 project.)
- HKUST-zhangcankun (Migrated from 4200 project.)
- Zhang Cankun (Custom Project)
- four-pt-probe (Four Point Probe Resistivity Project)

The 'four-pt-probe' project is highlighted. The dialog also shows the selected path: C:\S4200\kiuser\projects\zhangcankun from probe station\zhangcankun from probe station.kpr. The background window shows a graph with the following data:

Time	Resistance (Ohm)
-1.0 V	a=0.0E+00
-0.8 V	b=0.0E+00
-0.6 V	1/b=∞
-0.2 V	xint=NaN
0.0 V	
0.2 V	
0.4 V	
0.6 V	
0.8 V	
1.0 V	

Messages: 2023/12/20 - 11:24:09: Clarius Hardware Server started.

或者在输入框中查找已经建立的项目，双击打开。

The screenshot displays the Clarius PC Edition software interface. A 'Projects' dialog box is open, showing a list of projects. A red arrow points to the search input field in the dialog, which is highlighted with a red dashed box. The 'Run' button in the main toolbar is also visible. The dialog lists several projects, including 'zhangcankun from probe station', 'HKUST-zhangcankun', 'Zhang Cankun', and 'four-pt-probe'. The 'Run' button in the main toolbar is also visible.

Project Name	Description	Execution Time
zhangcankun from probe station	Migrated from 4200 project.	Exec: 440 s
HKUST-zhangcankun	Migrated from 4200 project.	Exec: 32 s
Zhang Cankun	Custom Project	Exec: 6 s
four-pt-probe	Four Point Probe Resistivity Project	Exec: 29 s
	Measures resistivity using 4-point collinear probe method with either three or four SMUs.	Exec: 31 s
		Exec: 47 s
		Exec: 49 s
		Exec: 51 s
		Exec: 35 s

以下以新建为参考进行示例。选择yes，替换当前的测试项目

The screenshot displays the Clarius PC Edition software interface. A 'New Project' dialog box is open, asking 'Do you want to replace existing project?'. The 'Yes' button is highlighted with a red dashed box, and a red arrow points to it from the top of the screen. The background shows a list of projects, including 'zhangcankun from probe station', 'HKUST-zhangcankun', 'Zhang Cankun', and 'four-pt-probe'. The interface includes a toolbar with icons for Select, Configure, Analyze, Run, Stop, Save, Tools, Projects, My Settings, and Learning Center. A status bar at the bottom shows the date '2023/12/20' and a 'Date Search' button.

进入新建项目，进行重命名

The screenshot displays the Clarius PC Edition software interface. At the top, the title bar reads "New Project - Clarius PC Edition". Below it is a toolbar with icons for "Select", "Configure", and "Analyze". A red arrow points from the Chinese text above to the "Configure" icon. Below the toolbar is a secondary toolbar with icons for "Copy", "Cut", "Paste", "Rename", and "Delete". The "Rename" icon is highlighted with a red dashed box. The main window is divided into several panels. On the left, there is a "New Project" dialog. The central panel is titled "Test Library (141)" and contains a list of test items with their descriptions and small thumbnail images. On the right, there is a "Filters" panel with various checkboxes for "Technology", "Device Type", "Measurements", and "Author". At the bottom, there is a "Messages" panel showing a system message: "2023/12/20 - 11:24:09: Clarius Hardware Server started."

Messages 2023/12/20 - 11:24:09: Clarius Hardware Server started.

输入框中输入自己的名字或者其他方便识别的名称符号，回车确定

The screenshot displays the Clarius PC Edition software interface. At the top, there is a toolbar with icons for Select, Configure, Analyze, Run, Stop, Save, Tools, Projects, My Settings, and Learning Center. Below the toolbar is a navigation bar with tabs for Tests, Devices, Actions, Wafer Plan, and Projects. The main area is titled "Test Library (141)" and features a search bar with the text "zhangcankun" entered. A red dashed box highlights the search input field, and a red arrow points to it from the text above. The search results are sorted by "Name: A to Z" and include the following tests:

- Custom Test: Add a blank test that can be configured into a DC, Pulse, or C-V test (ITM). Choose a test from a preprogrammed library (UTM).
- Capacitor High-Voltage Bias Capacitance Measurements (200vbias): Applies a high-voltage and measures the capacitance as a function of time of a capacitor.
- Capacitor High-Voltage C-V Sweep (200vsweep): Makes a high-voltage C-V sweep on a capacitor.
- 2D FET Drain Current vs Gate Voltage (2dfet-id-vg): Uses a voltage segment sweep to generate a drain current vs. gate voltage curve of a 2D FET.
- Schottky Diode 400V C-V Sweep (400vsweep): Generates a high-voltage C-V sweep on a Schottky diode.

On the right side of the interface, there are filter sections for Technology, Device Type, Measurements, and Terminals, each with a list of checkboxes for selection.

按照测试流程箭头所示进行后续操作

The screenshot displays the Clarius PC Edition software interface. At the top, a red dashed box highlights a workflow: 'Select' (list icon) → 'Configure' (gears icon) → 'Analyze' (waveform icon). A red arrow points from the Chinese text above to the 'Configure' step. Below this, the main interface shows a 'Test Library (141)' with a search bar and a list of test items. On the right, there are filter panels for 'Technology', 'Device Type', 'Measurements', and 'Author'. At the bottom, a 'Messages' bar shows a system message: '2023/12/20 - 11:24:09: Clarius Hardware Server started.'

zhangcankun - Clarius PC Edition

Select → Configure → Analyze

Run Stop Save

Tools Projects My Settings Learning Center

zhangcankun

Tests Devices Actions Wafer Plan Projects

Sort By: Name: A to Z Search

Image Description

Custom Test
Add a blank test that can be configured into a DC, Pulse, or C-V test (ITM).
Choose a test from a preprogrammed library (UTM).

Capacitor High-Voltage Bias Capacitance Measurements (200vbias)
Applies a high-voltage and measures the capacitance as a function of time of a capacitor.

Capacitor High-Voltage C-V Sweep (200vsweep)
Makes a high-voltage C-V sweep on a capacitor.

2D FET Drain Current vs Gate Voltage (2dfet-id-vg)
Uses a voltage segment sweep to generate a drain current vs. gate voltage curve of a 2D FET.

Schottky Diode 400V C-V Sweep (400vsweep)
Generates a high-voltage C-V sweep on a Schottky diode.

Filters Help

Technology Device Type

Electrochemistry Capacitor
Materials Diode
Memory Electrochemistry
Nanotech Generic
Organic Resistor
Semiconductor Solar Cell
Other Transistor
Other

Measurements Terminals

C-V 2
DC I-V 3
Pulse 4
Reliability 6
Resistivity 8

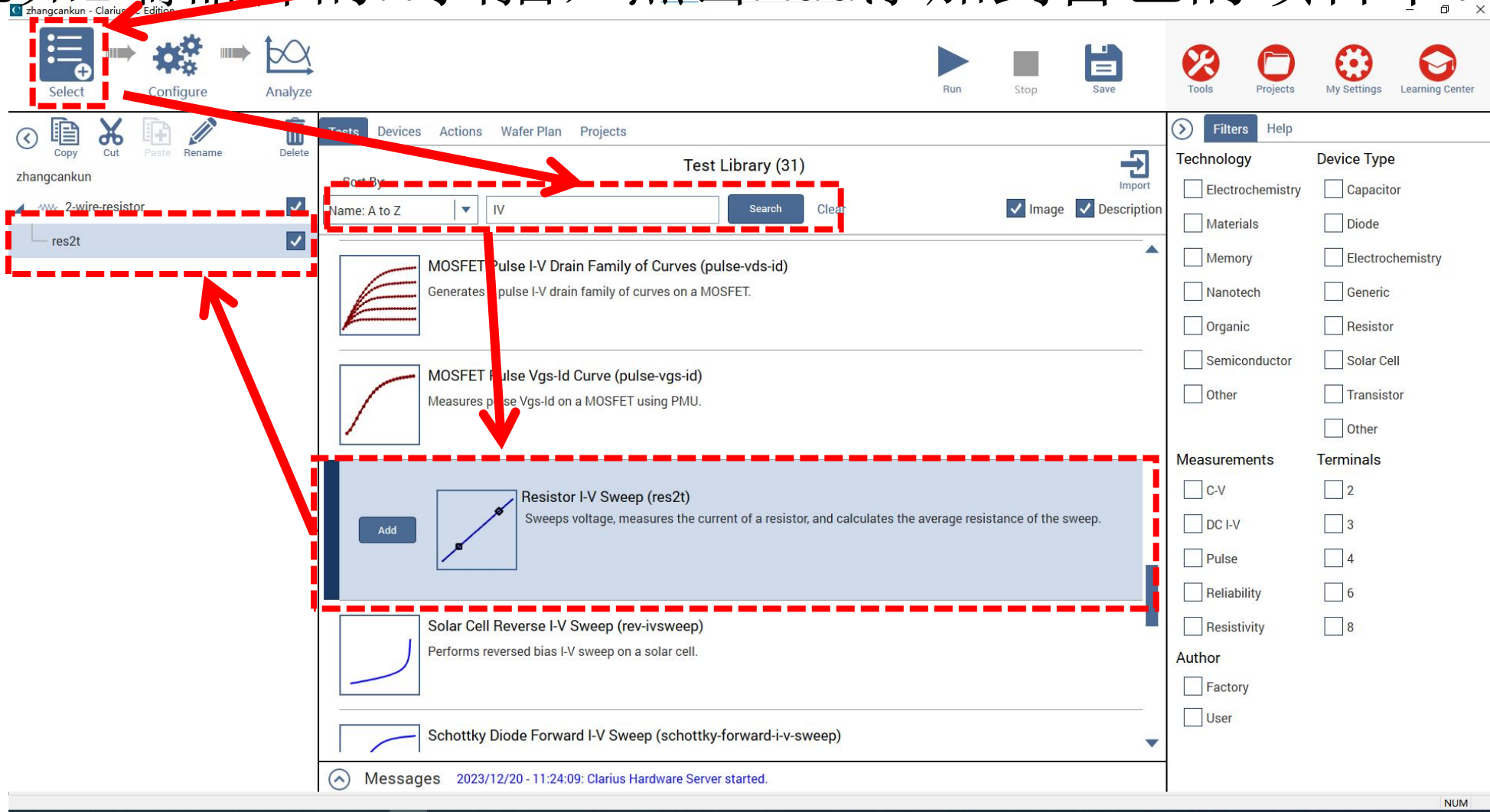
Author

Factory
User

Messages 2023/12/20 - 11:24:09: Clarius Hardware Server started.

NUM

首先选择测试方法，在输入框中输入想要的测试方法，比如IV扫描测试，则软件会把所有与IV测试有关的方法罗列出来，根据相应的示意图或者文字摘要选择合适的方法，比如2端器件的IV扫描，点击Add添加到自己的项目中。



接着对测试进行设置，点击configure，进入设置界面，根据测试器件性质进行设置。

The screenshot displays the Clarius PC Edition software interface. A red arrow points to the 'Configure' button in the top toolbar. The main workspace shows a circuit diagram of a resistor connected to two source measurement units (SMU1 and SMU2). The configuration panels for SMU1 and SMU2 are visible, along with the 'Test Settings' panel on the right.

SMU1 Configuration:

- Source: A SMU1
- Operation Mode: Voltage Linear Sweep
- Start: -1 V
- Stop: 1 V
- Step: 0.04 V
- Compliance: 0.1 A
- Measure Current:
- Report Voltage:

SMU2 Configuration:

- Source: B SMU2
- Operation Mode: Voltage Bias
- Bias: 0 V
- Compliance: 0.1 A
- Measure Current:
- Report Voltage:

Test Settings:

- Speed: Normal
- Report Timestamps:
- Test Mode: Sweeping
- Sweep Delay: 0 s
- Hold Time: 0 s

Buttons: Formulator, Output Values, Exit Condition

Messages: 2023/12/20 - 11:24:09: Clarius Hardware Server started.

设置完，点击Analyze进入分析页面，点击Run即可开始测试。

The screenshot shows the Clarius PC Edition software interface. The top menu bar includes 'Select', 'Configure', 'Analyze', 'Run', 'Stop', and 'Save'. The 'Analyze' and 'Run' buttons are highlighted with red dashed boxes and red arrows. The main window displays a table of data for a 'Two Terminal Resistor I-V' test. The table has columns for 'AI', 'AV', and 'RES'. Below the table is a graph showing the relationship between Resistor Current (A) and Resistor Voltage (V). The graph includes a linear fit line and a legend with the equation $Fit1(Lin) y=a+bx$ and parameters $a=-7.761E-13$, $b=9.894E-10$, $1/b=1.011E+09$, and $xint=7.844E-04$. The bottom right panel shows the 'Run History' section with a table of runs.

	AI	AV	RES
1	-989.8149E-12	-1.0000E+0	992.2319E+6
2	-950.7267E-12	-960.0000E-3	
3	-910.5480E-12	-920.0000E-3	
4	-871.3330E-12	-880.0000E-3	
5	-831.7712E-12	-840.0000E-3	
6	-792.2429E-12	-800.0000E-3	
7	-751.8904E-12	-760.0000E-3	
8	-713.0576E-12	-720.0000E-3	
9	-673.3679E-12	-680.0000E-3	
10	-633.3102E-12	-640.0000E-3	

Date	Name	Checked	Stars
2001/4/23 18:05:02.000	Run1	<input checked="" type="checkbox"/>	☆☆☆

请大家尽量使用自己的项目进行测试，方便查找历史记录等等；

如果担心他人不小心更改你的项目文件，可以在测试完成之后，调出我的项目文件。下一位同学测试使用时打开的界面就是我的项目了。

如果担心泄露测试数据，也可以选择把自己的项目文件拷走。可以在自己的电脑上安装Clarius软件（Keithley官网可以下载）查看。