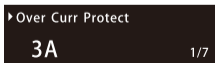## 3.5 Setting Menu

In standby state, press MENU Button to enter browse mode, and roll Encoder to turn the page. In browse mode, if there is no operation for 5 seconds, it will automatically return to main interface, or press MENU Button to return to main interface.

Note: RUN/LOCK Button operation will not affect the current display content and category.

Setting menu ——→ ▶ Over Curr Protect

Parameter setting value ——→ 3A   1/7

Press SET to switch to the parameter setting value (display in reverse) ——→

Over Curr Protect

▶ 10A   1/7

1) In the standby state, long press MENU Button to enter setting menu; press SET Button to choose setting menu or parameter setting values;
2) When the solid triangle symbol points to the setting menu, roll Encoder to select the menu item to be set;
3) When the solid triangle symbol points to the parameter setting value (display in reverse), roll Encoder to adjust setting value;
4) After setting, press SET Button to return to main interface or automatically return to main interface without any operation for 5 seconds.

▌**Setting menu 1:** Set over-current protection value (OCP); the setting range is 1A~10A, default 5A;

▶ Over Curr Protect

3A   1/7

▌**Setting menu 2:** Set over-voltage protection value (OVP); the setting range is 1V~60V, default 30V;

▶ Over Volt Protect

19V   2/7
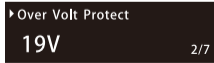
Setting menu 3: Set over-power protection value (OPP); the setting range is 1W~100W, default 50W;

> **Over Power Protect**
> 19W   3/7

Setting menu 4: Set Load Volt Threshold; the setting range is 0V ~ 60V, default 0.1V.

> **Load Volt Threshold**
> 0.000V   4/7

Setting menu 5: Auto match wireless address menu (TX and RX Addr);

Select auto match wireless address menu (TX and RX Addr), press SET Button to match, press MENU Button to confirm the setting and exit the page. (Only when MDP-M01 is pairing with MDP-L1060 can this function be activated. For the matching method, please refer to "4. CONFIG Interface" in "MDP-M01 Smart Digital Monitor User Manual". When matching wireless addresses, if the device is pulling load, for security reasons, the pulling will be forced to turn off.)

> **TX and RX Addr**
> 3B:D6:BD:C1:C2
> Freq=2.460GHz   5/7

> **Match RX Addr..**

Setting menu 6: Programmable Loading (Program Load).

User can save programmable loading file into the device in advance (please refer to the following example for the programmable loading file format), and select the desired file through Program Load menu. The filename format is: PRO_XX.CSV (XX is a pair of numbers, all characters should be capitalized).

> **Program Load**
> PRO_01.CSV   6/7

> 3.676V CC   27°C
>   P   1.000A
> 0.003A 0.011W

Select Program Load menu, press SET Button to switch to programmable loading file selection, roll Encoder to select the desired file, and then press RUN/LOCK Button to start the programmable loading. When the device starts loading, the word "P" will appear on the screen, parameters will be locked, and setting value cannot be changed. After completing the programming cycles or pressing RUN/LOCK Button to turn off load, the parameters will be automatically unlocked.

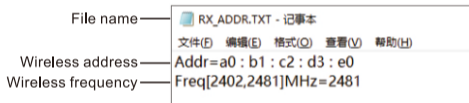The format of PRO_XX.CSV file is as below:

循环次数Number of cycles:		10											
工作模式Working mode:		CC											
##													
循环次数：表示本文件循环执行的次数，范围0-10000次，0表示无限循环													
工作模式：恒流CC或恒压CV													
恒流CC设置范围：15mA-10000mA，0表示关拉载													
恒压CV设置范围：100mV-60000mV，0表示关拉载													
时间设置范围：10ms-60000ms													
Number of cycles: Indicates the number of times this file is executed, ranging from 0 to 10000 times, 0 means infinite loop.													
Working mode: CC or CV													
CC: 15mA-10000mA, 0 means turning off load													
CV: 100mV-60000mV, 0 means turning off load													
Time: 10mS-60000mS													
##													
恒流CC (mA)	恒压CV (mV)	时间 (mS)											
100	100	1000											
0	5000	1000											
300	1000	1000											
0	1500	1000											
500	2000	1000											
0	2005	2000											
5000	2000	1000											
0	1005	5000											
3000	1000	10000											
0	5000	8000											
1000	1000	1000											
0		300											
3000		400											
0		500											
500		600											
0		700											
2500		800											
0		900											
3000		1000											
0		1100											
1000		1200											

Setting menu 7: Volume adjustment (Sound Adjust);

> ▶ Sound Adjust
>
> 3 ▁▂▃▅ ▯▯   7/7

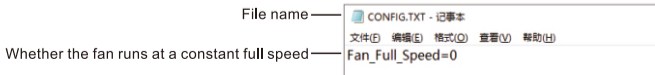## 3.6 Modify Wireless Address

MDP-L1060 DC Electronic Load module can modify the wireless address and wireless frequency through the RX_ADDR.TXT file to match with MDP-M01 display control module. Connect MDP-L1060 to computer to enter USB mode, open the RX_ADDR.TXT file and modify the corresponding content. The file content is as shown below. After setting, disconnect USB connection and restart MDP-L1060, the modification will take effect.

File name ——
```
📄 RX_ADDR.TXT - 记事本
文件(F)  编辑(E)  格式(O)  查看(V)  帮助(H)
```
Wireless address —— `Addr=a0 : b1 : c2 : d3 : e0`
Wireless frequency —— `Freq[2402,2481]MHz=2481`

3.7 Turn On Constant Full Speed of The Cooling Fan

Connect MDP-L1060 to computer to enter USB mode, open the CONFIG.TXT file and modify the corresponding content. The file content is as shown below. After setting, disconnect USB connection and restart MDP-L1060, the changes will take effect.
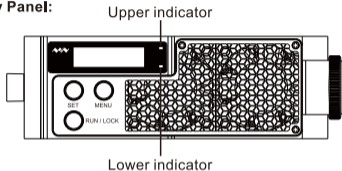1) When Fan_Full_Speed is set to 1, the fan will run at a constant full speed throughout the entire process to dissipate heat;
2) When Fan_Full_Speed is set to 0, the fan will dynamically run and dissipate heat according to the real-time temperature of the device.

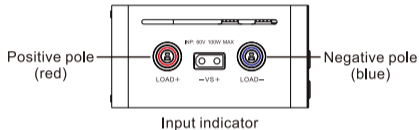File name ——
```
📄 CONFIG.TXT - 记事本
文件(F)  编辑(E)  格式(O)  查看(V)  帮助(H)
```
Whether the fan runs at a constant full speed —— `Fan_Full_Speed=0`

4/Panel Indicators

4.1 Indicator Introduction

Display Panel: Upper indicator

Lower indicator

Output Ports:

Positive pole (red)

Negative pole (blue)

Input indicator

4.2 Indicator Status

In different states, the panel indicators and load input indicators of MDP-L1060 will show different status.

Indicator	Color	Status	Definition
Upper indicator	Blue	Always on	Pulling load, CV/ CP working mode
	Red	Always on	Pulling load, CC/ CR working mode
		Off	Not pulling load
Lower indicator	Green	Always on/ Flicker	Connected to display control module/ Display control module has selected this sub-module
		Off	Disconnect with display control module
	Red	Always on	Parameter locked
		Off	Parameters unlocked

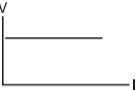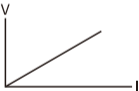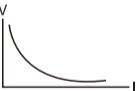| Indicator	Color	Status	Definition
Upper and lower indicators	Red	Flicker	Alarm (including load input over-voltage, over-heating, DUT load input over-current, and self-set loading alarm condition enables)
Load input indicators	Positive: red Negative: blue	Always on	Input on
		Off	Input off

5/Working Modes

MDP-L1060 DC Electronic Load has four working modes: constant current (CC), constant voltage (CV), constant resistance (CR) and constant power (CP), which are suitable for various application scenarios.

1) Constant current working mode (CC): The load always consumes a constant current regardless of how the input voltage changes.
2) Constant voltage working mode (CV): The load will consume enough current to keep the load input voltage constant at the set value.
3) Constant resistance working mode (CR): The load is equivalent to a constant resistance, and the load input current will be adjusted with the change of the load input voltage.
4) Constant power working mode (CP): The load will consume a constant power, and the load input current will be linearly adjusted with the change of the load input voltage to ensure that the power consumption remains unchanged.

Applicable scenarios:

Constant current working mode	Constant voltage working mode
V ⌐ ¬ └────── I	V ──── └────── I
1. Load modulation test of power supply 2. Battery discharge time and life test 3. Battery consumption test 4. Simulated on-load current of windshield wiper	1. Mobile phone charging test 2. Current limit test for foldback function of power supply 3. Battery consumption test 4. Current source test
Constant resistance working mode	**Constant power working mode**
V ╱ └────── I	V ╲ └────── I
1. Slow startup test of communication power supply 2. Driver test of light emitting diodes (LEDs) 3. Simulated load condition of car temperature controller	1. Constant power supply test 2. Battery capacity and life test

6/Advanced Functions (Work With MDP Display Control Module)

MDP-L1060 DC Electronic Load can be connected with MDP-M01 Smart Digital Monitor (display control module) of MDP series to achieve more advanced functions.

6.1 How to Enter Advanced Function Page

1. Match MDP-L1060 with MDP-M01 display control module through wireless communication;
2. Press "INFO" on MDP-M01 to enter device detail information page; press "DEVICE" to select the connected MDP-L1060;
3. Press "MORE" to enter advanced function control interface.

Note: Before enabling advanced functions of MDP-L1060, please adjust the setting value of each safety protection function to ensure that all parameters and indexes are within the range of safety protection after the function takes effect.

6.2 Battery Test (Battery)

Battery test function can measure battery capacity. This function can only be operated in CC mode.

Operation method:

1) Set Safety Protection parameter values of MDP-L1060, and adjust the setting value to the protection function range;
2) Connect MDP-L1060 with MDP-M01 display control module to enter advanced function page (please refer to 6.1 for the method of entering advanced functions);
3) Press "TAB" to select battery test interface (Battery), and modify the corresponding setting values through MDP-M01 (as shown in the figure below);
4) Press "CONFIRM" to confirm and start the test.

Half Current:
Whether to turn on half current testing

Set Curr:
The setting current (range 0.015A~10A). In CC mode, the device will constantly discharge at this current.

End Test Volt:
The Voltage at which the device ends the test (normally it is the voltage after battery is completely discharged).

After confirming to start discharging, MDP-L1060 will continuously detect the actual input voltage and accumulate the consumed capacity. When the input battery voltage is lower than the "End Test Volt" (generally indicating that the battery has run out), the device will automatically stop discharging. If the half-current discharge is set to "ON", when the input voltage is lower than the "End Test Volt" for the first time, the device will automatically switch to half value of the set constant current value and continue to discharge. At this time, the input voltage will generally rise slightly to the "End Test Volt", and when the input voltage falls below the value again, the device stops discharging. The cumulative capacity value displayed on display control module is the capacity of the battery under test.

Note: Battery test function will automatically run in CC mode; "Set Curr" stands for battery discharge current value.

6.3 Dynamic Test

Dynamic test function allows the device to repeatedly switch between two loading currents, which can be used to test the dynamic characteristics of the power supply. This function will automatically run in CC mode.

Operation method:

1) Set Safety Protection parameter values of MDP-L1060, and adjust the setting value to the protection function range;
2) Connect MDP-L1060 with MDP-M01 display control module to enter advanced function page (please refer to 6.1 for the method of entering advanced functions);
3) Press "TAB" to select dynamic test interface (Dynamic Test), and modify the corresponding setting values through MDP-M01 (as shown in the figure below);
4) Press "CONFIRM" to confirm and start the test.

Set Current A, range 0.015A~10A

Set Current B, range 0.015A~10A
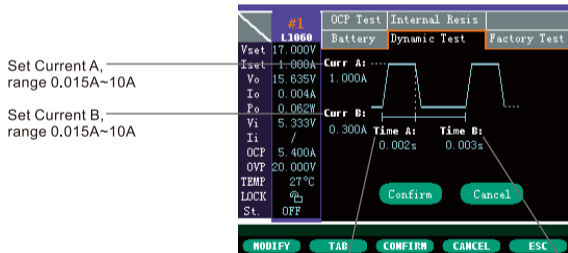
The continuous time of Current A, range 0.001s~99.999s

The continuous time of Current B, range 0.001s~99.999s

6.4 Factory Test

Factory test function is used to test the voltage and current stability of the device under test. This function includes four basic working modes: CC, CV, CR and CP. It can compare the test parameters with the corresponding upper and lower limits then output the results. This mode of operation can greatly improve work efficiency and is a popular automatic test function in factories and assembly line work.

Operation method:

1) Set the basic working mode of MDP-L1060 (CC, CV, CR and CP) and corresponding values of each mode;
2) Set Safety Protection parameter values. The set value should be within the protection range and greater than the set upper and lower limits of voltage and current;
3) Connect MDP-L1060 with MDP-M01 display control module to enter advanced function page (please refer to 6.1 for the method of entering advanced functions);
4) Press "TAB" to select factory test interface (Factory Test), and modify the corresponding upper and lower limits of voltage and current through MDP-M01 (as shown in the figure below);
5) Press "CONFIRM" to confirm and start the test;
6) When the parameters of the device under test exceed the corresponding upper and lower limits, the device will report an error of "FAILED" and stop the test.

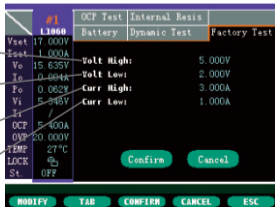**Volt High:**
Upper Voltage, range 0.1V~60V

Volt Low:
Lower Voltage, range 0.1V~60V

Curr High:
Upper Current, range 0.015A~10A

Curr Low:
Lower Current, range 0.015A~10A

6.5 Over-Current Protection Test (OCP Test)

Over-current protection test is used to test the over-current protection time of the device under test. This function will automatically run in CC mode.

Operation method:

1) Set Safety Protection parameter values of MDP-L1060, and adjust the setting value to the protection function range;
2) Connect MDP-L1060 with MDP-M01 display control module to enter advanced function page (please refer to 6.1 for the method of entering advanced functions);
3) Press "TAB" to select over-current protection test interface (OCP Test), and modify the corresponding setting values through MDP-M01 (as shown in the figure below);
4) Press "CONFIRM" to confirm and start the test.

Start Curr:
Starting Current, range 0.015A~8A

Step Curr:
Stepping Current, range 0.015A~1A

Step Time:
Stepping time, range 0.001s~99.999s

After starting the test, MDP-L1060 starts to pull the load at the set starting current, marks the input voltage Vin, and continuously detects whether the DUT enters the over-current protection state (based on the input voltage value jumps below 70% of Vin). If the over-current protection is not activated within each set step time, MDP-L1060 will add a set stepping current on the basis of the present pull-in current for testing and re-time, and continue to detect whether the DUT enters over-current protection state, and so on until the pull-in current is greater than the over-current protection of the DUT, and MDP-L1060 detects that the DUT has entered over-current protection state and then turns off pulling load, thus obtains from the last step the time of over-current protection (the over-current protection time of the DUT), and the pull-in current of the last step (over-current protection value of the DUT).