

Battery Mode

There are two category operation mode for battery mode, battery simulation and battery tester. While the power supply functions as battery simulator, the output electrical characteristics of output just simulate the characteristics of the battery. While running as battery tester, it performs as a charger or discharger of battery.

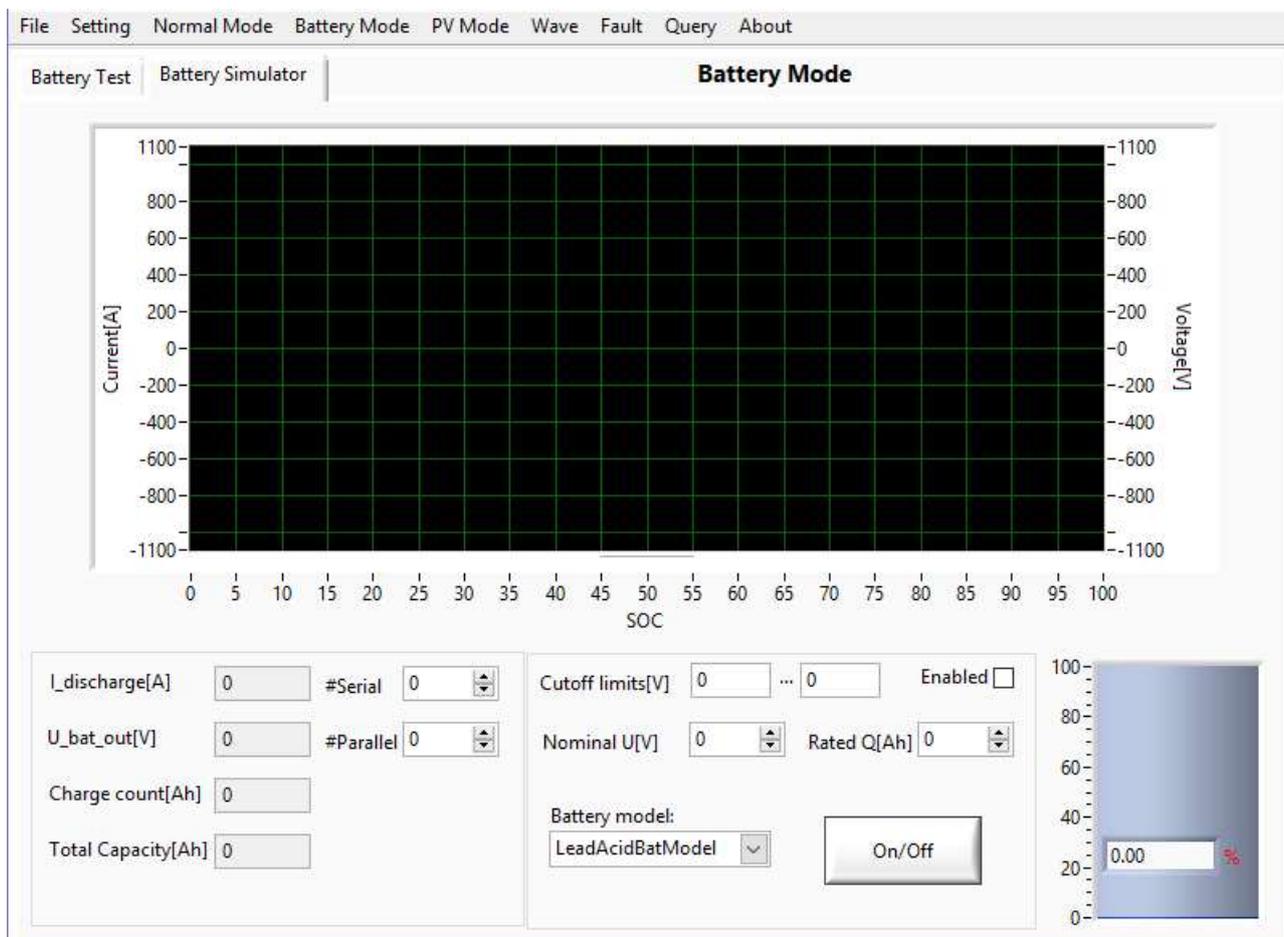


Figure 1 Battery Simulation

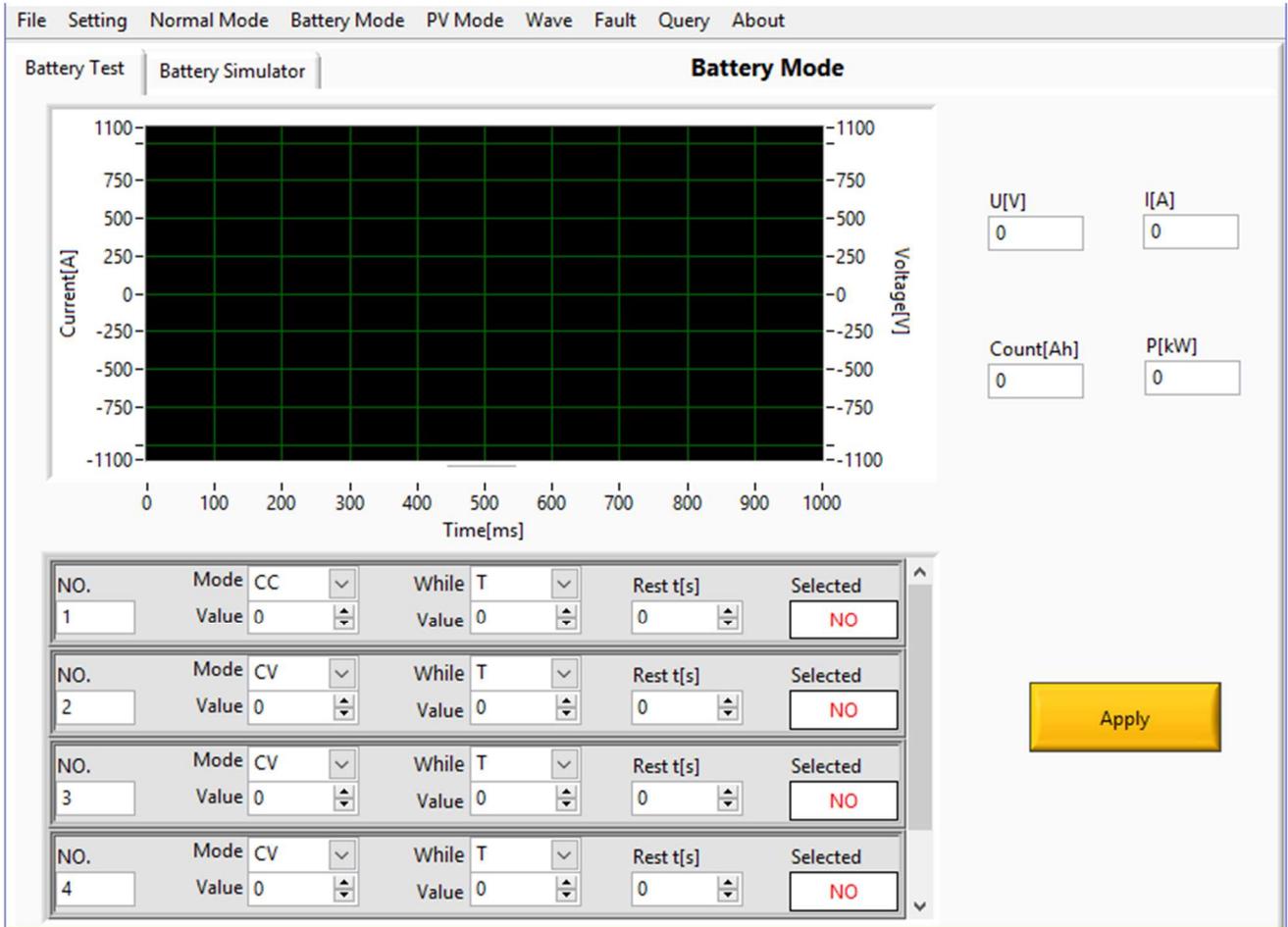


Figure 2 Battery Test

1 Battery Simulation

While running as simulator of battery or energy storage system, it can be used to test performance of motor and motor's Energy Recovery System.

Battery type, the numbers of batteries in series and parallel, cutoff limits (including Discharge Cut-off Voltage and Charge Cut-off Voltage), nominal voltage, nominal capacity and initial SOC can be set according to actual demand shown as figure 3.

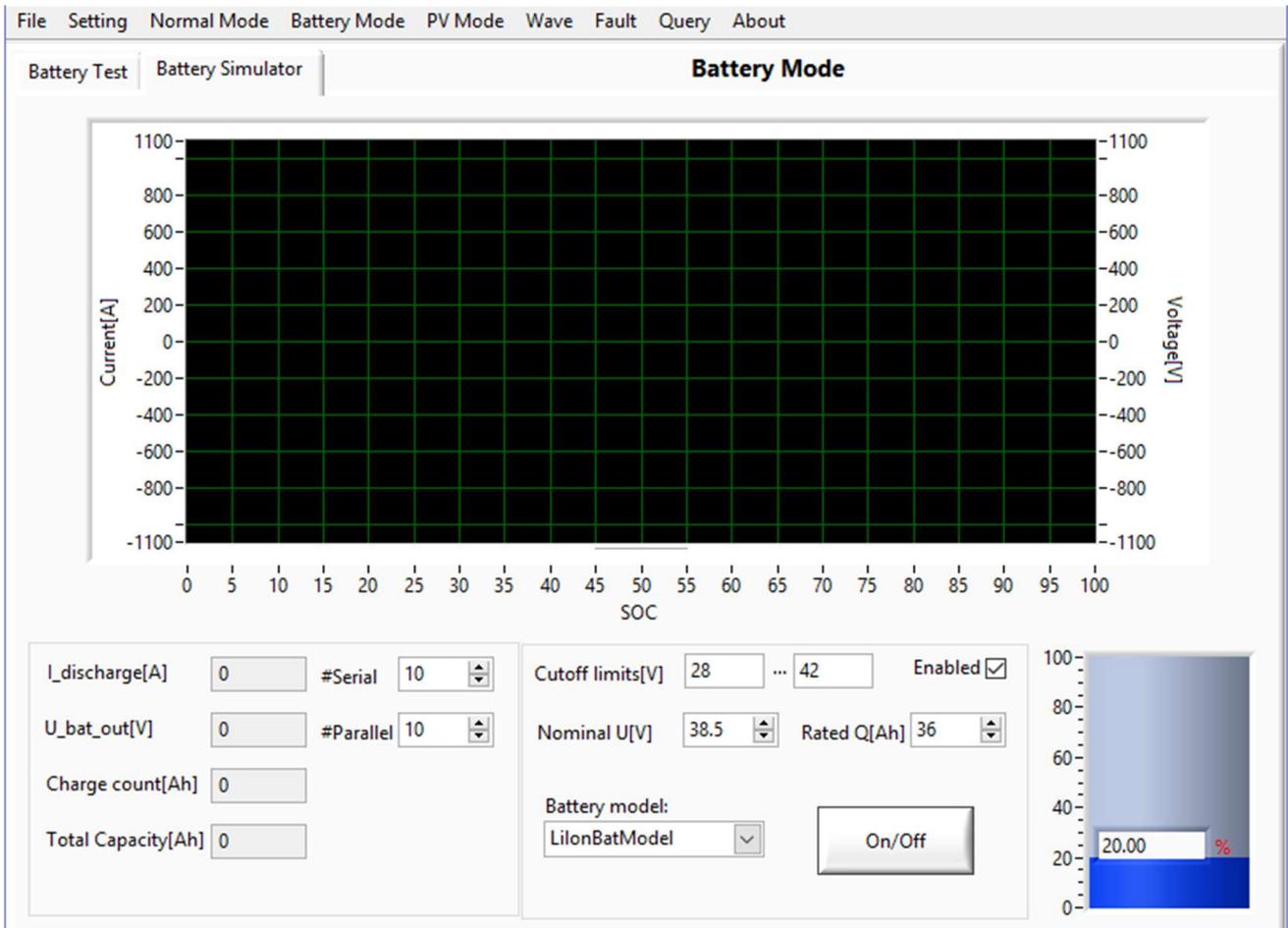


Figure 3 Battery Simulation Mode

In figure 3, there are 100 cells in total, 10 batteries are connected in parallel to 1 unit, and 10 units are connected in series as a module. The cell's specification is shown as following:

- Rated Capacity: 3600mAh
- Nominal Voltage: 3.85V
- Discharge Cut-off Voltage (Final voltage): 2.8V
- Charge Cut-off Voltage (End-of-charge voltage): 4.2V
- Initial SOC: 20%

<table border="1"> <tr> <td>I_discharge[A]</td> <td>0</td> <td>#Serial</td> <td>10</td> </tr> <tr> <td>U_bat_out[V]</td> <td>0</td> <td>#Parallel</td> <td>10</td> </tr> <tr> <td>Charge count[Ah]</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>Total Capacity[Ah]</td> <td>0</td> <td></td> <td></td> </tr> </table>	I_discharge[A]	0	#Serial	10	U_bat_out[V]	0	#Parallel	10	Charge count[Ah]	0			Total Capacity[Ah]	0			<p>Once the equipment is connected, the parameters in the red box will show all real-time value of battery or battery pack.</p>
I_discharge[A]	0	#Serial	10														
U_bat_out[V]	0	#Parallel	10														
Charge count[Ah]	0																
Total Capacity[Ah]	0																

2 Battery Tester

The power supply can also perform as a charger or discharger of battery, usually it is used to test cycle life, capacity, performance of charge & discharge.

NO.	Mode	Value	While	Value	Rest t[s]	Selected
1	CC	36	U	70.6	0	OK
2	CV	70.6	I	0.2	600	OK
3	CV	0	T	0	0	NO
4	CV	0	T	0	0	NO

Figure 4 Battery Tester Mode

NO.	Mode	Value	While	Value	Rest t[s]	Selected
1	CC	36	U	70.6	0	OK

Figure 5 Test Step of Battery Test

In Figure 5, it means that the battery is charged in CC mode, and the charge current is 36A. While the voltage of battery reaches 70.6V, test jumps to the next step.

NO.	Mode	CV	While	I	Rest t[s]	Selected
2	Value	70.6	Value	0.2	600	<input checked="" type="checkbox"/> OK

Figure 6 Test Step of Battery Test

In Figure 6, it means that the battery is charged in CV mode, and the charge voltage is 70.6V. While the charge current of battery goes down to 0.2A, then stop charging and rest 600s.

In battery tester mode, the setting parameters include:

Mode	The charge type, including CC, CV, CP mode
Value	Value of charge mode, such as 20A in CC mode, can be positive or negative, while positive the power supply performs as a charger, and negative performs as a discharger.
While	Terminating condition of charge or discharge. It could be the voltage, current or duration of charge/discharge.
Value	The value of termination condition. While the real-time parameter reaches the value, the next step will be executed.
Rest	If needing a break between two steps, set a rest time in this control.
Selected	Only this control is checked, the step will be executed.