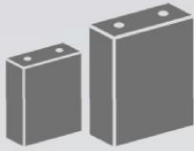


Battery Test System Solution

HKCDS-6V-600A-10CH



Prismatic
battery



Pouch
battery



Cylindrical
battery



주식회사 한스코리아

주소: 경상북도 구미시 야은로 9길 9 (#39209)

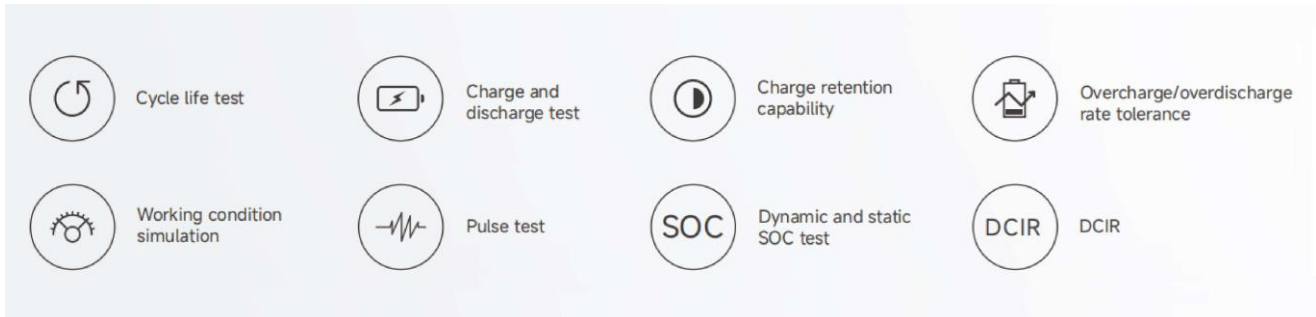
전화: 070-7807-6453

홈페이지: www.hansgrowing.com

1. System 개요

한스코리아 배터리 셀 테스트 시스템은 전기 자동차, 에너지 저장 장치용 고용량 배터리 셀 테스트에 사용되며, 배터리 파라미터 테스트 및 품질 관리를 실현하고 배터리 제조업체, 인증 회사 및 기관에 널리 적용됩니다.

Testing items



3. 특징

1) 높은 정확도 :

Voltage accuracy: $\pm 0.03\%FS$

Current accuracy: 100mA--100A: $0.03\%FS$ ($@25^{\circ}C \pm 10^{\circ}C$) 100A--400A: $0.03\%FS$ ($@25^{\circ}C \pm 10^{\circ}C$) 400A--600A: $0.03\%FS$ ($@25^{\circ}C \pm 10^{\circ}C$)

2) 빠른 전류응답:

10%-90%의 전류구간에서 $\leq 5ms$ 이하

3) 고속 전류전환:

충/방전 전환속도 $\leq 10ms$.

4) 완벽한 V/I 전환 :

전류 응답, 전압 변화 및 충전/방전 전환 시 부드러운 전환 곡선, 펄스 없음, 손상 없음.

5) 효율적인 에너지 피드백 :

배터리 방전 DC 전력을 순수 사인파 AC 전력으로 변환하여 AC 전력망으로 피드백하며, 효율은 80% 이상입니다.

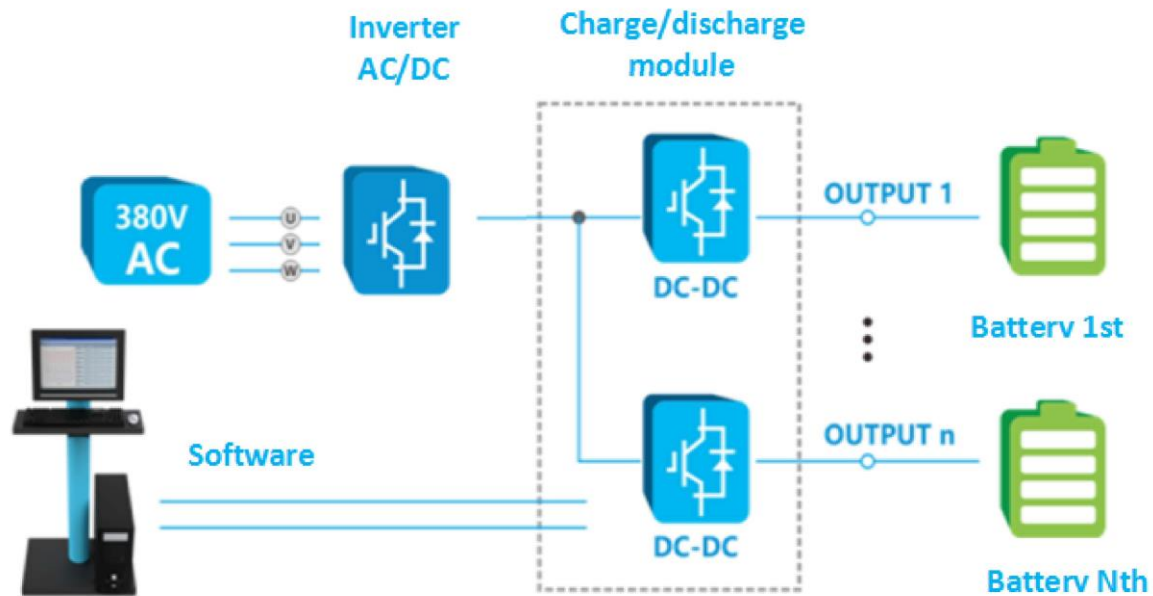
6) 장비 연동 :

프로토콜 인증을 통해 외부 장비를 제어하고, 배터리 테스트 기능을 통해 데이터를 읽고 저장할 수 있습니다.

7) 강력한 테스트 소프트웨어:

관리자, 엔지니어 또는 작업자를 위한 사용자 지정 작동 범위를 정의하고, 사용자 지정 수식을 사용하여 새로운 매개변수를 정의하고, 키워드, 날짜, 채널 번호 등을 통해 데이터를 빠르게 검색하고, 데이터를 일괄 내보낼 수 있습니다.

4. System topology diagram



5. Equipment & parts list

No.	Item	Discreption	Quantity	Remark
1	Battery Testing Equipment	HKCDS-6V-600A-6CH	10 CH	6CH C/D modules*1 racks,4CH C/D modules *1 racks,,No Power input cable
2	Test Cable	Length 10 meters, Black &Red cable	10 SETs	600A
3	BMS power supply	12/24V		No BMS power supply
4	Computer	Dell I5-10500 processor 16G RAM / 256G SSD 1T hard disk / 3 network port	1 SETs	
5	Switch	TP-LINK	1 SETs	
6	Software	16G USB disk	1 SETs	
7	Accessories	Network cable,connector etc	1 SETs	
8	Documents	Inspection report,packing list etc	1 SETs	

6. System 적용

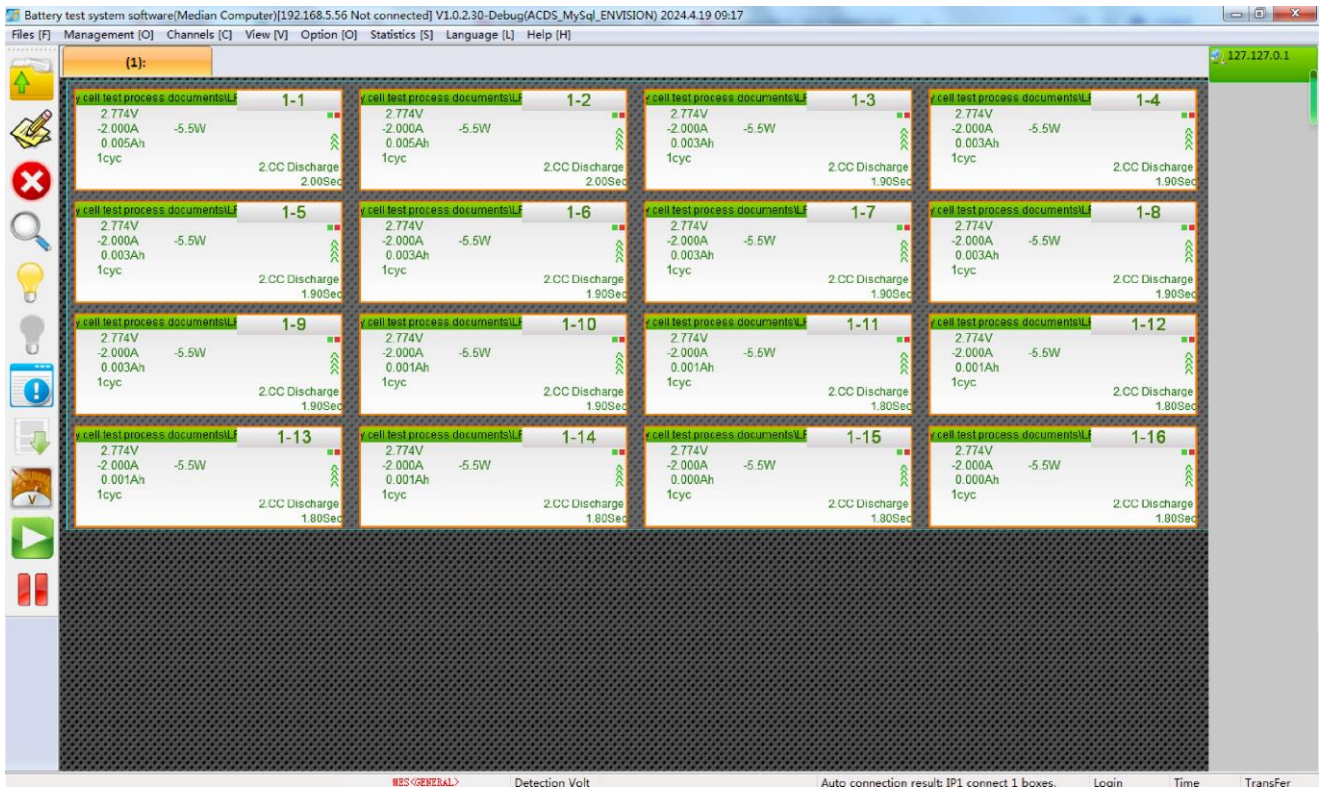
1).장비적용사례



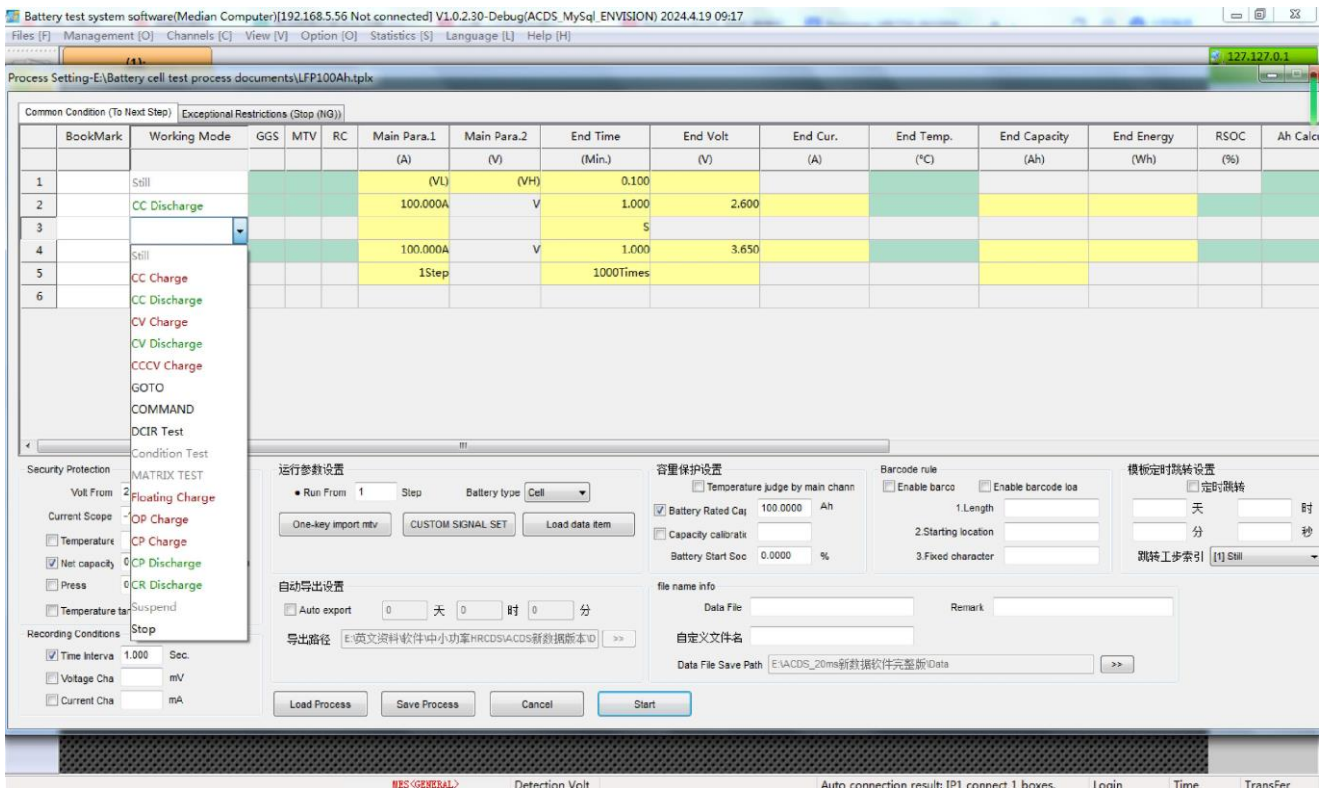
2.OT terminal application



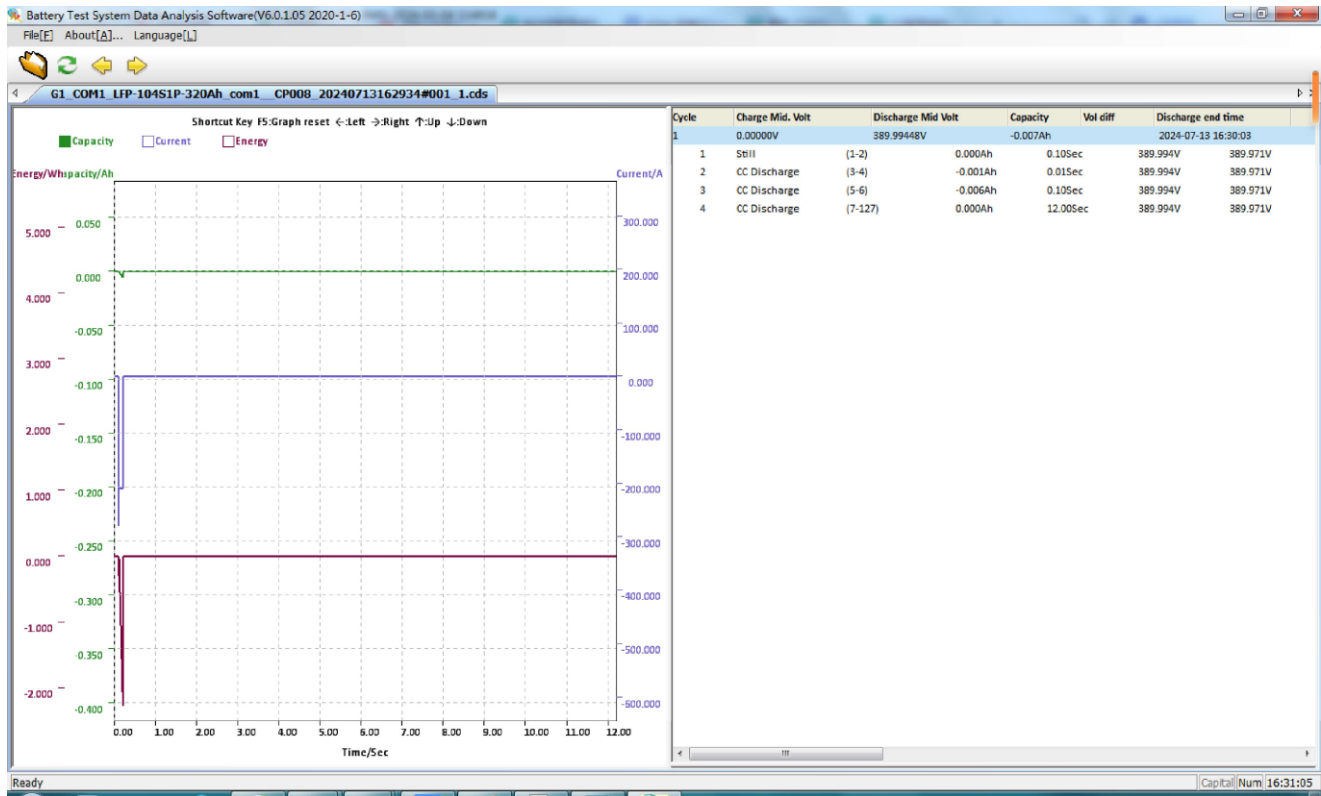
3).Software test interface



4). Process step setting interface



5). Data content interface



6). Work condition simulating setting interface

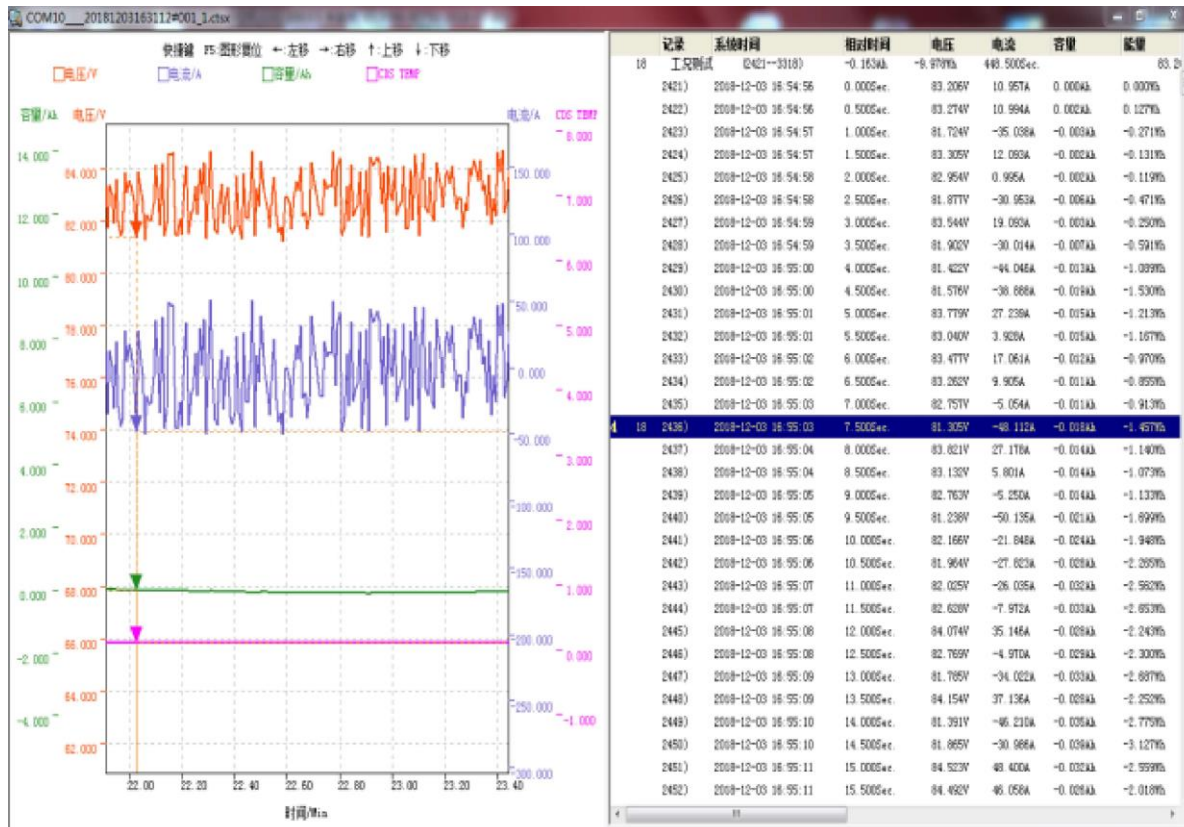
The screenshot shows the Process Setting dialog box for Condition Test. The main window displays a table of test conditions:

Working Mode	RC	Main Para.1	Main Para.2	Unit	Comment	End Time	End Volt	End Cur	End Capacity	RSDC
1 Still		(VL)	(VH)							
2 CC Discharge	RC	280.000A	V							
3 CC Discharge	RC	210.000A	V							
4 CC Discharge	RC	0.000A	V							
5 Suspend										
6 CC Charge	RC	210.000A	V							
7 Condition Test										
8 Still		(VL)	(VH)							
9 Stop										

The Condition Test dialog box is open, showing the following settings:

- End parameter: Min Volt (V), Max Volt (V), Max DC Current (A), Max Charge Current (A).
- End Volt Current as Limit Volt Current (checkbox).
- Limit type: ☒ Unlimited, ☐ Limit Pow, ☐ Limit Cur.
- Set Matrix button.
- Discharge: [] KW, Charge: [] KW.
- Discharge: [] A, Charge: [] A.
- Current(A) or Power(W) selection.
- Table with Time(S or H:M:S) and Current (A).
- Recently used records: [Open local file...]
- Power magnification conversion: 1 Time(s).
- OK and Cancel buttons.

7). Working condition data content



7. System parameter

1). Equipment parameter

No.	Model	HKCDS-6V-600A-6CH	
Charging & discharging module			
1	Channel Qty	2CH per module	
2	Channel output power/Stability	Continuous 3.6KW±0.1% per channel	
3	Channel voltage range	0V-6V	
4	Channel minimum discharging	0Vdc (-6V optional)	
5	Channel voltage Accuracy	±0.03%FS,(@25℃±10℃)	
6	Channel voltage Resolution	0.1mV	
7	Channel current range	±600A	
8	Channel minimum output current	100mA	
9	Channel current Accuracy	100mA--100A: 0.03%FS (@25℃±10℃) 100A--400A: 0.03%FS (@25℃±10℃) 400A--600A: 0.03%FS (@25℃±10℃)	
10	Channel current Resolution	0.1mA	
11	Channel current response time	5ms	
12	Minimum sampling time	10ms	
13	Sampling terminal	OT terminal/Alligator Clip /customized clamp ,(4 electrodes sampling)	
14	Communication	LAN	
15	BMS communication protocol	No	
16	Temperature range / accuracy/	- 20℃~100℃/±1℃ (0℃~70℃) /0.1℃	
AC parameter			
17	AC input voltage/frequency	3 phase+N+PE,380V ±10% / 50 Hz±10%	
18	AC input power(cabinet)	27.0KW (6CH full loading)	
19	AC input efficiency	80%	
20	AC output power	16.2KW (6CH full loading energy feedback)	
21	AC output power factor	>0.99 (full load)	
22	THDi	≤5% (full load)	
23	AC output power efficiency	75% (max)	
Other parameter			
24	Equipment input protection	Over-voltage ,over-current ,high temperature ,short-circuit,blackout ;	
25	Equipment output protection	Over-voltage ,over-current ,high temperature ,short-circuit,battery reverse ,terminal resistance monitoring ;	
26	Alarm	3 color lights, buzzer	
27	Working temperature	0~ 45℃	
28	Working humidity	0~95%R.H (No condensation)	
29	Working environment	No shake, no corrosive gases, no flammable gas	
30	Cooling	forced air cooling	
31	Noise	≤70dB	
32	Waterproof	IP20	
33	Size	600*800*1980mm	
34	Weight	300KG	
Optional equipment			
35	MTVS	Voltage channels quantity	40CH
36		Voltage range	DC: 0-5V
37		Voltage accuracy	±0.05%FS
38		Voltage Resolution	1mV
40		Communication	LAN / RS485(optional)
41	MTS	Temperature channels quantity	40CH
42		Temperature range	- 50℃~300℃
42		Temperature accuracy	±1℃
42		Temperature resolution	0.1℃
43		Communication	LAN / RS485(optional)

2). Software functions

No.	Function	Description	
1	Software version	ACDS-MYSQL-V1.0.2.30	
2	Channel working mode	Charge: CC, CV, CCCV, CP ; Discharge: CC, CV, CR,CP,; Still , suspend , goto; Working condition test; Pulse test,DCIR test ,etc.	
Process setting			
3	Step setting	Setting documents import ,manual setting ,online setting .	
4	Constant current	Charge	End condition: time ,total voltage ,capacity,energy ,temperature ,RSOC,etc.
5		Discharge	
6	Constant voltage	Charge	End condition: time ,current ,capacity,energy ,temperature ,RSOC,etc.
7		Discharge	
8	Constant power	Charge	End condition: time , voltage, current , capacity,energy ,temperature , RSOC,etc.
9		Discharge	
10	Ramp Current	Charge	No
11		Discharge	
12	Ramp Power	Charge	No
13		Discharge	
14	Constant C & V	Charge	End condition: time ,total voltage, current , capacity,energy ,temperature , RSOC,etc.
15	Constant resistance	Discharge	
16	Still	End condition: time ,temperature.	
17	Goto	Max 10000 cycle times.	
18	Suspend	Pause and waiting manually resuming test.	
19	Step quantity	Max 10000 steps.	
20	Step end setting	Each end condition with independent next step setting.	
21	loop nesting	Max 10 layers.	
22	Step time	No limit	
Data processing			
23	Data reading	High speed: 10ms.	
24	Cycle data list	Cycle number,C&D capacity,C&D efficiency,C&D energy ,C&D time ,Capacity retention etc.	
25	Step data list	Step number, step name ,step time, capacity ,energy,mid-voltage,initial/end voltage etc.	
26	Detail recording data list	Record number, system time,accumulated time ,voltage ,current ,energy,temperature , cell voltage ,cell voltage difference etc.	
27	Data export	Excel ,Plot/Graph etc.	
28	Data retention	data documents at setable data saving path.	
29	Graph setting	X-axis: time ,C/D capacity ,cycle number,voltage,current ,capacity	
30		Y-axis: total voltage,current,capacity ,energy ,cell voltage temperature	
Others			
31	Bar-code initiating	Yes	
32	Data/communication protection	Data protection in blackout,resuming test after stop,abnormal communication monitoring.	
33	Voltage/current/temperature protection	setable protection conditions, High/low voltage/current ,high/low current ,capacity ,temperature, abnormal voltage/current trend/fluctuation.	
34	Linkage equipments protection	Setable auxiliary devices.	

8. System parameter

- I. 보증기간: 배송일로 부터 1 년, 보증기간내에는 한스코리아에서 무상으로 고장수리 진행.
- II. 보증기간 경과 후에는 적절한 유지보수 비용이 소요됩니다.
- III. 소프트웨어 업데이트는 무상진행.
- IV. 24시간 내에 A/S 응답 .

9. Contact US !

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