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# New Generation Advanced Battery Testing Equipment

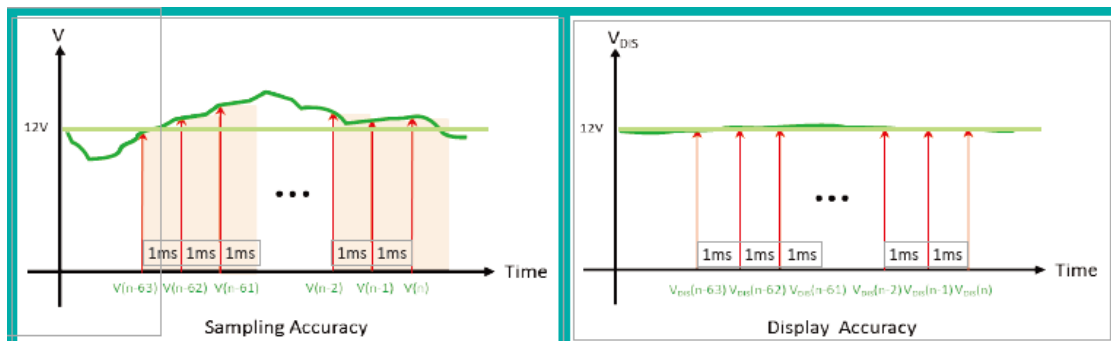
## TCMCL2 Series

### Feature

- \* Perfectly optimize cost/ performance
- \* A variety of add-on features available
- \* Precisely assess battery characteristics
- \* Excellent system performance
- \* Rapidly confirm battery quality
- \* Built-in international testing standards
- \* Easily conduct testing
- \* User-friendly software for operation and data analysis

### ➤ 0.02% Measure & Control Accuracy

Apply minimum 1ms high frequency sampling technology to collect information on battery voltage and current as parameters for feedback control, resulting in highly precise charging-discharging measurement and control based on advanced algorithms.



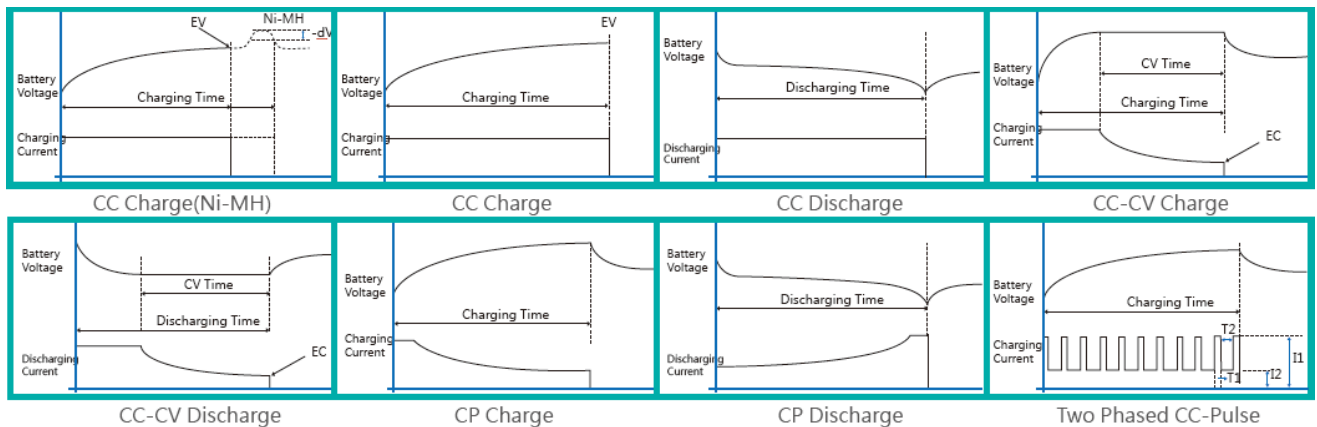


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## ➤ 1ms Data Recording Time

Use CANBus communication technology and intelligent data transmission scheduling methodology to achieve speed data recording up to 1000Hz (1ms).

## ➤ CC, CC-CV, CP, CC-Pulse testing modes



## ➤ Updated system performance

## ➤ Offer a variety of advanced optional features.

### Optional Accessory

1. BMS&GDA Data Collector
2. Auxiliary Voltage
3. Auxiliary Temperature
4. Chamber
5. Customized Fixture
6. Auto-Calibrator

### Optional Features

1. Advanced Data Analysis
2. Drive Simulation
3. SoH Evaluation
4. Rapid Switch between Charge and Discharge
5. Two Phased Pulse Charge/Discharge
6. Party Chamber Integration



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## ➤ Specification

Model		5V 3A-20A	5V 30A-100A	5V 200A-500A	5V 600A-1000A	20V 5A-30A	20V 40A-100A	60V 10A-25A	60V 30A-100A	
AC Power		220 VAC								
Loading Range	Charge	0.02V ~ 20V								
	Discharge	2V ~ 20V								
Output	Constant Current	Range	+5A / -5A	+10A / -10A	+20A / -20A	+30A / -30A				
		Resolution	0.1 mA	1 mA						
		Accuracy	±1 mA	±2 mA	±4 mA	±6 mA				
	Constant Voltage	Range	0.02V ~ 20V							
		Resolution	1 mV							
		Accuracy	±4 mV							
	Constant Power	Range	0.1 ~ 100 W	0.2 ~ 200 W	0.4 ~ 400 W	0.6 ~ 600W				
		Resolution	4 mW	40 mW						
		Accuracy	±40 mW	±80 mW	±160 mW	±240 mW				
Measurement	Voltage	Range	0 ~ 22V							
		Resolution	0.1 mV							
		Accuracy	±4 mV							
	Current	Range	0 ~ 5.5 A	0 ~ 11 A	0 ~ 22A	0 ~ 33A				
		Resolution	0.01 mA	0.1 mA						
		Accuracy	±1 mA	±2 mA	±4 mA	±6 mA				
	Temperature	Range	-50 ~ 150.0 °C							
		Resolution	0.1 °C							
		Accuracy	±1 °C (-40°C~90 °C)							
Output Protection		OV、UV、OC、UC、OT、REV、Fuse								
Ambient Conditions		23°C±2°C ; 20 ~ 90 HR								
Data Recording Time		100ms (Option:10ms, 1ms)								

Model		5V 3A-20A	5V 30A-100A	5V 200A-500A	5V 600A-1000A	20V 5A-30A	20V 40A-100A	60V 10A-25A	60V 30A-100A	
AC Power		220 VAC								
Loading Range	Charge	0.02V ~ 20V								
	Discharge	2V ~ 20V								
Output	Constant Current	Range	+40A / -40A	+60A / -60A	+80A / -80A	+100A / -100A				
		Resolution	1 mA	10 mA						
		Accuracy	±8 mA	±12 mA	±16 mA	±20 mA				
	Constant Voltage	Range	0.02V ~ 20V							
		Resolution	1 mV							
		Accuracy	±4 mV							
	Constant Power	Range	0.8 ~ 800 W	1.2 ~ 1200 W	1.6 ~ 1600 W	2 ~ 2000W				
		Resolution	40 mW	400 mW						
		Accuracy	±320 mW	±480 mW	±640 mW	±800 mW				
Measurement	Voltage	Range	0 ~ 22V							
		Resolution	0.1 mV							
		Accuracy	±4 mV							
	Current	Range	0 ~ 44 A	0 ~ 66 A	0 ~ 88A	0 ~ 110A				
		Resolution	0.1 mA	1 mA						
		Accuracy	±8 mA	±12 mA	±16 mA	±20 mA				
	Temperature	Range	-50 ~ 150.0 °C							
		Resolution	0.1 °C							
		Accuracy	±1 °C (-40°C~90 °C)							
Output Protection		OV、UV、OC、UC、OT、REV、Fuse								
Ambient Conditions		23°C±2°C ; 20 ~ 90 HR								
Data Recording Time		100ms (Option:10ms, 1ms)								

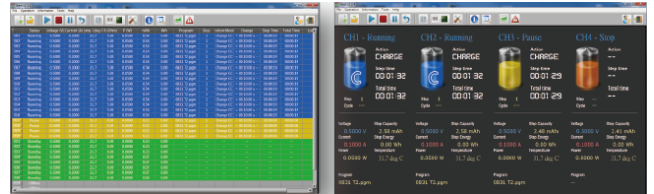


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## Brand-new iBest Software Upgraded User Experience Up

### ➤ Customized Main Status Dashboard

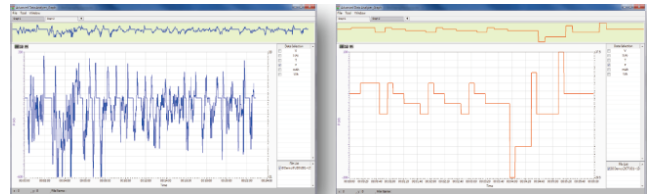
Allow users to choose among multiple UI styles according to active channel quantity.



### ➤ Built-in International Testing Standards

Bundle several international testing standards for users to efficiently test battery performance.

1. Pulse Charge: Intel Turbo Boost
2. EV Drive Simulation: FUDS, DST
3. DCIR: IEC 61960, ISO 12405



### ➤ Intelligent Testing Program Edition

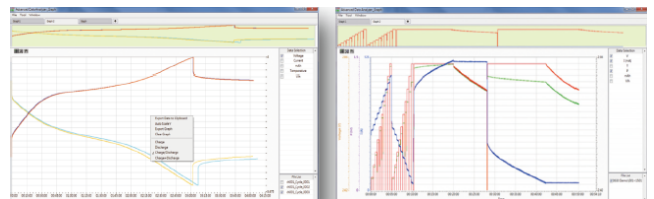
In addition to traditional current setup method, provide advanced "C-rate" and "mAh/g"

Enable	Name	Type	COMM	COM	Address	Channel
<input type="checkbox"/>	001 Chamber 1	ESPEC	RS-485	COM1	1	
<input type="checkbox"/>	002 Chamber 2	ESPEC	RS-485	COM1	2	
<input type="checkbox"/>	003 Chamber 3	ESPEC	RS-485	COM1	3	
<input type="checkbox"/>	004 Chamber 4	ESPEC	RS-485	COM1	4	

Accuracy Temp. ± 5.00 °C Time 60 min

### ➤ Handy Add-on Module Control

Control chamber, voltage/ temperature data collector, and BMS data collector directly using iBest software.



### ➤ Real-time Data Analysis

Offer friendly data analysis tool, allowing users to flexibly manipulate testing data.

1. View real-time testing results
2. Partially zoom-in/ zoom-out data curve
3. Change x-axis/ y-axis of the data curve
4. Compare testing results from multiple cycles



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Model																
AC Power		220 VAC														
Loading Range	Charge	0V ~ 5V														
	Discharge	2V ~ 5V (Option: Discharge to 0V)														
Output	Constant Current	Range	+3A / -3A		+5A / -5A		+10A / -10A		+20A / -20A							
		Resolution	0.1 mA						1 mA							
		Accuracy	±0.6 mA		±1 mA		±2 mA		±4 mA							
	Constant Voltage	Range	0V ~ 5V													
		Resolution	0.1 mV													
		Accuracy	±1 mV													
	Constant Power	Range	0 ~ 15 W		0 ~ 25 W		0 ~ 50 W		0 ~ 100W							
		Resolution	1 mW						10 mW							
		Accuracy	±0.006 W		±0.01 W		±0.02 W		±0.04 W							
Measurement	Voltage	Range	0V ~ +5.5V													
		Resolution	0.01 mV													
		Accuracy	±1 mV													
	Current	Range	0 ~ 3.3 A		0 ~ 5.5 A		0 ~ 11 A		0 ~ 22A							
		Resolution	0.01 mA						0.1 mA							
		Accuracy	±0.6 mA		±1 mA		±2 mA		±4 mA							
	Temperature	Range	-50 ~ 150.0 °C													
		Resolution	0.1 °C													
		Accuracy	±1 °C (-40°C~90 °C)													
Output Protection		OV · UV · OC · UC · OT · REV · Fuse														
Ambient Conditions		23°C±2°C ; 20 ~ 90 HR														
Data Recording Time		100ms (Option:10ms, 1ms)														

5V 3A-20A		5V 30A-100A		5V 200A-500A		5V 600A-1000A		20V 5A-30A		20V 40A-100A		60V 10A-25A		60V 30A-100A		
Model																
AC Power		220 VAC														
Loading Range	Charge	0V ~ 5V														
	Discharge	2V ~ 5V (Option: Discharge to 0V)														
Output	Constant Current	Range	+30A / -30A		+50A / -50A		+60A / -60A		+100A / -100A							
		Resolution	1 mA						10 mA							
		Accuracy	±6 mA		±10 mA		±12 mA		±20 mA							
	Constant Voltage	Range	0V ~ 5V													
		Resolution	0.1 mV													
		Accuracy	±1 mV													
	Constant Power	Range	0 ~ 150W		0 ~ 250W		0 ~ 300W		0 ~ 500W							
		Resolution	10 mW						100 mW							
		Accuracy	±0.06 W		±0.1 W		±0.12 W		±0.2 W							
Measurement	Voltage	Range	0V ~ +5.5V													
		Resolution	0.01 mV													
		Accuracy	±1 mV													
	Current	Range	0 ~ 33A		0 ~ 55A		0 ~ 66 A		0 ~ 110A							
		Resolution	0.1 mA						1 mA							
		Accuracy	±6 mA		±10 mA		±12 mA		±20 mA							
	Temperature	Range	-50 ~ 150.0 °C													
		Resolution	0.1 °C													
		Accuracy	±1 °C (-40°C~90 °C)													
Output Protection		OV · UV · OC · UC · OT · REV · Fuse														
Ambient Conditions		23°C±2°C ; 20 ~ 90 HR														
Data Recording Time		100ms (Option:10ms, 1ms)														



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<b>Model</b>																
AC Power																
Charge																
220 VAC																
Discharge																
0V ~ 5V																
2V ~ 5V (Option: Discharge to 0V)																
Loading Range	Constant Current	Range		+200A / -200A		+300A / -300A		+400A / -400A		+500A / -500A						
		Resolution		0.01 A												
		Accuracy		±0.06 A		±0.09 A		±0.12 A		±0.15 A						
		Constant Voltage	Range		0V ~ 5V											
			Resolution		0.1 mV											
			Accuracy		±1 mV											
	Constant Power	Range		0 ~ 1000W		0 ~ 1500W		0 ~ 2000W		0 ~ 2500W						
		Resolution		0.1 W												
		Accuracy		±0.5 W		±0.75 W		±1 W		±1.25 W						
	Measurement	Voltage	Range		0V ~ +5.5V											
			Resolution		0.01 mV											
			Accuracy		±1 mV											
Current		Range		0 ~ 220A		0 ~ 330A		0 ~ 440A		0 ~ 550A						
		Resolution		1 mA												
		Accuracy		±0.06 A		±0.09 A		±0.12 A		±0.15 A						
Temperature		Range		-50 ~ 150.0 °C												
		Resolution		0.1 °C												
		Accuracy		±1 °C (-40°C~90 °C)												
Output Protection																
OV · UV · OC · UC · OT · REV · Fuse																
Ambient Conditions																
23°C±2°C ; 20 ~ 90 HR																
Data Recording Time																
100ms (Option:10ms, 1ms)																
5V 3A-20A		5V 30A-100A		5V 200A-500A		5V 600A-1000A		20V 5A-30A		20V 40A-100A		60V 10A-25A		60V 30A-100A		
<b>Model</b>																
AC Power																
Charge																
220 VAC																
Discharge																
0V ~ 5V																
2V ~ 5V (Option: Discharge to 0V)																
Loading Range	Constant Current	Range		+600A / -600A		+800A / -800A		+1000A / -1000A								
		Resolution		0.1 A												
		Accuracy		±0.18A		±0.24 A		±0.3 A								
		Constant Voltage	Range		0V ~ 5V											
			Resolution		0.1 mV											
			Accuracy		±1 mV											
	Constant Power	Range		0 ~ 3000W		0 ~ 4000W		0 ~ 5000W								
		Resolution		1 W												
		Accuracy		±1.5 W		±2 W		±2.5 W								
	Measurement	Voltage	Range		0V ~ +5.5V											
			Resolution		0.01 mV											
			Accuracy		±1 mV											
Current		Range		0 ~ 660A		0 ~ 880A		0 ~ 1100A								
		Resolution		0.01 A												
		Accuracy		±0.18 A		±0.24 A		±0.3 A								
Temperature		Range		-50 ~ 150.0 °C												
		Resolution		0.1 °C												
		Accuracy		±1 °C (-40°C~90 °C)												
Output Protection																
OV · UV · OC · UC · OT · REV · Fuse																
Ambient Conditions																
23°C±2°C ; 20 ~ 90 HR																
Data Recording Time																
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Model							
AC Power		220 VAC					
Loading Range	Charge	0.06V ~ 60V					
	Discharge	2V ~ 60V					
Output	Constant Current	Range	+10A / -10A	+15A / -15A	+20A / -20A	+25A / -25A	
		Resolution	1 mA				
		Accuracy	±2 mA	±3 mA	±4 mA	±5 mA	
	Constant Voltage	Range	0.06V ~ 60V				
		Resolution	1 mV				
		Accuracy	±12 mV				
	Constant Power	Range	0.6 ~ 600 W	0.9 ~ 900 W	1.2 ~ 1200 W	1.5 ~ 1500W	
		Resolution	0.12 W				
		Accuracy	±0.24 W	±0.36 W	±0.48 W	±0.6 W	
	Measurement	Voltage	Range	0 ~ 66V			
			Resolution	0.1 mV			
			Accuracy	±12 mV			
Current		Range	0 ~ 11 A	0 ~ 16.5 A	0 ~ 22A	0 ~ 27.5A	
		Resolution	0.1 mA				
		Accuracy	±2 mA	±3 mA	±4 mA	±5 mA	
Temperature		Range	-50 ~ 150.0 °C				
		Resolution	0.1 °C				
		Accuracy	±1 °C (-40°C~90 °C)				
Output Protection		OV、UV、OC、UC、OT、REV、Fuse					
Ambient Conditions		23°C±2°C ; 20 ~ 90 HR					
Data Recording Time		100ms (Option:10ms, 1ms)					

5V 3A-20A	5V 30A-100A	5V 200A-500A	5V 600A-1000A	20V 5A-30A	20V 40A-100A	60V 10A-25A	60V 30A-100A
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Model							
AC Power		220 VAC					
Loading Range	Charge	0.06V ~ 60V					
	Discharge	2V ~ 60V					
Output	Constant Current	Range	+30A / -30A	+60A / -60A	+80A / -80A	+100A / -100A	
		Resolution	1 mA	10 mA			
		Accuracy	±6 mA	±12 mA	±16 mA	±20 mA	
	Constant Voltage	Range	0.06V ~ 60V				
		Resolution	1 mV				
		Accuracy	±12 mV				
	Constant Power	Range	1.8 ~ 1800 W	3.6 ~ 3600 W	4.8 ~ 4800 W	6 ~ 6000W	
		Resolution	0.12 W				
		Accuracy	±0.72 W	±1.44 W	±1.92 W	±2.4 W	
	Measurement	Voltage	Range	0 ~ 66V			
			Resolution	0.1 mV			
			Accuracy	±12 mV			
Current		Range	0 ~ 33 A	0 ~ 66 A	0 ~ 88A	0 ~ 110A	
		Resolution	0.1 mA				
		Accuracy	±6 mA	±12 mA	±16 mA	±20 mA	
Temperature		Range	-50 ~ 150.0 °C				
		Resolution	0.1 °C				
		Accuracy	±1 °C (-40°C~90 °C)				
Output Protection		OV、UV、OC、UC、OT、REV、Fuse					
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