



EV Battery Pack External Short Circuit Test System - kingpo

1. Executive Summary

The EV Battery Pack Short Circuit Tester is a high-safety, high-precision testing platform engineered by KingPo specifically for evaluating lithium-ion battery packs used in electric vehicles. It simulates catastrophic external short-circuit faults under strictly controlled conditions to accurately quantify thermal runaway risks, current surges, and overall safety performance. This system is critical for validating the response speed of Battery Management System (BMS) protection mechanisms.

2. Comprehensive Technical Specifications

Electrical & Measurement Performance

Category	Parameter	Specification	Remark / Notes
Electrical	Max Short Circuit Current	Up to 16,000 A	Model dependent; continuously adjustable.
	Internal Resistance	< 1 mΩ	Ultra-low resistance for accurate peak capture.

Website: www.kingpo.hk

Tel: 0086 769 81627526

Address: No.9, University Rd., Songshan Lake, Dongguan, Guangdong, China

E-mail: sales@kingpo.hk

Fax: 0086 769 89032367



Category	Parameter	Specification	Remark / Notes
Measurement	Voltage Range	0-10V / 0-100V / 0-1000V	Multi-range and multi-channel acquisition.
	Voltage Precision	±0.15% to ±0.3% FS	High-accuracy laboratory-grade precision.
	Temperature Range	0-1300 °C	Supports multiple thermocouple types.
	Temperature Precision	±2.5 °C	Automatic ambient temperature compensation.
Control	Data Acquisition Rate	100 Hz (10ms sampling)	Real-time transient capture for BMS validation.
	Control Modes	Triple-Mode	Touchscreen, Remote PC, and Wireless Remote.

Safety, Protection & Reliability

Category	Parameter	Specification	Remark / Notes
Switching	Arc Extinguishing	Vacuum Arc Extinguishing	Prevents contact fusion and equipment wear.
	Mechanical Life	300,000 Cycles	Designed for high-frequency repeated testing.
	Electrical Life	50,000 Cycles	Reliable performance under high-current loads.
Safety	Protection Features	Explosion-proof chamber	Includes leakage protection and overcurrent alarms.
Physical	Main Unit Dimensions	780 × 880 × 1400 mm	Compact footprint for laboratory integration.
	Cooling Method	Air Cooled	Efficient cooling for continuous operation.

3. Professional Construction & Technical Precision

The system is built with industrial-grade robustness to safely manage destructive, high-energy testing:

- **Advanced Arc Suppression:** Features an industrial-grade vacuum arc extinguishing device that rapidly quenches plasma arcs during 16,000A disconnections. This prevents contact welding and ensures the system remains reusable after extreme events.
- **Low-Impedance Engineering:** Employs an ultra-low internal resistance circuit (<1 mΩ) combined with closed-loop feedback to deliver stable and accurate short-circuit currents.
- **Transient Data Capture:** The 100 Hz sampling system enables millisecond-level recording of peak currents, voltage drops, and rapid temperature surges.

Website: www.kingpo.hk

E-mail: sales@kingpo.hk

Tel: 0086 769 81627526

Fax: 0086 769 89032367

Address: No.9, University Rd., Songshan Lake, Dongguan, Guangdong, China



Kingpo Technology Development Limited

- **Integrated Software:** Professional control software provides real-time multi-channel visualization, historical trend analysis, and "one-click" automated report generation.

-

4. Testing Principle & Methodology

The tester creates a controlled external short circuit on the battery pack through a path of <1 mΩ. Throughout the duration of the test, it monitors total voltage, individual cell voltages, and temperature rise at multiple strategic points. This evaluation determines the pack's ability to withstand extreme stress without fire or explosion while simultaneously assessing BMS effectiveness.

5. Industrial Applications & Business Value

- **Battery Pack Manufacturers:** Essential for safety validation and production quality control.
- **New Energy Vehicle R&D:** Used for battery pack design verification and structural optimization.
- **Certification Laboratories:** Compliance testing under GB, IEC, and other international standards.
- **System Integrators:** Reliable demonstration of safety compliance to accelerate product certification timelines.

6. Strategic Procurement & Global Support

- **High-Current Capacity:** Up to 16,000A with multiple layers of safety and ultra-low resistance.
- **Remote Safety:** Triple-mode control (Touchscreen, PC, Wireless) allows operators to maintain a safe distance.
- **Certified Quality:** Manufactured under ISO 9001, ISO 14001, and ISO 45001 quality systems.
- **Responsive Service:** Includes a one-year warranty and lifetime technical support from our Dongguan facility.

Website: www.kingpo.hk

Tel: 0086 769 81627526

Address: No.9, University Rd., Songshan Lake, Dongguan, Guangdong, China

E-mail: sales@kingpo.hk

Fax: 0086 769 89032367