

Laptop Battery Tester 24V 15A Eight Channel Smbus Battery Analyzer

Item Number: DC06



Introduction

Eight-channel laptop battery tester with 24V, 15A charging and discharging, SMBUS and I2C communication, precise data logging, cycling, protection, and efficient energy management

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Application	Description	Key Benefit
Laptop Battery Pack Testing	Charge, discharge, and cycle laptop battery packs using programmable voltage, current, capacity, energy, and time limits.	Supports repeatable qualification and comparative performance testing across multiple packs.
Smart Battery and BMS Development	Read battery-management variables through SMBUS or I2C while synchronizing communication data with electrical test records.	Correlates battery behavior with intelligent electronics data during development and troubleshooting.
Battery Pack Production Verification	Run standardized charge and discharge programs across independent channels for incoming inspection, process validation, or final testing.	Increases throughput while maintaining channel-level control and traceable results.
Battery Capacity and Endurance Evaluation	Use configurable cycling programs with up to 65,535 cycles, defined cutoff conditions, and multi-level loop structures.	Enables long-duration durability studies and automated endurance protocols.
Battery Protection and Fault Analysis	Apply voltage, current, capacity, energy, slope, delay, and auxiliary protection conditions to investigate abnormal behavior.	Helps identify electrical faults and verify protective responses under controlled conditions.
Portable and Consumer Electronics Research	Adapt charging and discharging profiles for smart batteries used in portable electronics and compact energy systems.	Provides flexible protocol control for varied battery architectures and operating requirements.
Academic and Advanced Materials Research	Record high-frequency electrical data while testing experimental cells, packs, materials, or battery-management strategies.	Combines programmable operation, offline storage, and exportable data for laboratory analysis.

Category	Parameter	Specification
Identification	Equipment model	DC06
Identification	Reference equipment code	CE-5008-24V15A-SMB
Electrical Input	Input power supply	AC 220V $\pm$ 10% / 50Hz
Electrical Input	Input power	2400W
Measurement	AD resolution	16bit
Measurement	DA resolution	16bit
Measurement	Input impedance	$\geq$ 1M Ω
Voltage	Charging output range per channel	2.5V~24V
Voltage	Discharging output range per channel	2.5V~24V
Voltage	Accuracy	$\pm$ 0.02% of range

Category	Parameter	Specification
Voltage	Stability	0.01%
Current	Charging output range per channel	30mA~15A
Current	Discharging output range per channel	30mA~15A
Current	Accuracy	± 0.03% of range
Current	Stability	0.015%
Power	Single-channel output power	360W
Power	Stability	0.05%
Time	Current response time	Hardware response time ≤ 20ms from 10% to 90% or 90% to 10%
Time	Step duration range	1~65535 minutes per step
Time	Supported time format	00:00:00 (hh:mm:ss)
Data Recording	Time recording condition	Δt: 0.01s~60000s
Data Recording	Voltage recording condition	ΔU: 5mV~24V
Data Recording	Current recording condition	ΔI: 5mA~15A
Data Recording	Recording frequency	100Hz
Charging	Charging modes	Constant current, constant voltage, constant-current constant-voltage, constant power, constant-power constant-voltage
Charging	Charging cutoff conditions	Voltage, current, relative time, capacity
Discharging	Discharging modes	Constant current, constant power, constant-current constant-voltage
Discharging	Discharging cutoff conditions	Voltage, current, relative time, capacity
Cycling	Cycling test range	1~65535 cycles
Cycling	Steps per cycle	255
Cycling	Nested cycling	Maximum 4 levels of nested loops; supports jumping across loops to any step
Protection	Safety and abnormal-condition protection	Power-loss data protection; upper and lower voltage limits; upper and lower current limits; capacity limit; energy limit; control-parameter deviation protection; current and voltage fluctuation protection; voltage-slope protection; delay protection; auxiliary voltage protection; auxiliary temperature protection
Protection	Hardware protection	Reverse-connection protection; input overvoltage protection; output overvoltage protection; input overcurrent protection; output overcurrent protection; overheating protection; overload protection; output no-load protection
Channel Design	Energy management	Energy-saving inverter technology enables local energy circulation between channels
Channel Design	Control architecture	Independent dual closed-loop structure for constant-current and constant-voltage sources
Channel Design	Control mode	Independent control per channel
Channel Design	Voltage and current sampling	Four-wire connection
Channel Design	Sampling speed	High-speed 100Hz sampling
Channel Design	Offline storage	1GB per-channel offline operation storage capacity
Channel Design	Conversion technology	Automotive-grade main control solution with 200kHz high-frequency conversion
Channel Design	Noise	<80dB
Communication	Host-computer communication	TCP/IP
Communication	Communication interface	Ethernet 100M
Data Output	Output formats	EXCEL, TXT, charts
Channel Capacity	Channels per unit	8

Category	Parameter	Specification
Environment	Operating temperature	25°C±10°C
Environment	Storage temperature	0°C~45°C
Environment	Operating relative humidity	30%~80% RH, without condensation
Environment	Storage relative humidity	30%~90% RH, without condensation
Mechanical	Fixture type	Selected according to customer requirements
Mechanical	Unit chassis dimensions W×D×H	500 × 480 × 86 mm
Mechanical	Cabinet dimensions W×D×H	606 × 800 × 1800 mm
SMBUS and I2C	Hardware compatibility	Compatible with SMBUS and I2C communication protocols; supports 400kHz high-speed mode
SMBUS and I2C	Software compatibility	Compatible with standard field information commands defined by Smart Battery Data Specification Revision 1.1; users can edit DBC files to support different chip protocols
SMBUS and I2C	Channel operation	Eight channels operate independently; each channel can set a different SMBUS parameter list
SMBUS and I2C	Parameter reading	Each parameter can be configured for dynamic real-time refresh or one-time reading to reduce bus occupation
SMBUS and I2C	Bus reading rate	All channels can read at the configured bus rate of 100kHz~400kHz
SMBUS and I2C	Refresh performance	More than 10 refreshes per second can be achieved when each channel reads only a small number of parameters
SMBUS and I2C	Variable storage	Users can define the variable list saved for each test
SMBUS and I2C	Record synchronization	SMBUS variables are recorded synchronously with the main electrical test parameters