# 20V 10A Battery Testing Equipment

## Item Number: DC10

### Introduction

20V 10A battery testing equipment delivers independent eight-channel charge discharge cycling, 200W per channel output, 100Hz recording, SMBUS compatibility, and protected precision measurements for battery research validation and production testing.

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| Application | Description | Key Benefit |
|---|---|---|
| Lithium-ion cell cycle-life evaluation | Runs repeated charge and discharge sequences using configurable current, voltage, time, and capacity cutoffs. | Supports long-duration cycle programs up to 65,535 cycles with power-loss data protection. |
| Smart battery pack validation | Reads supported smart-battery information through SMBUS, HDQ, or I2C-compatible hardware and compatible software commands. | Brings electrical test control and smart-battery data access into one laboratory workflow. |
| Battery formation process research | Applies constant-current, constant-voltage, or combined CC-CV charging profiles to investigate formation behavior. | Independent channels allow multiple samples or conditions to be evaluated simultaneously. |
| High-power cell discharge characterization | Performs constant-current or constant-power discharge within the 2.5V to 20V and 20mA to 10A per-channel ranges. | 200W per-channel output enables meaningful loading across the stated operating range. |
| Electrode and materials development | Compares cells made from different electrode formulations, separators, or processing conditions through consistent electrical protocols. | Four-wire sensing and stated full-scale accuracy support comparable data across samples. |
| Quality assurance sampling | Executes standardized incoming, in-process, or final battery tests with defined cutoff and protection settings. | Programmable limits, repeatable steps, and EXCEL, TXT, or chart output simplify traceable review. |
| Academic battery research | Supports teaching and research projects involving capacity, charge-discharge behavior, rate studies, and cycling methods. | Broad program ranges and detailed recording parameters accommodate evolving experimental designs. |
| Engineering fault and protection studies | Uses configurable upper and lower voltage/current limits plus abnormal-condition criteria during controlled tests. | Hardware reverse-connection protection and settable exception protection help protect test operations. |

| Parameter | DC10 Specification |
|---|---|
| Input power supply | AC: 220V +/-10% / 50Hz |
| Input power | 1800W |
| AD resolution | 16bit |
| DA resolution | 16bit |
| Input impedance | >=1MOhm |
| Channels per unit | 8 |
| Per-channel charging voltage output range | 2.5V~20V |
| Per-channel discharging voltage output range | 2.5V~20V |
| Voltage accuracy | +/- 0.05% of range (full scale) |
| Voltage stability | 0.025% |

| Parameter | DC10 Specification |
|---|---|
| Per-channel charging current output range | 20mA~10A |
| Per-channel discharging current output range | 20mA~10A |
| Current accuracy | +/- 0.05% of range (full scale) |
| Current stability | 0.025% |
| Per-channel output power | 200W |
| Power stability | 0.05% |
| Current response time | Hardware response time to 10A current: 20ms |
| Step time range | 1~65535 minutes/step |
| Supported time format | 00:00:00 (h, min, s) |
| Data recording condition: time delta t | 0.01s~60000s |
| Data recording condition: voltage delta U | 10mV~20V |
| Data recording condition: current delta I | 5mA~10A |
| Recording frequency | 100Hz |
| Charging modes | Constant-current charging, constant-voltage charging, constant-current constant-voltage charging |
| Charging cutoff conditions | Voltage, current, relative time, capacity |
| Discharging modes | Constant-current discharging, constant-power discharging |
| Discharging cutoff conditions | Voltage, current, relative time, capacity |
| Cycle test range | 1~65535 cycles |
| Steps per cycle | 255 |
| Cycle nesting | Nested cycle function; maximum 4 nested layers |
| Safety protection settings | Voltage upper and lower limits, current upper and lower limits, delay time |
| Exception protection settings | Maximum current fluctuation during constant-current charge/discharge; current rise during constant-voltage charging; voltage drop during constant-current charging; voltage rise during constant-current discharging |
| Power-loss data protection | Supported |
| Hardware protection | Reverse-connection protection and reverse-connection prompt |
| Channel architecture | Constant-current source and constant-voltage source use independent dual closed-loop structure |
| Channel control mode | Independent control |
| Voltage and current detection sampling | Four-wire connection |
| Noise | <80dB |
| Host computer communication method | TCP/IP |
| Data output formats | EXCEL, TXT, charts |
| Communication interface | Ethernet 10/100M |
| Operating temperature range | 10C~40C |
| Storage temperature range | 10C~45C |
| Operating relative humidity range | 30% ~ 80% RH (no water vapor condensation) |
| Storage relative humidity range | 30% ~ 90% RH (no water vapor condensation) |
| Fixture type | Selected according to customer requirements |
| Per-unit chassis dimensions (WD H) | 480 * 660 * 130 (mm) |

| Parameter | DC10 Specification |
| --- | --- |
| Cabinet dimensions (WDH) | 606 * 800 * 1800 (mm) |
| SMBUS hardware compatibility | Compatible with SMBUS, HDQ, I2C communication protocols |
| SMBUS software compatibility | Compatible with standard field-information commands defined by Smart Battery Data Specification Revision 1.1 |
| Smart battery data reading frequency | 1S |