

professional and reliable

>>> Voltage up to 1200V Current up to 2500A Power up to 600kW

>>> Modular design, rapid maintenance

>>> Transient overpower loading





High

What you want to know

IT8900 Series High performance High power DC Electronic Load



High power

45KW/
600KW



High voltage

150V/
600V/
1200V



High current

2500A



High resolution

1mV / 1mA

Capacity

What you want to know
IT8900 Series High power DC Electronic Load

**Master-slave
paralleling**

**Transient over-
power loading
capability**

**LAN/USB/
RS232/GPIB/
External analog
control/
I-monitor**

**25KHZ
dynamic
mode**

Measure function

**modular
design,
convenient for
maintenance**

**Provide six working
modes :**

**CC/CV/CR/CW/
CC+CV/CR-LED**

**Full
protection**

**Adjustable
CV loop
speed**

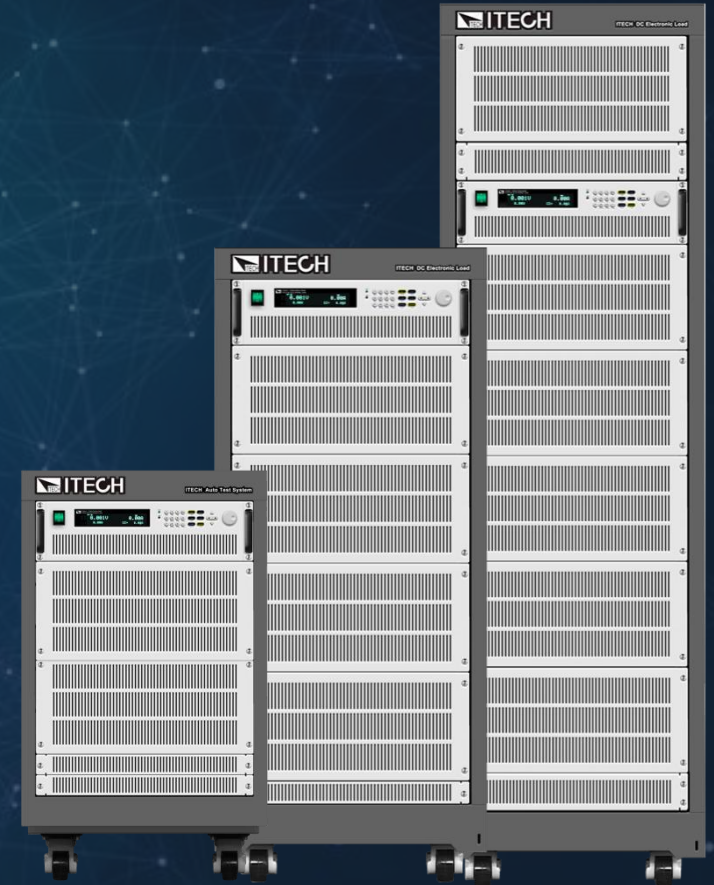
**Support
VISA/USBTMC/SCPI
protocol**

**Various
tests**

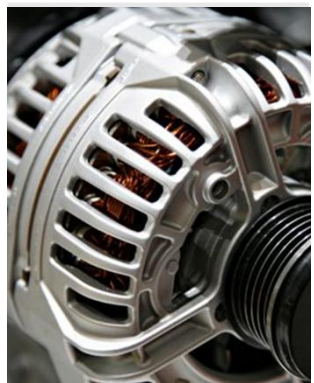
**18bit AD sampling
rate(high resolution)
50KHz speed test**

IT8900 Series High power DC Electronic Load

It's **High** because
of its **Capacity**



Industry(motors)



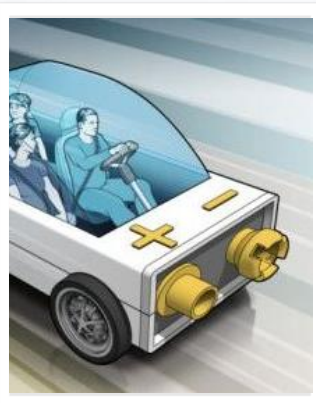
Server power supply



Communication power supply



Military & Aerospace



Car Charger



Battery pack



Energy storage system



Charging station

Wide applications

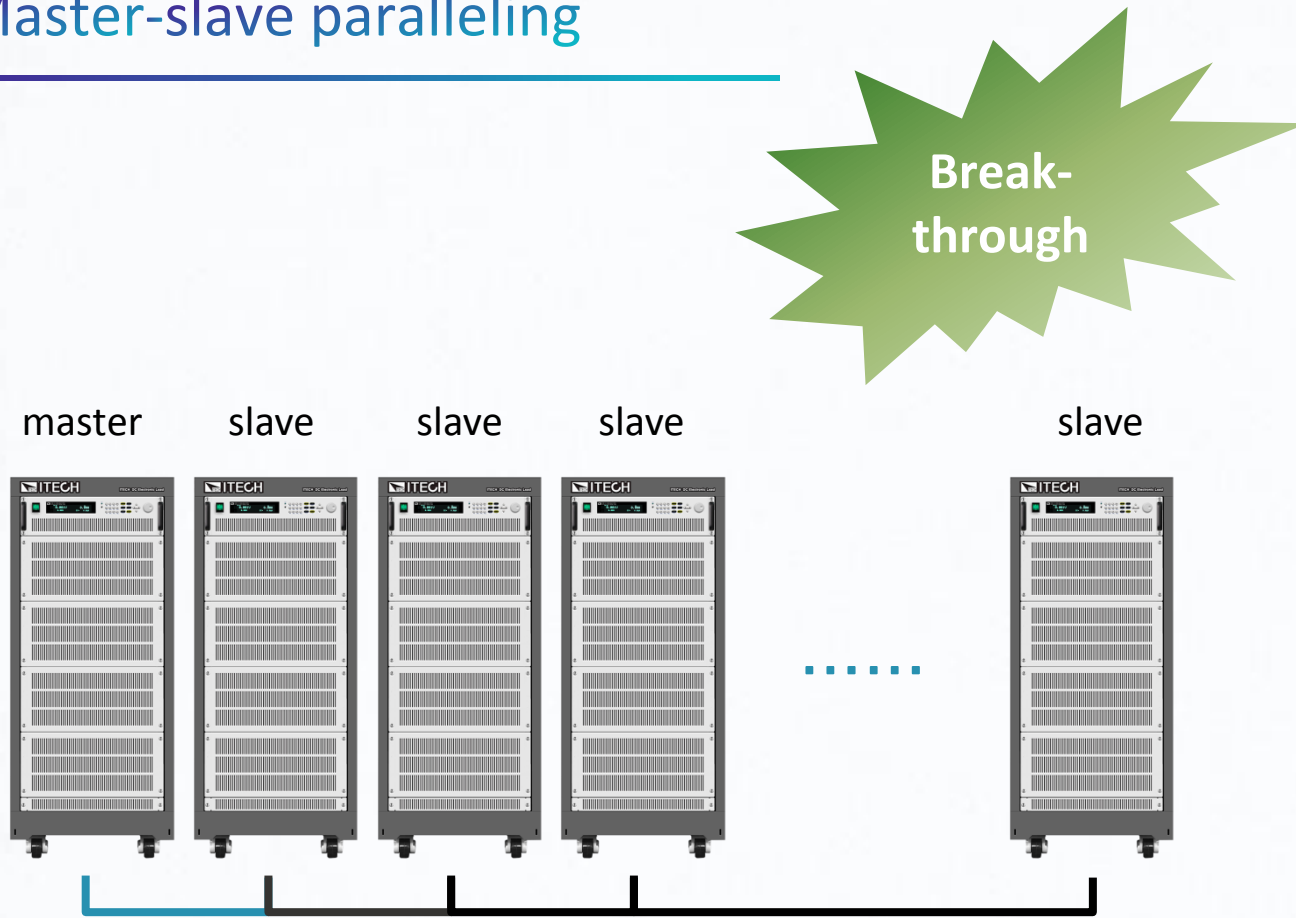
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Product features

Specifications

| | 12KW | 15KW | 18KW | 22.5KW | 24KW | 30KW | 36KW | 37.5KW | 45KW |
|-------|--------------------------------|-------------------------------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 150V | | 960A IT8915-150-960 | | 1440A IT8922-150-1440 | | 1920A IT8930-150-1920 | | 2400A IT8937-150-2400 | 2500A IT8945-150-2500 |
| 600V | 480A IT8912-600-480 | | 720A IT8918-600-720 | | 960A IT8924-600-960 | 1200A IT8930-600-1200 | 1440A IT8936-600-1440 | Higher power can be customized | |
| 1200V | 240A IT8912-1200-240 | | 360A IT8918-1200-360 | | 480A IT8924-1200-480 | 600A IT8930-1200-600 | 720A IT8936-1200-720 | | |

Master-slave paralleling



1

Master-slave paralleling, power up to 600kW

The user operates on master panel and the slave unit will be distributed automatically

2

Break through the tradition, Parallel under CV mode

Traditional paralleling units cannot work in CV mode to prevent over-current and over-power of the instrument.

3

Paralleling save function

Multiple units paralleling can realize all the functions of single unit.

Master/slave paralleling—applications



DC charging station test



Military high power DC
motor test



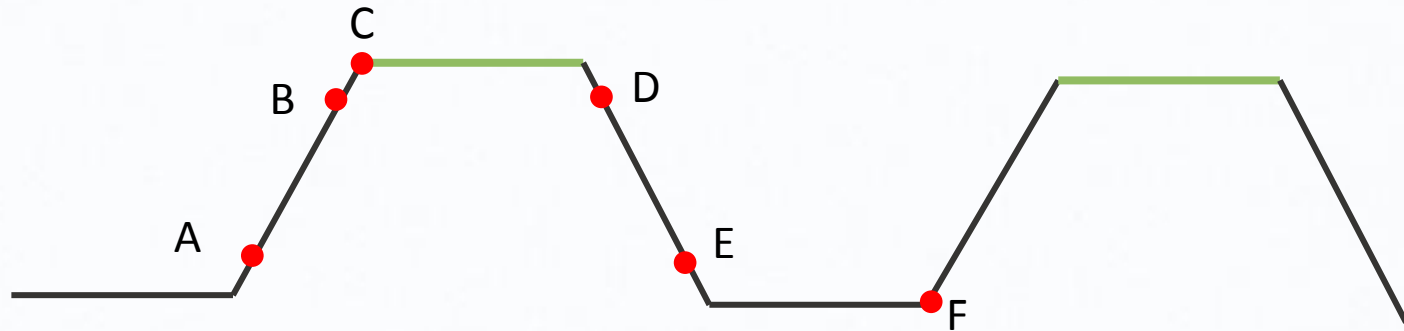
High voltage UPS test



EV battery test

Measure function

- ◆ Mainly used for measuring the rising and falling time of voltage or current within a specified range.



Measurable period of time :

- (1) The rising time from A to B point.
- (2) The falling time from D to E point.
- (3) The falling time from C to E point. (Positive pulse-width time)
- (4) The falling time from D to F point. (Negative pulse-width time)

Measure function

Application : Power module rising and falling time measurement

In order to test whether the power module can reach the designed specification, it needs to test the module performance under the real working environment.

The Rising and Falling time test is one of the must-test items.



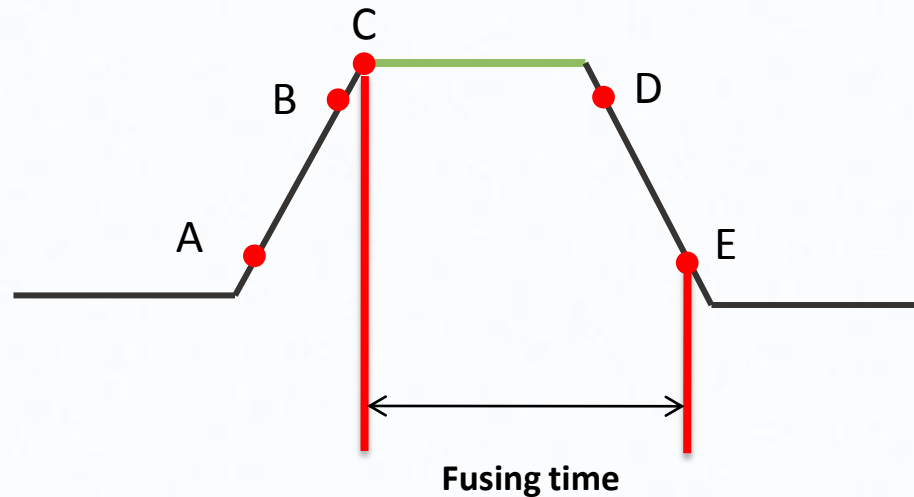
Measure function

Application : fusing time measurement

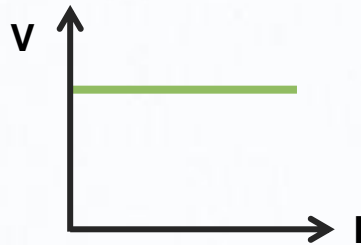
Combine the CC mode with Measuring time function.

◆ Test advantages :

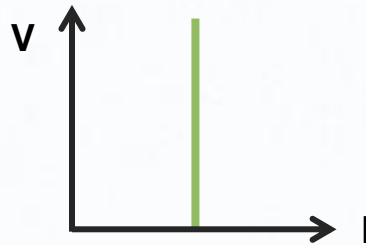
- ✓ Time measurement accuracy can reach 10us;
- ✓ Internal resistance of IT8922-150-1440 is about 1.8mΩ, which is suitable for low voltage power supply (12V for automotive).
- ✓ The fusing current of fuse for EV battery is often 6 times of rated current, which can reach up to 3300A.



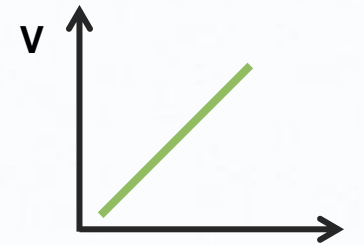
Six working modes



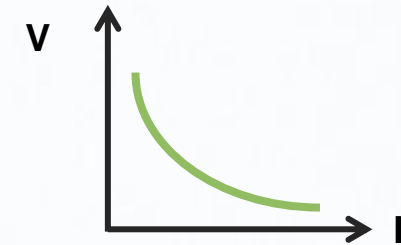
CV mode



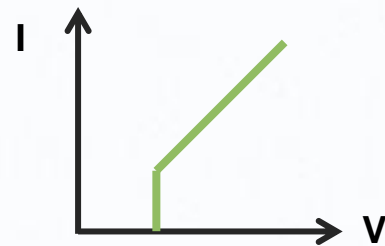
CC mode



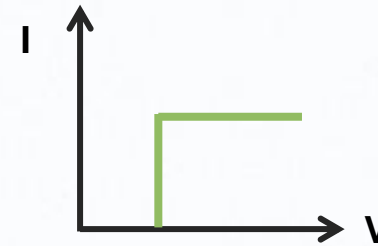
CR mode



CP mode



LED(CV+CR) mode



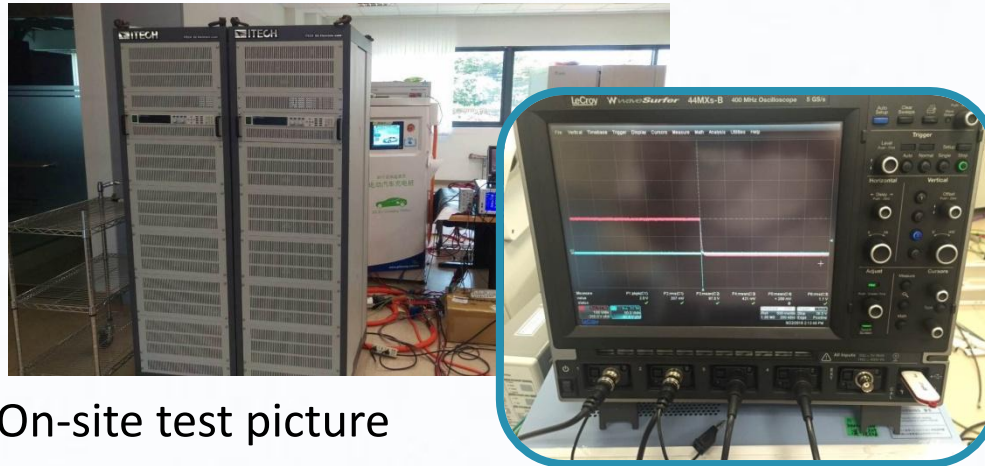
CV+CC mode

Six working modes——CV+CC mode

- ◆ CV+CC can limit surge current

Application case : DC charging pile test

- ✓ in charging station testing, electronic load should work in CV mode. When load voltage increased to 700V, load current increased faster to make voltage stable in 700 V, thus instant large current may lead DC charging pile to OCP.
- ✓ After setting I-limit value in CV+CC mode, load current can be limited within OCP point, which will not lead to OCP of DC charging pile.

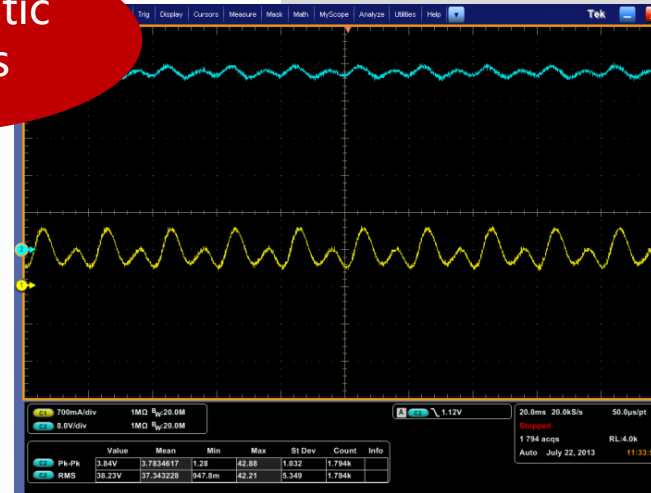
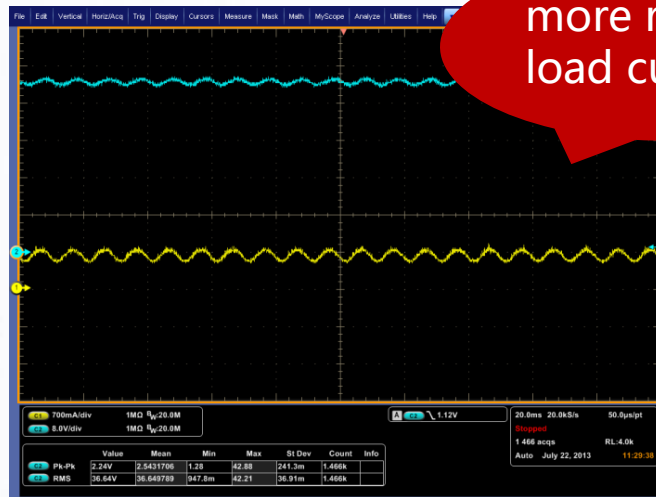


Six working modes——CR-LED mode

- ◆ CV+CR mode , that is CR-LED mode

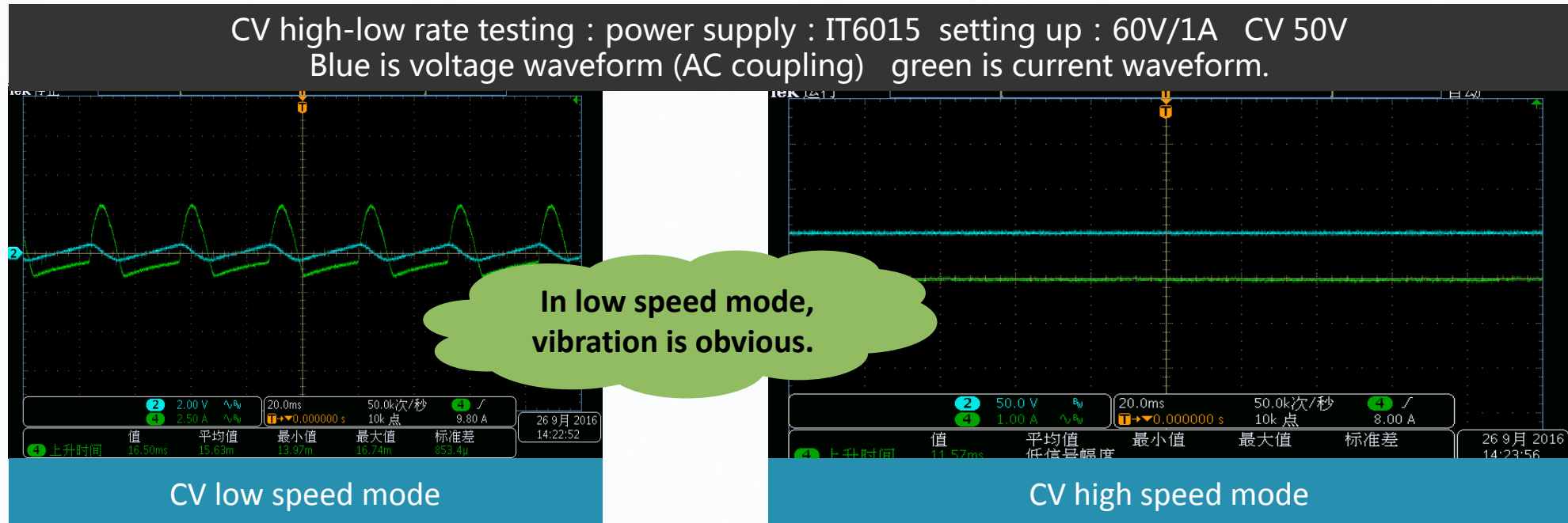
Application : LED driver testing

- ✓ The end user could program two parameters to simulate LED characteristics.



Adjustable CV loop speed

- ◆ If load loop speed is too fast to match some slow speed power supply, result is testing value will vibrated.
- ◆ This mismatch problem can be well solved with IT8900 series, users can adjust its interior CV loop speed to “High-rate” or “Low-rate” to achieve the best matching point. This function is convenient which can improve the test efficiency.



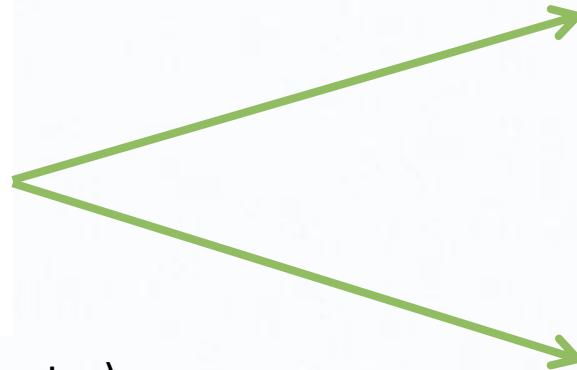
Instant over-power loading capability

- ◆ IT8900 series provide a unique surge load simulation capability which allows users to overdrive the loads up to 2 times of average power for short periods. The end users can select e-load according to average power required by UUT other than short-term peak power, which can save money.
- ◆ This feature is useful when the average power required by the UUT is low compared to short-term peak power demands. Such as DC motor start-up simulation, start transient power will be several times of average power, others include battery 3C discharge, breaker & fuse over-rate tests, car engine startup simulation, etc.



DC motor simulation (UUT: Generator)

Average power is 12KW,
surge power up to 24KW



Other loads : 24KW



IT8900 : 12KW

Measurement speed up to 50KHZ

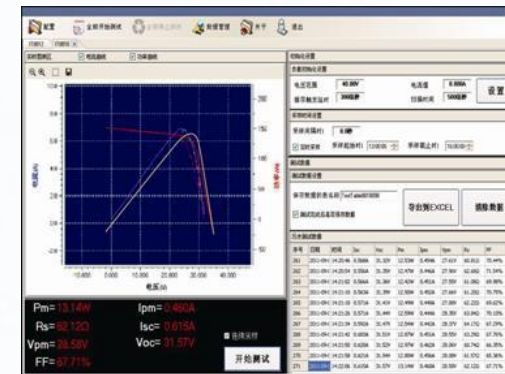
- ◆ For high-speed test applications , such as solar cell testing.

Application : solar cell testing

- ◆ IV output of solar cell constantly changes with temperature, luminous intensity etc. Thus, the IV curve of solar cell must be depicted in a short time.
- ◆ IT8900 can collect 250 points of the solar cell IV curve within 5 ms. To work with IT9380 solar cell test software, the users can set the measurement voltage, and the software will acquire the I-V datas automatically.

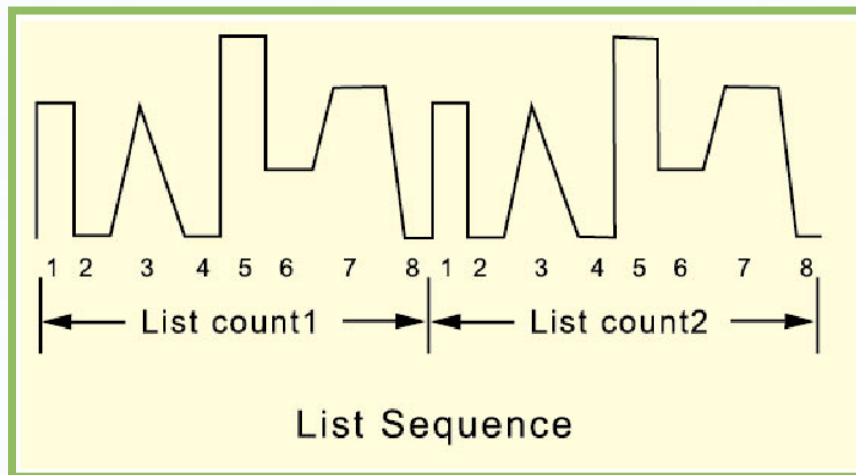
Requirements for load :

- (1) The time interval of adjacent voltage should be within 50us.
- (2) It can collect current & voltage simultaneously and the total collecting time should be less than 10ms.



Adjustable current rising / falling speed

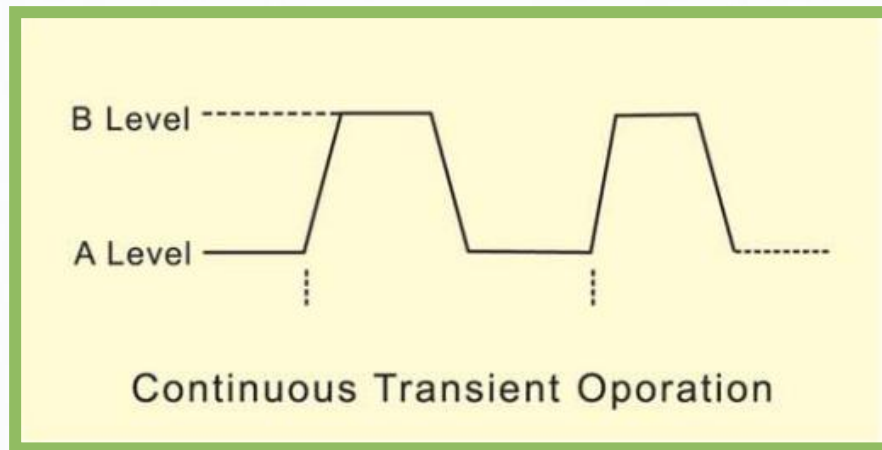
- ◆ Electronic engineers often use different current values to test power supply modules during design, development or quality inspection
- ◆ List(sequence) function can help engineers to accomplish complicated load current changing, which can also be synchronized by internal or external signal to complete the multi-level loading current test.
- ◆ IT8900 series DC load also support panel programming, which contributes to wider applications, such as electronic product R&D, product line, and quality inspection etc.



current slew rate is
adjustable,
up to 10A/us

Dynamic mode up to 25KHZ

- ◆ In dynamic mode, IT8900 series will switch load current between two values, which is used to test the load regulation and transient response (voltage variation curve and stabilization time) of power supply.
- ◆ Load current is constantly changing rather than keep static when power supply is working. So dynamic test is one of the must-test items of power supplies, which can reflect the stability and transient response of the power supply.
- ◆ With the development of electronic technology, extremely-high requirement for transient response of the power supplies is a trend.

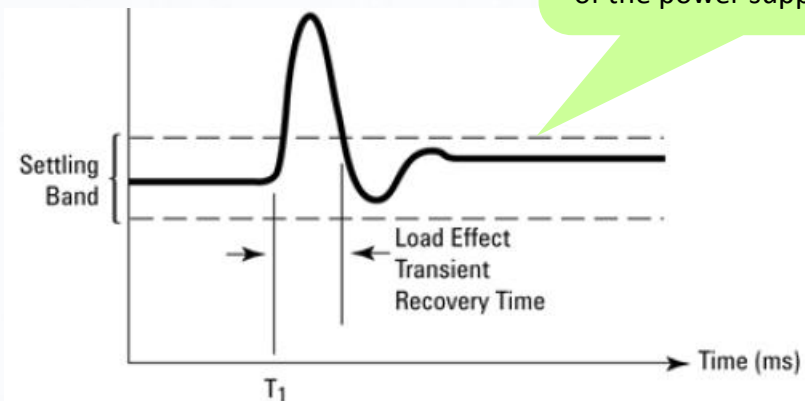


Dynamic mode up to 25KHZ

Application :

- ◆ Transient response test of switching power supplies, for example, when a computer's disk driver is running or stopped, its changing load current can be simulated by dynamic load mode.
- ◆ Simulate the most harsh load conditions under the real working environment of power supply, such as the load current rises /falls rapidly, etc.
- ◆ Battery dynamic charging test

To evaluate the power supply's transient response, the shorter of the recovery time, the better of the power supply.



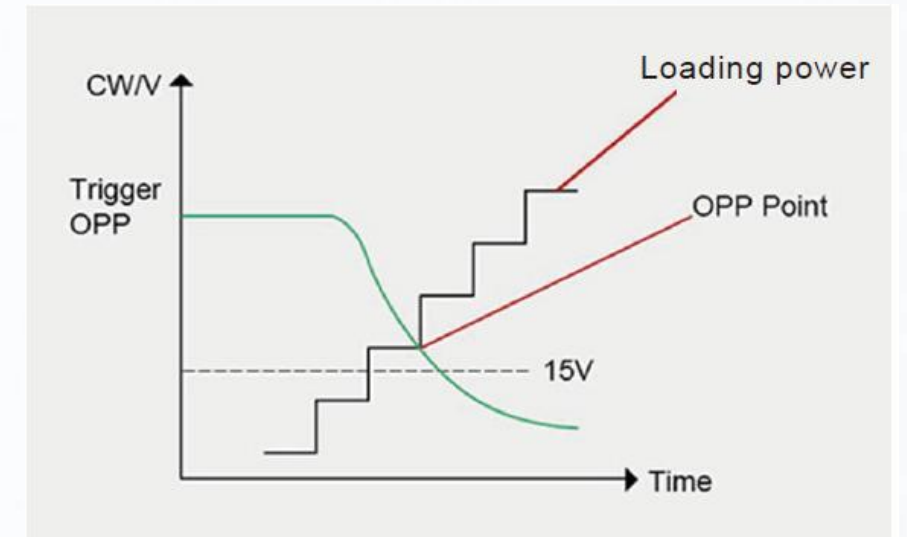
OCP, OPP tests

- ◆ For power supplies, OCP and OPP are designed to guarantee the user's safety and to reduce instrument from damage.
- ◆ IT8900 loads can automatically judge the test result according to the set specifications, so the users can save much time in verification of design and production system.

Application example

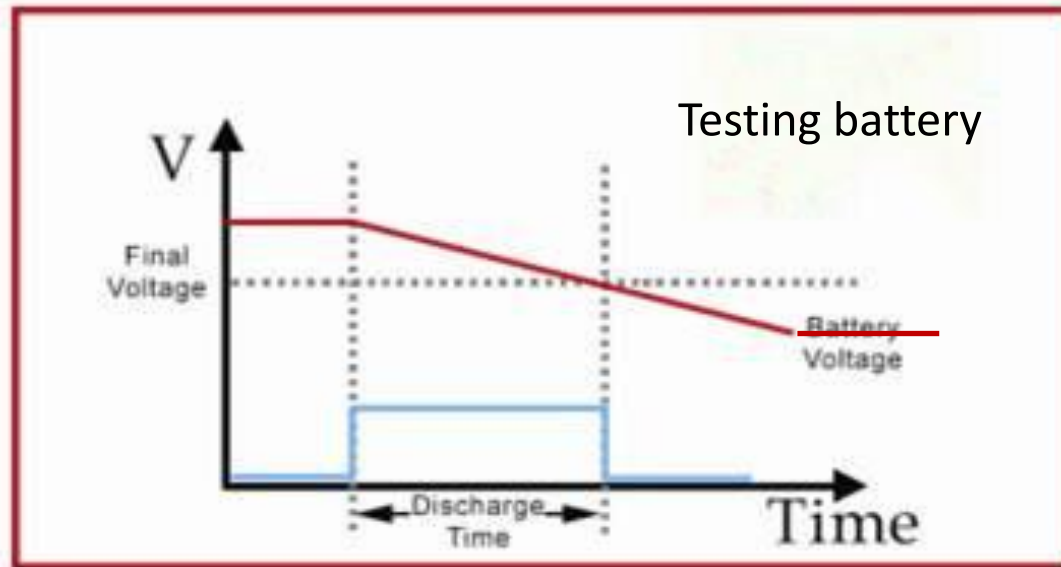
- ◆ over-current and over-power point tests of the lithium-battery protection board and power modules.

OPP protection Test



Battery Discharge Test

- ◆ IT8900 use constant current mode to test capacity and set up off-voltage by programming, when power supply voltage is too low, system determines battery reaches set-up value or is unsafe , it will automatically stop test. During the test, users can observe battery's voltage, time and discharged-capacity, The discharge test can reflect battery's reliability and residual life.
- ◆ Through operation panel or software, IT8900 can set 3 stop conditions of battery discharge: voltage, capacity and time.



Automatic Test

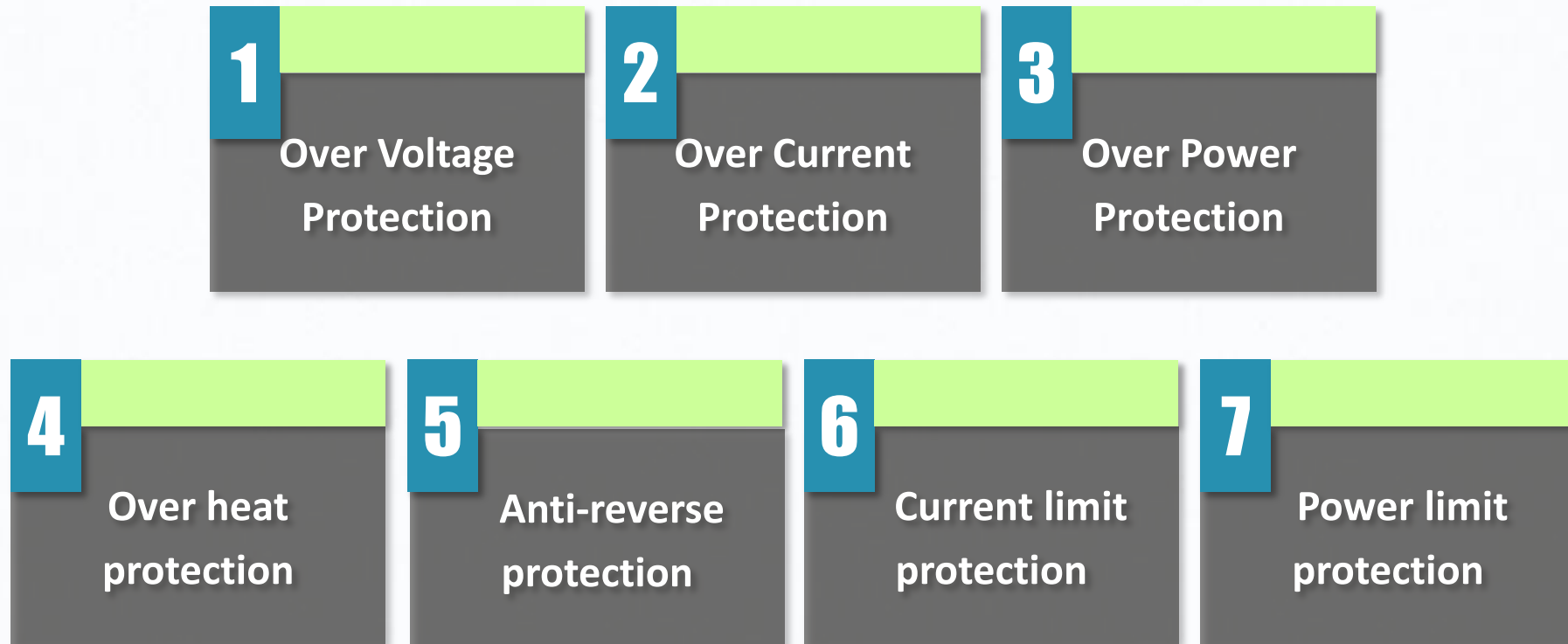
- ◆ IT8900 has a very strong automatic test function. The automatic test function is useful for simulating various tests and allows the user to edit up to 10 testing files. It helps engineers to test out power supplies in different loading status.
- ◆ Automatic test function can edit multiple test steps in CC, short-circuit and CV modes, and all test can be one time. It makes tests convenient and fast, and to ensure high efficiency and testing accuracy.

Application

- ◆ Charger test : Editing an automatic test file according to the charger test steps and then a trigger signal can start the automatic testing. IT8900 can read the voltage or current value that user needs to test on each step, and determine whether the value is in given range or not, IT8900 will give the test results as PASS or FAIL after the test.

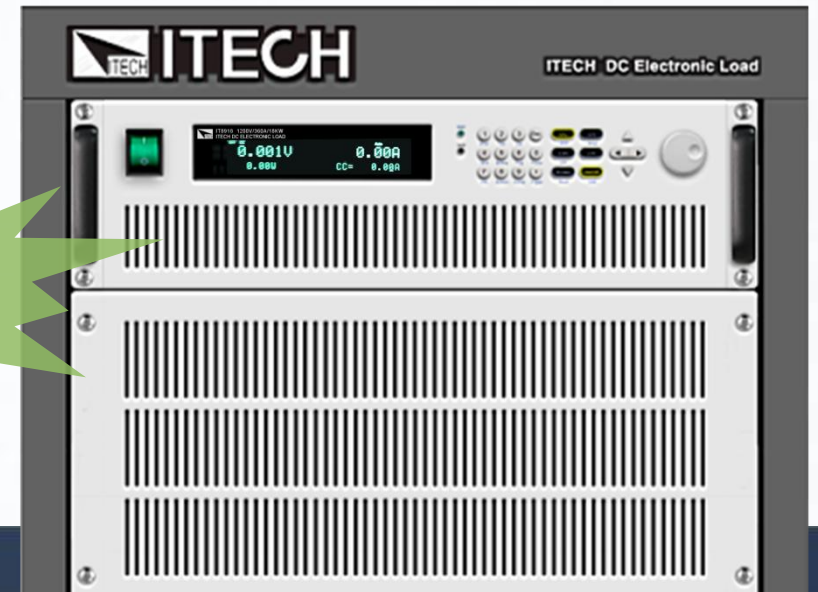
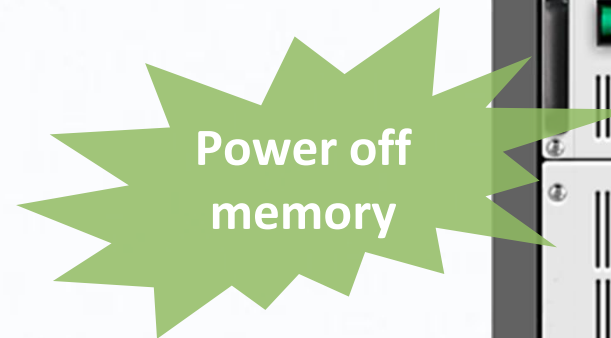


Full protections



Power off memory

- ◆ IT8900 can save 100 groups of frequently testing data in nonvolatile memory device, which makes it convenient for users to recall the data. The saved data includes working mode, voltage, current and etc. Users can use SAVE key to save parameters and RECALL key to recall the date.
- ◆ IT8900 provides power off memory to guarantee that data can be saved when abnormal power-off or computer crash occurs after long-term testing. When power on, the program can resume from the breakpoint which can improve the test efficiency. When power-off, IT8900 will automatically cut off working circuit for safety and reliability consideration.

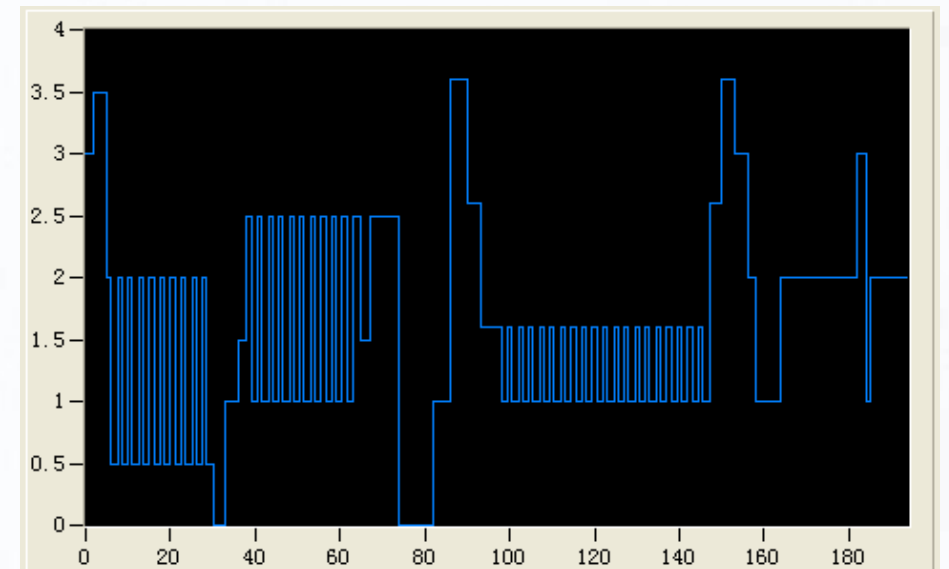


External analog control

- ◆ Analog control is used to meet industrial control requirements, which is controlled by PLC other than PC.
- ◆ Load voltage or current of IT8900 can be controlled through the analog interface at the rear panel, to simulate 0-full scale of load current or voltage by analog input voltages from 0-10V.

Advantage of Analog interface

- ◆ Unlimited step number of discharge sequence
- ◆ Response time up to 10 μ s
- ◆ Each step can be within 10 ms
- ◆ Control accuracy: 1%
- ◆ 0 ~ 10V of analog input can control 0~ 100% FS electronic load input in CC/CV mode



Aircraft Battery discharge test

Current monitoring

- ◆ Current monitor output terminal , the output voltage from 0-10V represent the input current from 0 to full range
- ◆ An external voltmeter or oscilloscope can be connected to display changes of load current

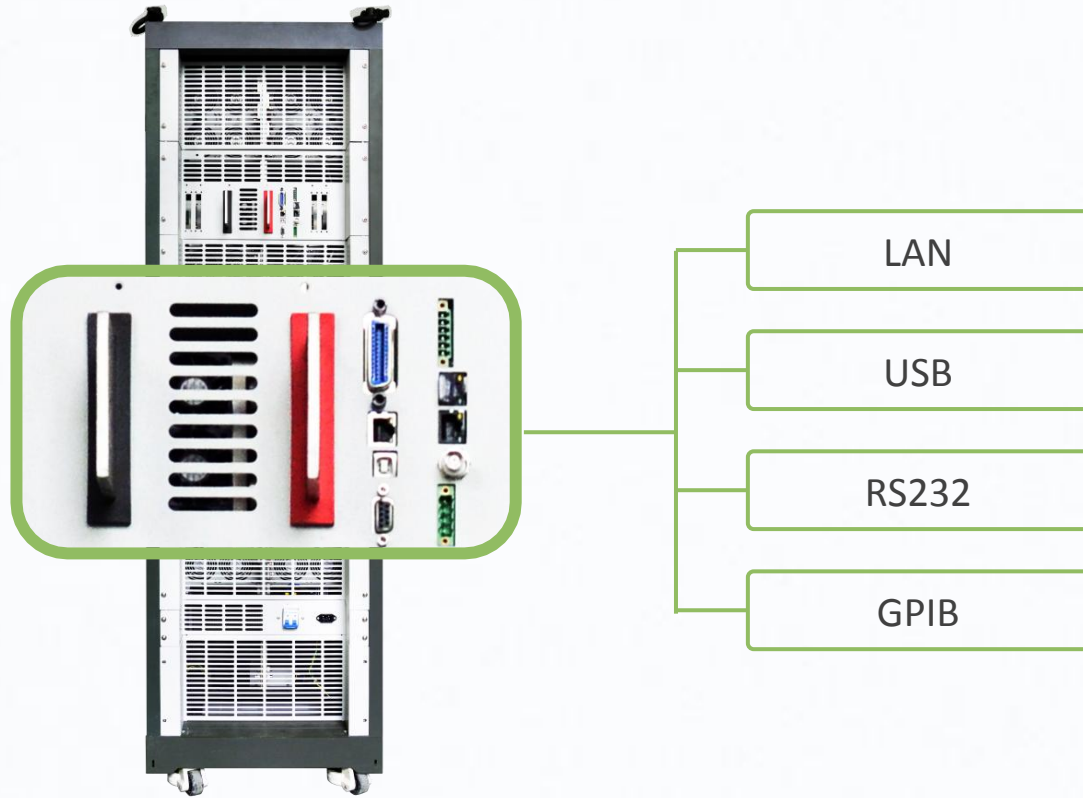
Application advantage :

- ◆ Built-in I- Monitor to be convenient
- ◆ Simplified wiring and improve measurement accuracy
- ◆ saves cost of current probe



Oscilloscope probe

Built-in communication interfaces



Multiple build-in interfaces meet different demands of users, and communication is more stable and faster than using conversion adapter, which can also save cost.

Contrast with IT8800

- ◆ master-slave paralleling
- ◆ work in CV modes after paralleling
- ◆ CV loop speed is adjustable
- ◆ current limit protection / power limit protection
- ◆ Add a LAN interface
- ◆ Add CC+CV mode
- ◆ Transient over power loading capability
- ◆ Time Measuring function
- ◆ Overall modular design

2

Applications

Power supply

Each power supply needs to use electronic load to test all its functions, from R & D,
debugging , production line to final inspection.

Battery test

Test product

Power supply module, power supply
Constant voltage power supply, constant
current source, voltage regulator

Switching power supply
charger

Medical equipment power supply
military、 aerospace 、 scientific research
equipment power supply

UPS、 AVR

Server power supply

AC-DC, DC-DC Converter

Test

Performance test
Performance test

Performance test
Performance test
Energy storage device test

Performance test

Energy storage device test
Energy storage device test

Performance test



Power supply test



A dark blue background featuring a white wireframe illustration of a car's interior and a large wheel. The interior shows the steering wheel, dashboard, and seats. The wheel is a multi-spoke design. The text 'Car' is centered over the image.

Car

Charger and charging station test need high power electronic load

Car test

Test product

Car charger

DC charging pile

power battery

Automotive fuses

Test content

Performance test

Performance test

Discharge test

Fusing test

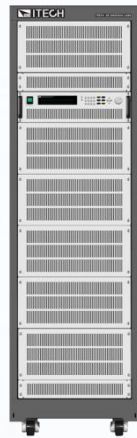


Car test——DC charging pile

- ◆ DC charging pile is a fast charger with high power, high voltage output and use hybrid charging in CC/CV Multi-mode.
- ◆ To test dc charging pile, electronic load needs to be high voltage, high power, and supporting multi-operating-modes.

IT8900 :

- ✓ Power : 12KW-600KW
- ✓ Voltage : 150V/600V/1200V
- ✓ six working modes :
CC/CV/CR/CW/CC+CV
- ✓ /CR-LED



DC charging station power :

- ✓ 80KW
- ✓ 100KW
- ✓ 120KW

DC charging station charging mode :

- ✓ CC/CV Multi-mode hybrid charging



Battery

High voltage high power DC electronic load is necessary for power battery testing

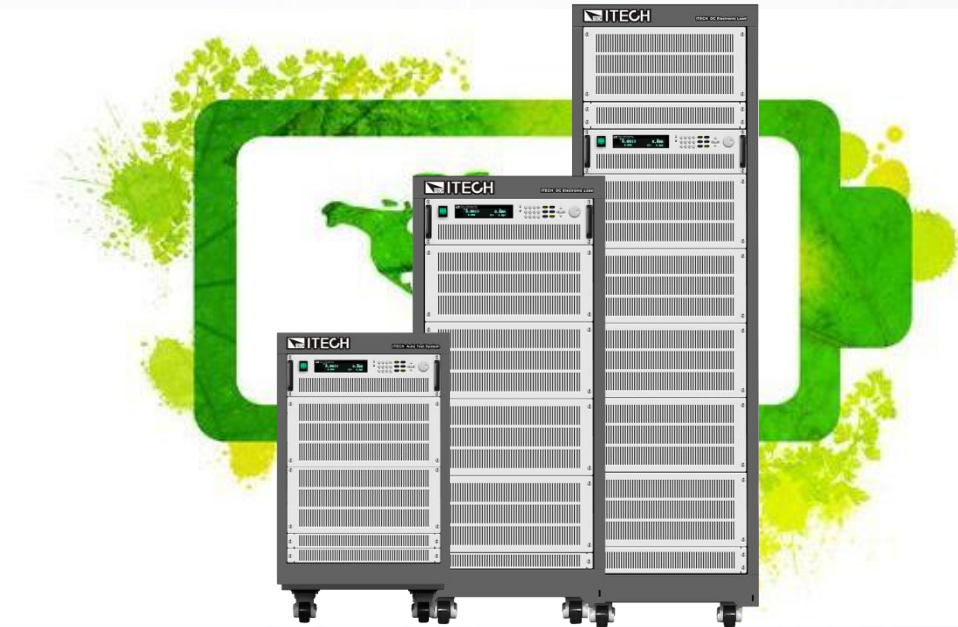
Battery test

Test production

Lithium-battery pack
Lead-acid Battery pack
Fuel cell
Solar cell
Energy storage system
Battery protection board

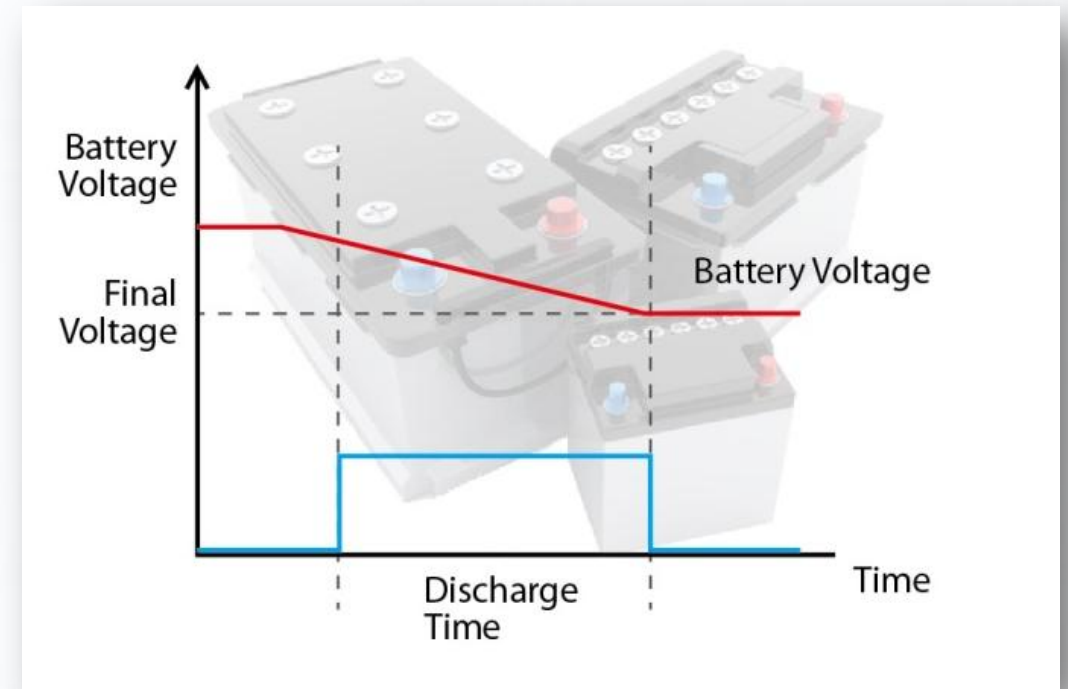
Test content

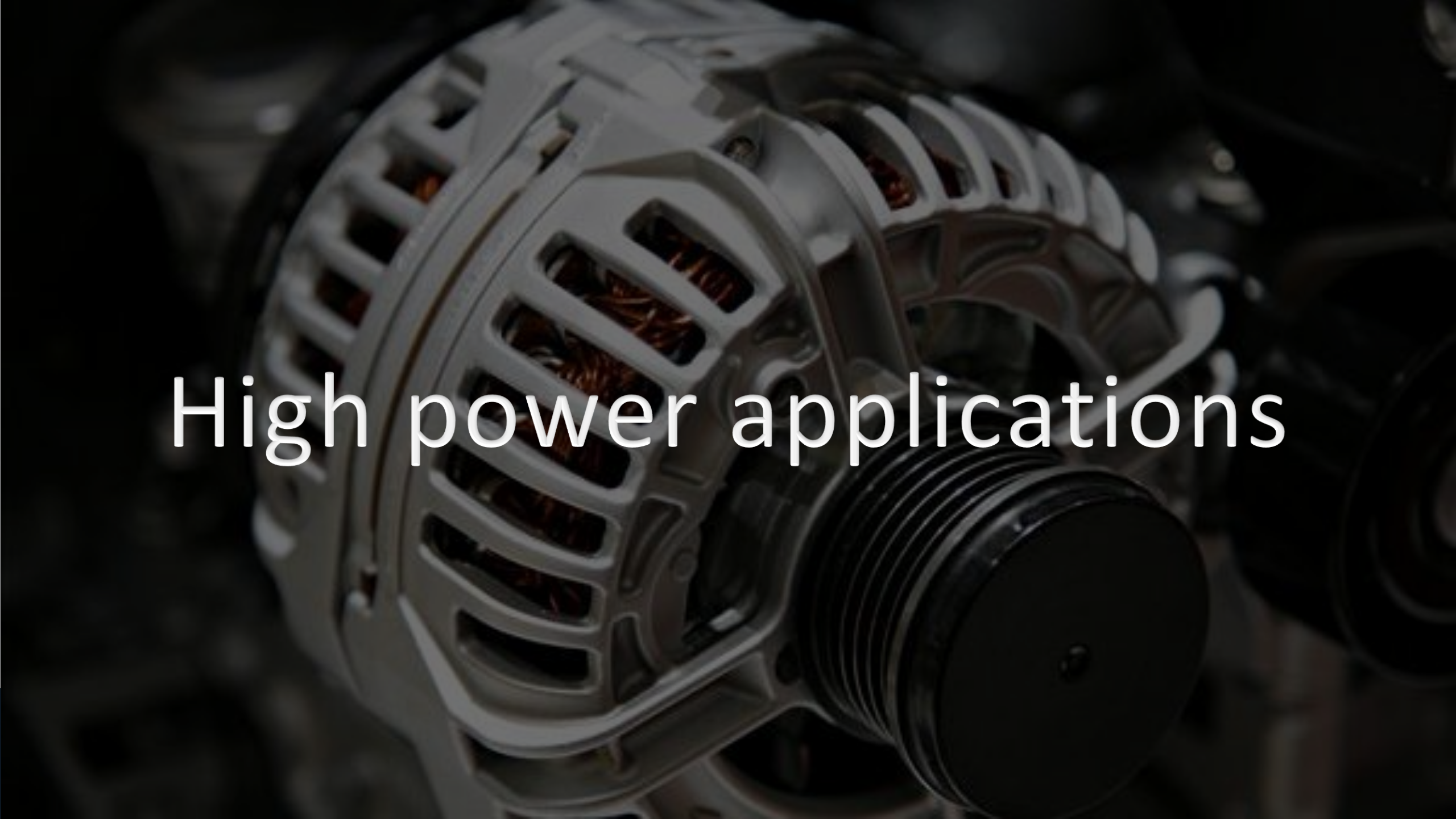
Discharge Test
Discharge Test
Discharge Test
Discharge 、
efficiency Test
Discharge Test
Protect Test



Battery test——Discharge performance test of power battery

- ◆ When electric vehicle is moving, discharge waveform of power battery is dynamic, in list mode, adjustable current rising and falling speed (up to 10 A/us) can realize the arbitrary current change and simulate the battery discharge in real circumstance. To work with a power supply, it can test battery's true life.
- ◆ Three shut-off conditions for battery discharge.
- ◆ IT8900 can also control load current by external analog interface, which makes the test more variable.

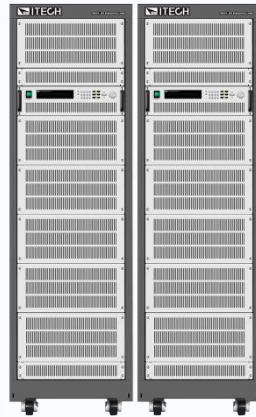




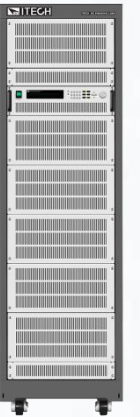
High power applications

High power application

| | 48KW | 60KW | 72KW | 90KW | 108KW | 135KW | | 600KW |
|-------|-------|-------|-------|------|-------|-------|-------|-------|
| 150V | | 3840A | 5000A | | | 7500A | | |
| 600V | 1200A | | | | 4320A | | | |
| 1200V | 960A | | | | 2160A | | | |



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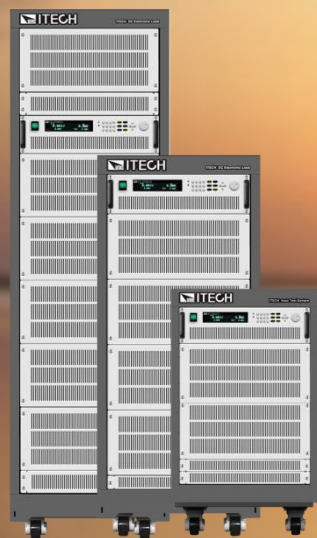
IT
8900

Excellent performance

Stable products

wide applications

To help users create greater value



stay tuned!

2016.11