ACTIONPOWER

High Power DC Source & Load

Titan DC series

20V to 1500V, 300kW to 7.5MW



Programmable Bidirectional DC Power Supply CE RoHS Compliant

actionpowertest.com

HIGH POWER CAPACITY
WITH PARALLEL OPERATION

With 300kW - 750kW of unit capacity, the total capacity can be expanded up to 7.5MW by parallel connections.

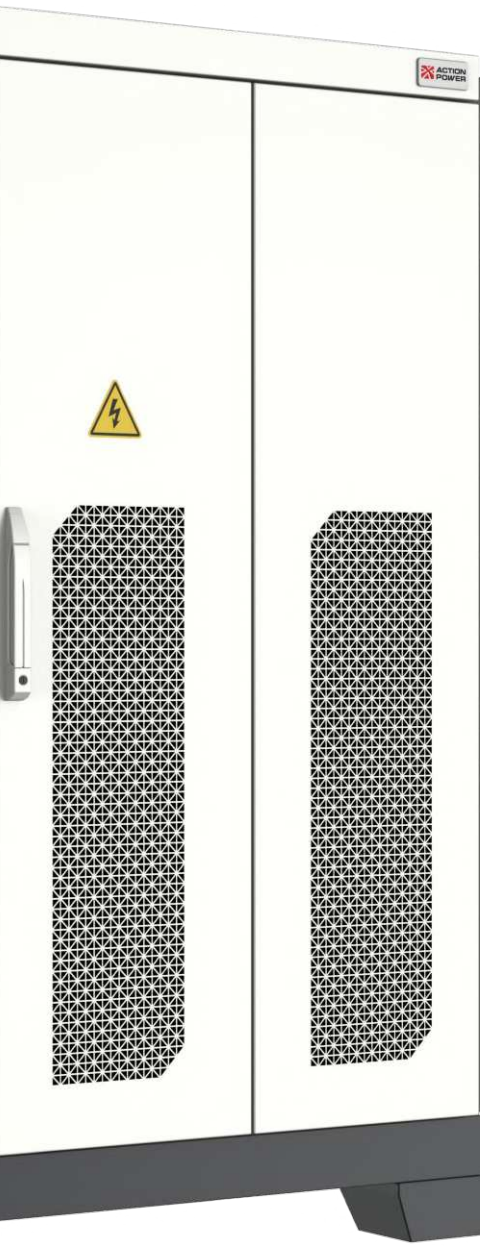
1500V
MAXIMUM DC OUTPUT VOLTAGE

7.5MW
MAXIMUM DC OUTPUT POWER

MULTI-
OUTPUT MODE



Multiple DC power supply cabinets can individually operate in single mode to configure multi-channel output, or in Master/Slave mode to configure single-channel output with combined capacity.



SIMULATION FUNCTION
WITH HIGH PERFORMANCE

Titan DC series provide real-time battery and PV simulation function with fast response time of less than 1 ms.

BATTERY
SIMULATION

PV
SIMULATION

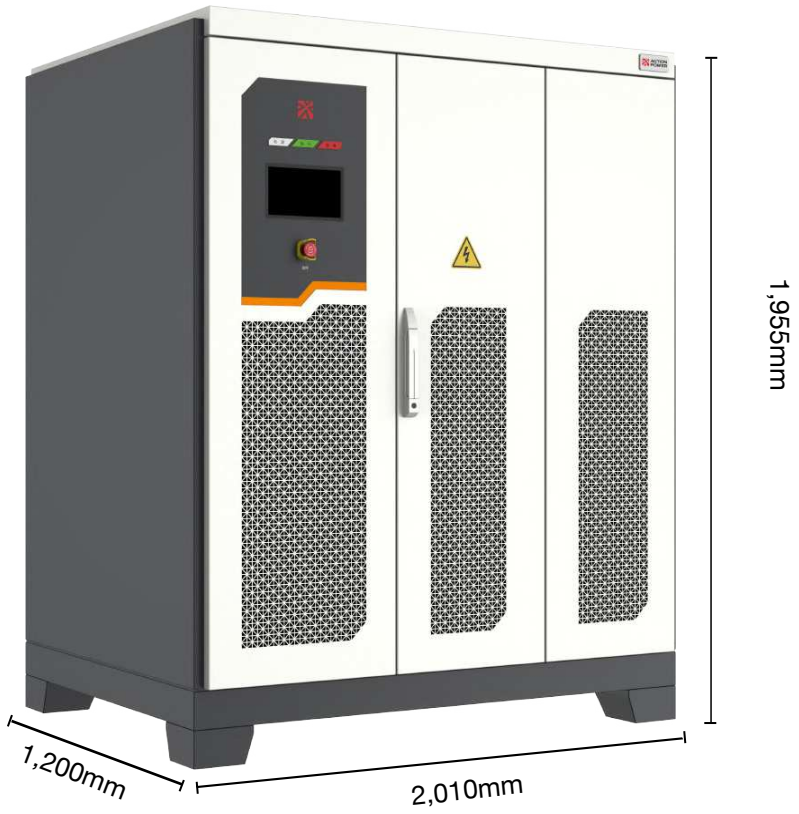
ELEC-TRONIC
LOAD

Titan DC series provide grid-regenerative DC electronic load function, which is applicable for testing fuel cell stack or fuel cell engine system, etc.

Ratings, types and voltages

Model	Power [kW]	Output Voltage [V]	Output Current [A]	Size (WHD) [mm]	Weight [kg]
TD300-1k5-04	±300	12-1500	±400	2010x1955x1200	2,850
TD400-1k5-06	±400	12-1500	±600	2010x1955x1200	2,850
TD500-1k5-07	±500	12-1500	±700	2010x1955x1200	2,850
TD600-1k5-08	±600	12-1500	±800	3410x1955x1200	5,080
TD750-1k5-10	±750	12-1500	±1000	3410x1955x1200	5,080

Titan DC series 300kW



Technical data

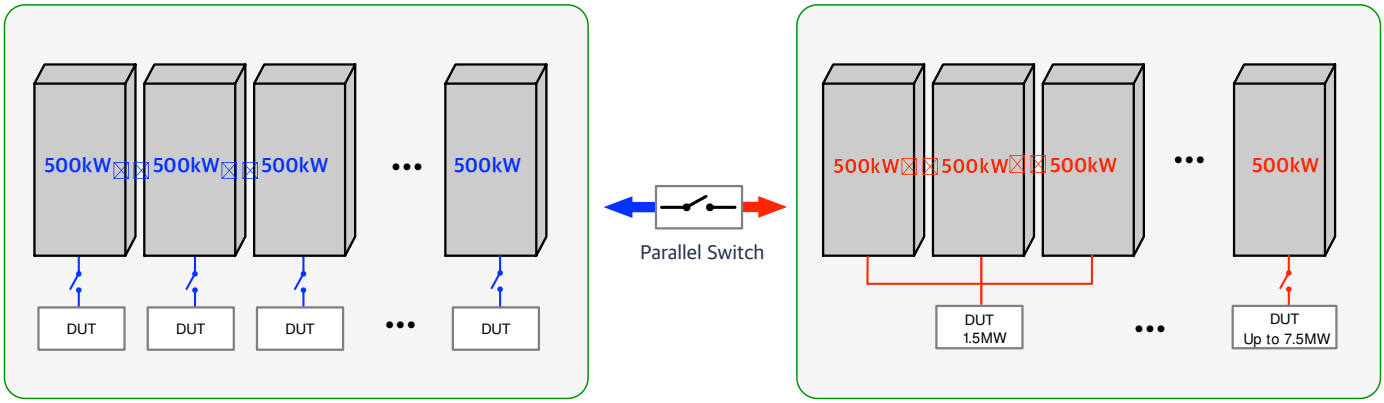
Titans DC series	Specification
AC Input	
Voltage, Phases	400V±10%
Frequency	47Hz to 63Hz
Power factor	0.99 @ full load
Efficiency	Model of 300kW and above : >94%, others: >90%
Harmonic current	≤3%
DC Output Voltage	
Accuracy	±0.1% F.S.
Resolution	0.01V
Ripple(RMS)	0.1% F.S. (resistive load)
Slew rate	300V/ms
DC Output Current	
Accuracy	±0.1% F.S.
Resolution	0.01A
Ripple(RMS)	0.1% F.S. (resistive load)
Slew rate	500A/ms
Rise time	≤2ms (10%~90% rated current)
Switching time	≤4ms (switching from -09% to +90%)
Measurement	
Voltage accuracy	±0.1% F.S.
Voltage resolution	0.001V
Current accuracy	±0.1% F.S.
Current resolution	0.001A
Power accuracy	±0.2% F.S.
Power resolution	0.001W
Protective Functions	
OVP	Over-voltage protection, adjustable 0 - 110% $U_{Nominal}$ (±1% F.S.)
OCP	Over-current protection
OPP	Over-power protection
OT	Overt-temperature protection

Technical data

Titan DC series	Specification
Battery Simulation	
Battery type	Capable of simulating various battery types, including Lithium manganese oxide, Lithium cobalt oxide, Lithium iron phosphate, Nickel-metal hydride, Ternary lithium, Lithium titanate, and Lead-acid batteries. Supports user-defined battery types and open first-, second-, and third-order RC battery models.
Parameter	Number of batteries in series connection, number of batteries in parallel connection, initial SOC, initial temperature, internal resistance, cell capacity and other parameters
Interface	Import of CSV user-defined model is supported
Interface	
Control Mode, LAN, LAN Whitelist, RS485, CAN, and SYSPORT	
Device Configuration	
Parallel operation	Up to 7.5MW
Insulation and Withstanding Voltage	
20MΩ/DC500V； 5000VDC/1min	
Environmental Conditions	
Operating temperature	-10 to 40°C
Relative humidity	10 to 90% RAH
Altitude	≤2000m without derating, Above 2000m please contact ACTIONPOWER
Cooling Method	
Air-cooled	Dry clean air

High Power Scalable Design

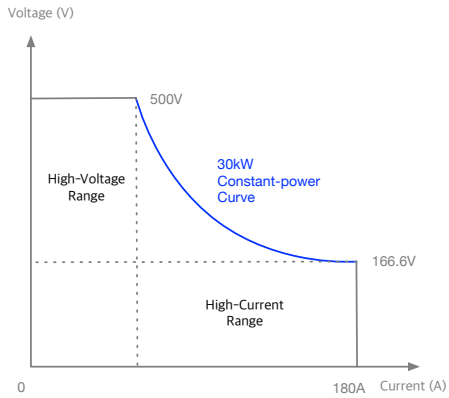
Titan DC series supports multi-unit parallel operation and adopts high-speed fiber optic communication technology, featuring strong anti-interference capability and zero latency. The system supports expansion up to 7.5MW by connecting in parallel in 1MW increments from 300kW minimum. It enables multi-position, high-capacity, and multi-voltage level test setups, significantly improving testing efficiency for customers. In particular, the parallel-connected panels can be used in multi-output mode by separating the outputs according to the user's needs, allowing multiple test equipment to be tested at the same time, maximizing user convenience and saving a lot of costs.



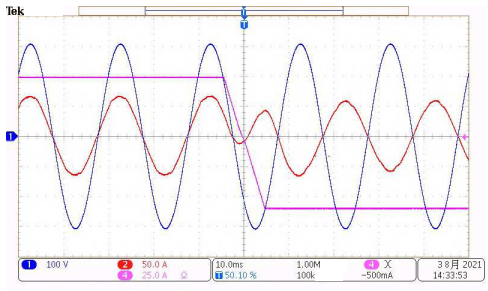
Multi-Output Mode

Parallel Mode

Auto Ranging



The auto ranging function automatically controls voltage and current through the programmable DC power supply to maintain the rated output over a wide operating range. That is the higher voltage is available at lower current, and vice versa, allowing the DUT to be tested under different voltage/current conditions with a single DC power supply.



In addition, it supports smooth and ultra-fast automatic switching with the bidirectional Automatic “source” & “load” function. The overshoot of voltage or current can be effectively controlled without any delay in the transition between the two states of source and load.

CV/CC Priority Setting Function

CV (constant voltage) priority / CC (constant current) priority mode can be selected and set.

Suppression of Overshoot with CC Priority Mode

With the Titan DC series power supply, the CC priority mode can effectively respond to load variations. This mode suppresses momentary current spikes when the load suddenly changes its resistance, thus ensuring stable protection for sensitive loads.

Configuring the power supply in CC priority mode allows for voltage adjustment according to load changes, maintaining a stable current. This effectively protects sensitive loads such as high-power laser diodes and minimizes the risk of damage due to overshoot.

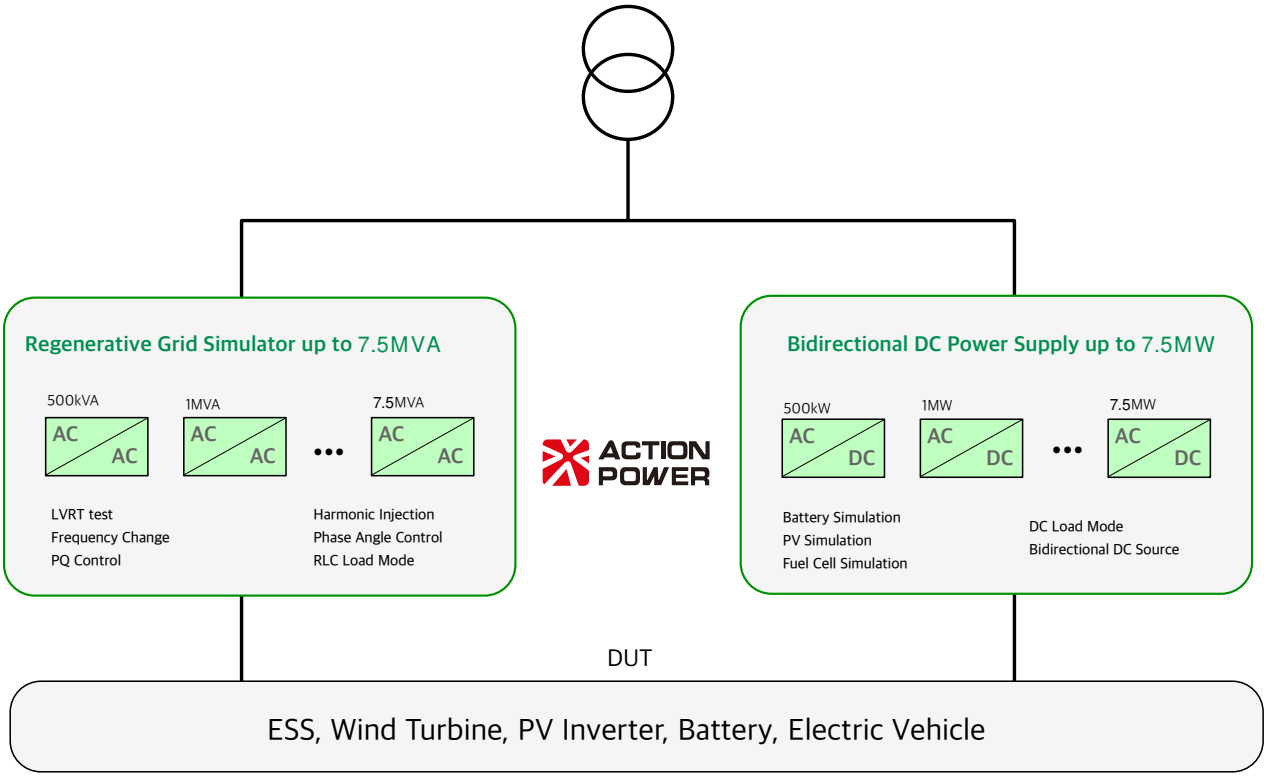
Current Overshoot in CV Priority Mode

In CV priority mode, the power supply prioritizes maintaining a constant output voltage. However, sudden load variations can cause momentary current spikes, posing a risk of damage to sensitive loads.

Therefore, configuring the Titan DC series power supply in CC priority mode enhances load stability and prevents damage caused by overshoot.

Application

ActionPower's high-capacity bi-directional DC power supplies are innovative products that are used in a variety of applications based on unique technology and optimal performance. ActionPower products can act as regenerative electronic load while providing bi-directional DC power, which is applicable of long-term reliability test applications such as electric vehicle DC charging stations, automotive battery charge and discharge tests, fuel cell discharge tests, ESS charge and discharge tests, and other applications requiring very fast response time, such as simulating electric vehicle driving patterns.



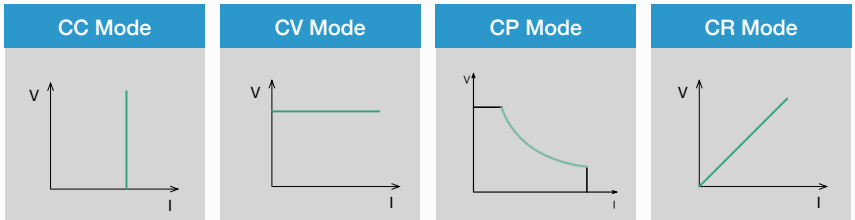


Powerful Software

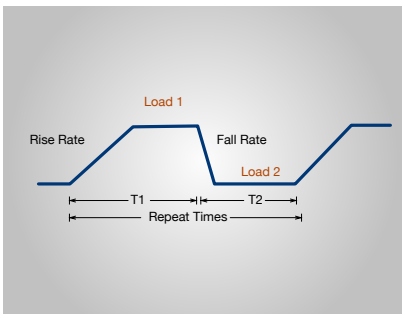


Provides Diverse Simulation Modes

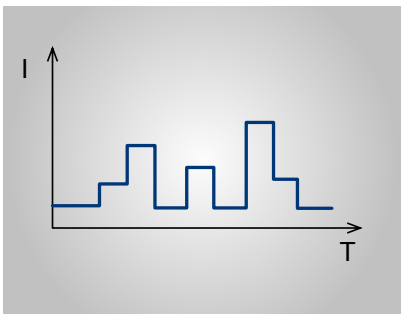
Basic Mode



Dynamic Mode



Programmable Sequences



KEY FEATURES

- Battery Simulation

LiMn204, LiCoO2, LiFePO4, NiMH, Ternary LI, LiTiO2 and PbO2 batteries

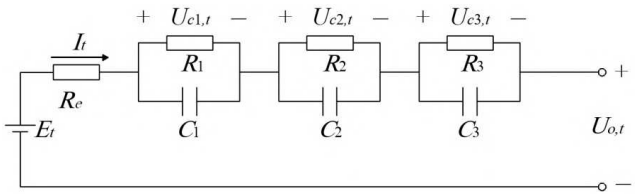
- PV Simulation

Static curves, Curve programming, Static MPPT, Dynamic MPPT, Weather Simulation, Shading of photovoltaic panels

- Electronic Load Function
- Programming Waveform

Comprehensive Battery Simulation

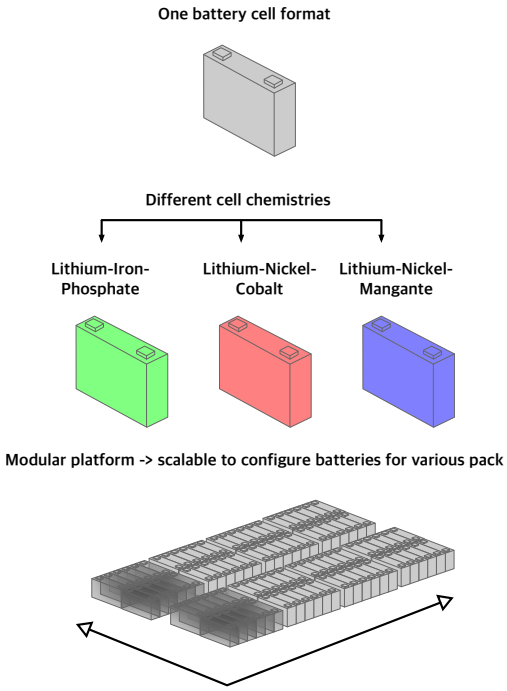
It can simulate the output and charge/discharge characteristics of various battery packs such as lithium manganate, lithium cobalt, lithium iron phosphate, nickel-hydrogen, ternary lithium, lithium titanate and lead-acid batteries, and can set the parameters such as serial/parallel quantity, temperature, SOC, internal resistance and single battery capacity to simulate the output characteristics of the whole battery pack. The power supply opens first, second and third-order RC battery models and supports user-defined battery parameters and import of CSV user-defined model.

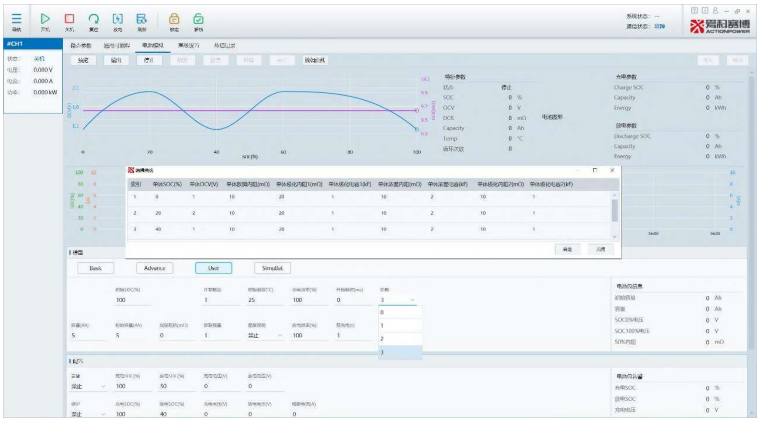


RCR Equivalent Circuit Model

Architecture	400 V
Nominal battery capacity	33.2 kWh
Usable battery capacity	27.2 kWh
Pack layout	96s1p (8 serially connected 12s1p modules)
Number of Li-ion cells	96
Rated cell voltage	3.7 V
Capacity per cell	94 Ah
Cell chemistry	NCM333

User-defined battery parameters





Battery Simulation Interface

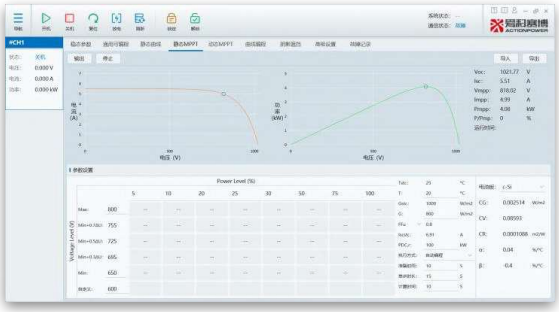
KEY FEATURES

- DC Output Voltage : 20-2000Vdc
- Parallel Connection : up to 7.5MW
- Battery Simulation

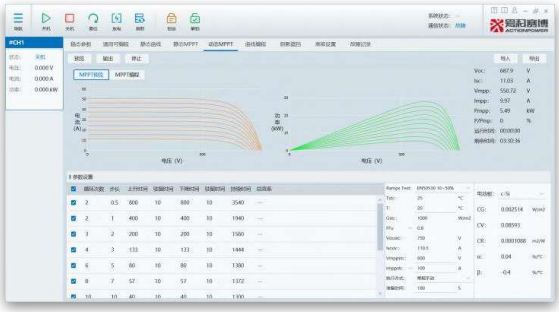
  LiMn204, LiCoO2, LiFePO4, NiMH, Ternary LI, LiTiO2 and PbO2
- High Dynamic : <2ms (10~90%)
- Voltage Slew Rate : 300V/ms
- ESS, UPS, EVE, etc. testing

PV Simulation

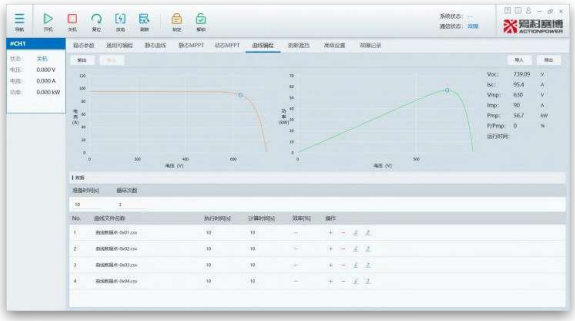
Titan DC series is a DC power supply featuring high precision, high dynamics and high-speed switching. With the complete I-V curve simulation function, it can simulate the output characteristics of various VP panels, and provide various kinds of user- defined curves, static and dynamic I-V curves and shadow occlusion simulations. The programming function can simulate different waveform outputs through three programming modes like Step, List and Wave, in order to fulfill the test requirements of various industries. The power supply can not only provide standard power supply environment for electrical equipment, but also receive the energy from load and feed ti back to the grid, with feedback efficiency of above 94%, to save energy and improve the test environment.



Static MPPT Interface



Dynamic MPPT Interface



Curve Programming Interface



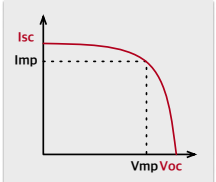
Shadow I-V Interface



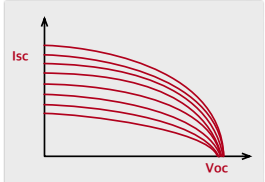
Solar Array Simulator

DC Voltage Input

DUT
(PV Inveter)



SAS Mode



I-V Program Mode

Point	1	2	…
V	0	30	…
I	11	10	…

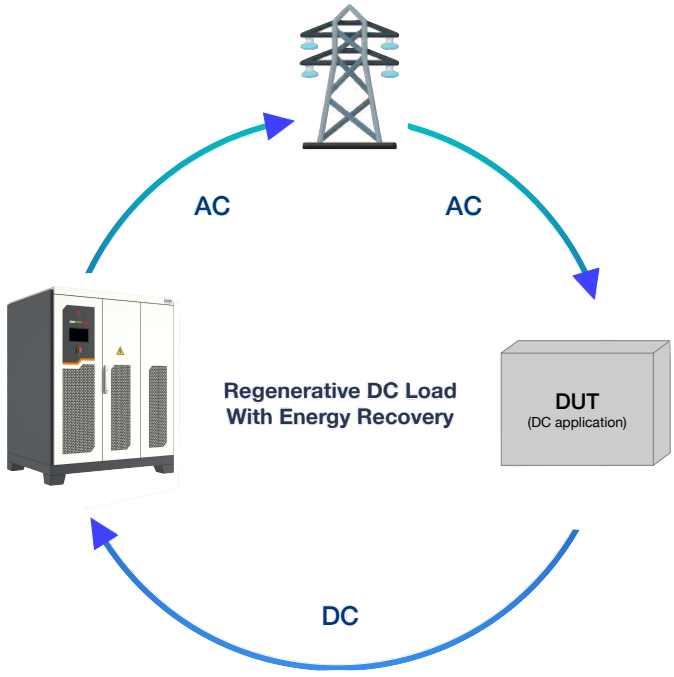
User-define curve

KEY FEATURES

- DC Output Voltage : 20-2000Vdc
- Parallel Connection : up to 7.5MW
- Complete I-V Curve Simulation
- High Dynamics : <2ms (10~90%)
- Voltage Slew Rate : 300V/ms
- Shadow I-V curve simulation
- Built-in dynamic MPPT test profile Sandia, EN50530

Electronic Load

Titan DC series feedback DC electronic load is different from the traditional consumption load. It feeds back the absorbed electric energy to the power grid after transformation to save energy and improve the test environment. The product adopts full digital control technology, and has characteristics such as step-less adjustment, high accuracy, high dynamic performance and high reliability. It meets the requirements of low voltage and high current test, and can be applied to test scenarios such as fuel cell stack and fuel cell engine system.



Titan DC series is regenerative DC electronic loads capable of absorbing current and efficiently feeding it back into the power grid. The series achieves ani mpressive efficiency of up to 94%. The returned electrical energy can be reused by other equipment within the facility, resulting in savings in overall energy consumption and carbon emissions, reducing the environmental impact.

KEY FEATURES

- DC Output Voltage : 20-2000Vdc
- High Dynamics : <2ms (10~90%)
- Output slow start
- Low Harmonic Current: <3% F.S.
- Anti-revers function
- Online insulation impedance monitoring
- Discharging resistor
- Capacitance compensation

ACTIONPOWER

For more information, please contact
your local ACTIONPOWER distributor or visit

www.actionpowertest.com

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