

# ***NEW ENERGY TEST SOLUTIONS***

- INVERTER TEST SYSTEM
- CHARGING PILE TEST SYSTEM
- ELECTRICAL CHARACTERISTICS TESTING OF HIGH-VOLTAGE COMPONENTS FOR NEW ENERGY VEHICLES



***HIGH EFFICIENCY & HIGH PRECISION & HIGH STABILITY***

# New Energy Test Solutions



As environment issue become more and more focused, carbon-neutral becomes a common view around the world. Furthermore, the governments around the world have also introduced measures to accelerate the development of renewable energy and clean energy. Accelerate energy diversification to reduce dependence on fossil fuels and promote sustainable economic and social development. APM provides complete testing solutions for the new energy vehicles testing, photovoltaic testing, energy storage systems testing, power conversion equipment testing, etc..

## Inverter Test System

The AT-T1000 inverter test system is equipped with optimized standard test items for photovoltaic inverters, which meets the electrical preliminary test requirements of EN50530, Sandia Lab, IEEE1547, 1547.1, UL1741, China National Standard GB/T 19939, and CGC/GF004. Users only need to determine the test conditions and specifications to test with standard items.



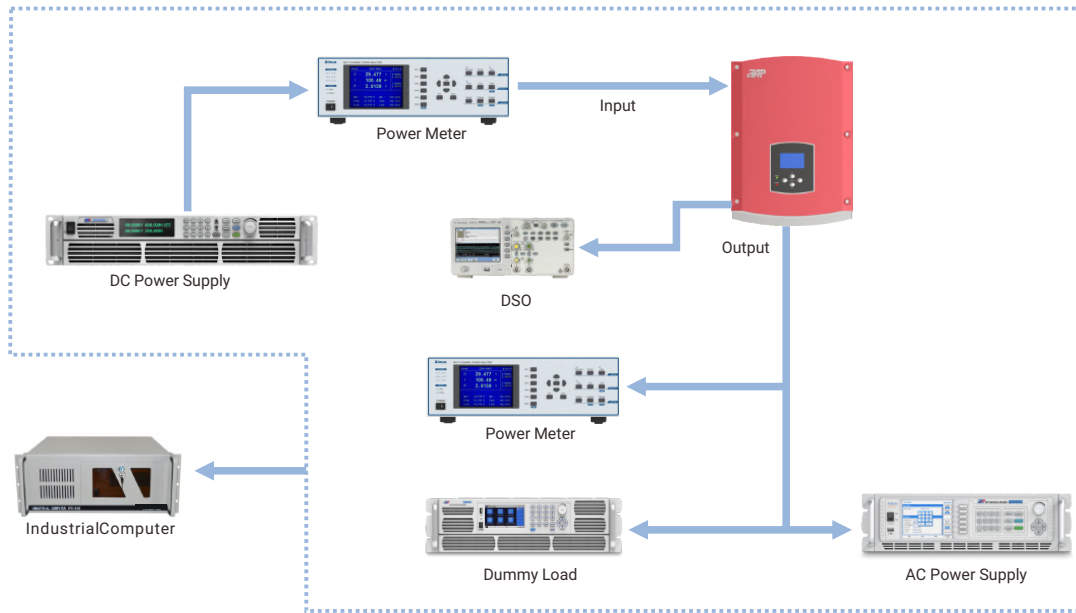
### Recommendation

#### AT-T1000 Series Inverter Test System

#### Application Range:

It is suitable for scientific R&D of grid-connected inverters, factory inspection, type test, production debugging, laboratory electrical test, identification test, etc.

## System Architecture:



## Test Project:

Test Categorization	Test Project
Input characteristic test	Standby power (energy star); input voltage test; input RMS current test; input power test; input power factor test; input inrush current test; test for AC noise; input voltage rises/falls slowly
Output characteristic test	Output DC voltage test; output DC current test; output DC power test; voltage ripple test; efficiency testing; output voltage fluctuation test; output current fluctuation test; output voltage ripple; load regulation;
Protection function test	Overvoltage protection test; short circuit protection test; overpower protection test; overload protection test;
Sequential testing	Starting time; Rise time; drop time; Shutdown time;
Communication test	Write/read of basic communications, including but not limited to RS232/4S485/USB/LAN/GPIB/CAN
Battery test	Battery charge and discharge time test
Dimming test	Dimming test
Special function	USB D+/D-/DCR test; barcode generation or reading; extended safety electrical comprehensive test

# Electrical characteristics testing of high-voltage components for new energy vehicles

With the industry's demand and emphasis on the quality of in-vehicle controllers, component suppliers wanting to enter the supplier system of vehicle manufacturers must pass the corresponding test standards, further generating a strong demand for testing requirements and testing certification market. On the one hand, a large number of component suppliers seek traditional third-party testing organizations to schedule tests and make corrections based on the returned test reports, but if the test is repeated many times back and forth, the cycle time is long and the cost is high. On the other hand, many component suppliers also have the level and ability to build their own test labs, and it becomes extremely necessary to procure a test system with pre-certification capabilities. SP-3U/6U series wide range high power programmable DC power supply provides high precision and stable DC output with ripple stacking mode to meet the requirements of LV123 and VW80300 new energy vehicle high voltage component electrical characteristics test standards.

## Application Range:

High voltage battery systems, inverters, electrical air conditioning compressors, power transmission oil pressure pumps, DC/DC high and low voltage converters, vehicle chargers.

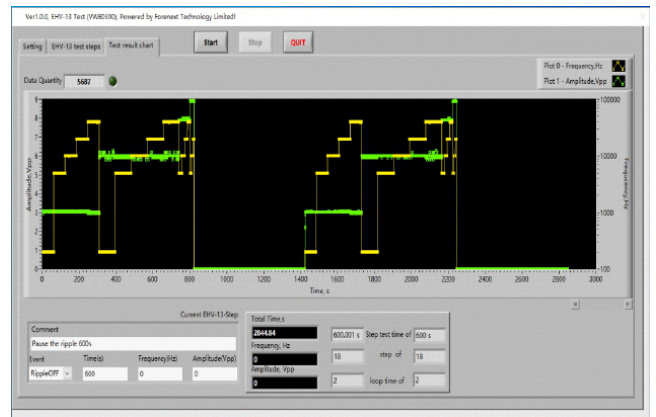
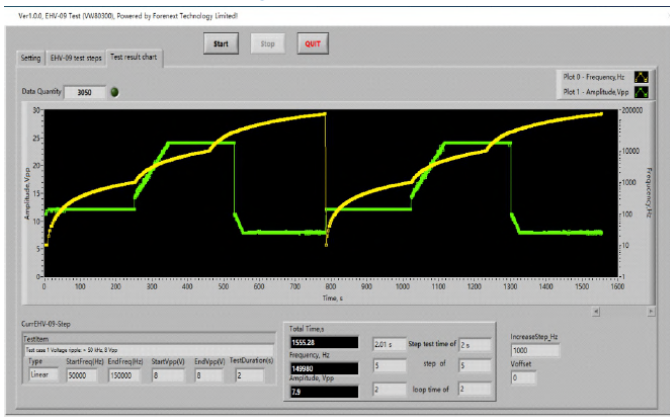
## Test Items:

- Unrestricted operating performance interval
- Upper operating performance interval
- Lower operating performance interval
- Maximum restricted operating performance interval
- Voltage Ripple

## Function and Parameter Description:

- 12 bit/1MHz control signal, 12 bit/100MHz test capability
- Supports digital filtering, waveform and sequence functions
- Open to set up test points and support test power upgrade
- Meet the needs of long time stable and reliable operation
- Support 0.1V voltage control accuracy
- Support waveform and data recording functions

## Software Testing Interface:



## Charging Pile Test System

Charging piles are divided into AC charging piles and DC charging piles according to the charging method. Among them, the AC charging which with low power and longer time, is also known as "slow charging". On the contrary, the DC charging pile has high power and fast charging.

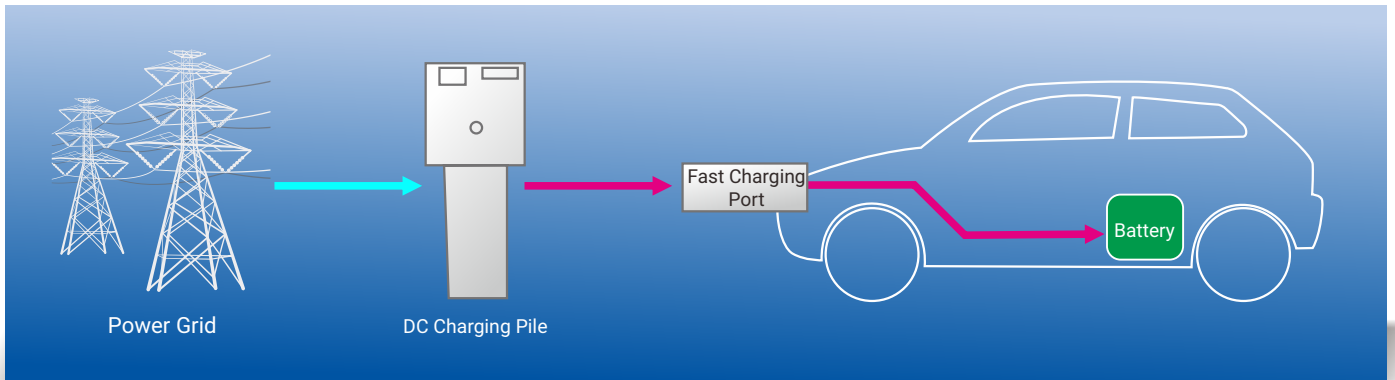


Diagram for DC Charging Pile

→ AC Current

→ DC Current

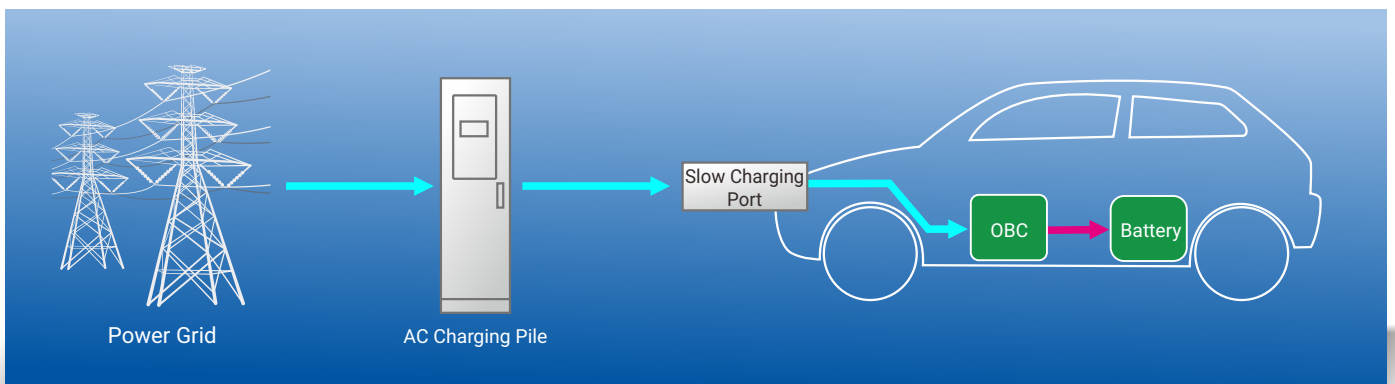


Diagram for AC Charging Pile

→ AC Current

→ DC Current

APM provides users with a professional charging pile simulation system solution, which is used to simulate various functions and fault simulation of AC and DC charging piles during the charging process.

### Function Description:

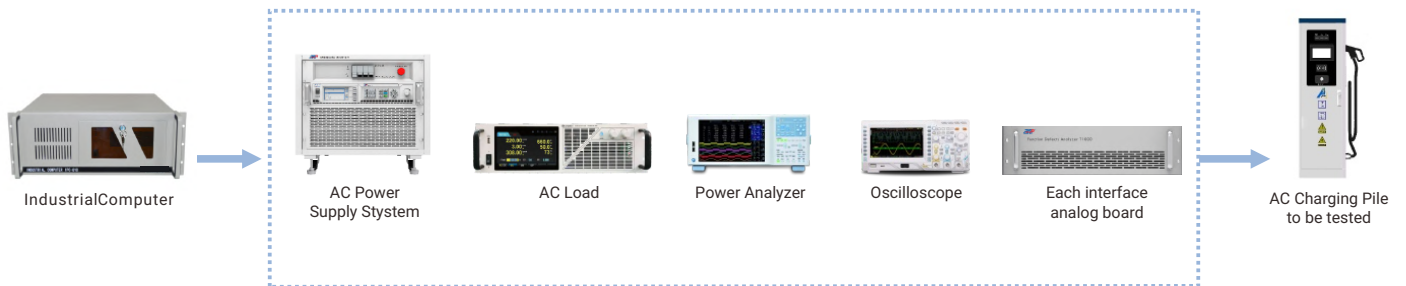
- Support user-defined test item editing
- Automatically test the consistency of charging pile test data
- Simulate the interaction function between the main controller of the vehicle and the AC charging pile
- can verify and evaluate the electromagnetic interference of charging piles in the process of high-power transmission
- Simulation and verification of charging pile protection action and response time

## AC charging pile simulation system

### Test Items:

- Test before power on
- Power-on detection
- On-load switching circuit test
- Abnormal connection test
- Display function test
- Input function test
- Input over/under voltage protection test
- Guidance controlled test
- Overcurrent protection function test
- Residual current protection function test
- Emergency stop function test
- Measurement data consistency test

### System Structure:

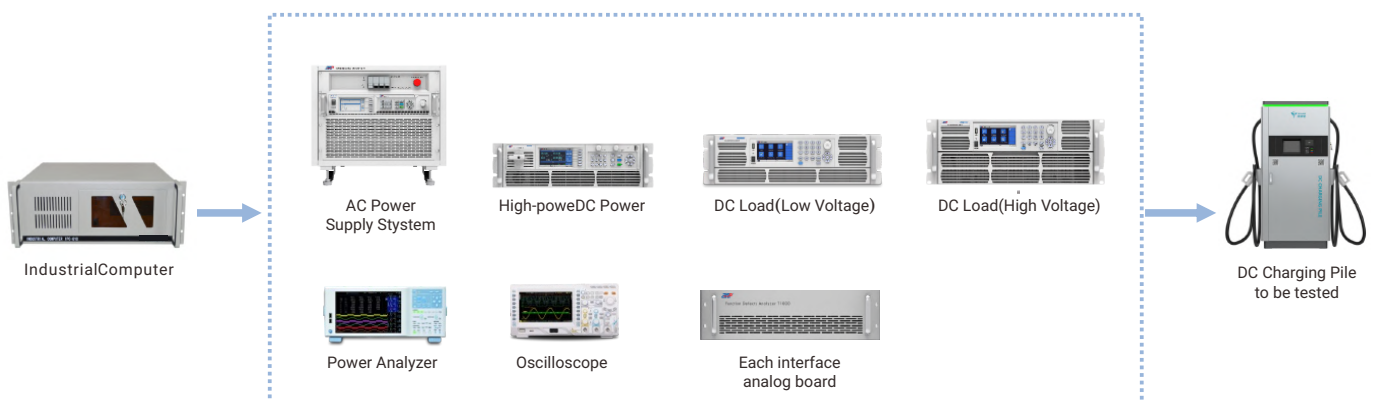


## DC charging pile simulation system

### Test Items:

- Output voltage error test
- Output current error test
- Voltage stability accuracy test
- Battery reverse test
- Abnormal connection test
- Emergency stop function test
- Output over/under voltage protection test
- Output short-circuit protection test
- Soft start test
- Current stability accuracy test
- Efficiency test
- Input over/under voltage protection test

### System Structure:





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