Charging Station
Car Charger Test Solution

Charging stations and car charger play important roles for the popularity of new energy vehicles. As a leading test and measurement solution supplier in the field of new energy, ITECH offers professional charging station / car charger test solution, fully meets the testing needs of different types of car charger, and simplifies operation.The test solution is with unique and important function.

Meet with the GB standards

- ITECH test solution meets with GBT18487.1 Electric vehicle conduction charging system Part 1 General requirements 2015
- GBT20234.1 Electric vehicle conduction charging use connecting device Part 1 General requirements 2015
- GBT20234.2 Electric vehicle conduction charging use connecting device Part 2 AC charging connector 2015
- GBT20234.3 Electric vehicle conduction charging use connecting device Part 3 DC charging connector 2015
- GBT27930 Communication protocol 2015 between electric vehicle non-vehicular conduction type charger and Battery management system
- QCT895-2011 Electric vehicle conduction type car charger

Advantages

- Modular design, customized auto-test system
- High-power electronic load can reach up to 600kW, fully meet test requirements of high-power DC charging station
- Built-in standard test items
- Compatible with multiple protocols for charging station, applicable to chargers with different communication protocol
- Fill-in-blank user interface, no need programming ability
- Customized test report

Testing software

ITECH professional test software is with user-friendly operation interface, users just check the test items, no need programming ability, so that the operation is more simple and clear, easy to get started.







Recommended test equipment

■ AC Power Supply

● IT7600 Series

Output range:
0-300V/0-144A/0-54kVA
Frequency Range: 10-5kHz



● IT7300 Series

Output range:
0-500V/0-12A/0-3kVA



■ DC Power Supply



● IT6700H Series

Output range (stand-alone):
0~1200V/0~110A/0~3000W

● IT6500 Series

Output range (stand-alone):
0 ~ 30kW
2-quadrant current seamless switching



■ AC Electronic Load



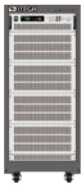
● IT8600 Series

Input range:
0-420V/0-160A/0-14.4kVA
Measurement:
V,I,PF,CF,P,Q,S,F,R,Ip+/-,THDv

■ DC Electronic Load

● IT8900 Series

Input range:
0-1200V/0-2500A/0-600kW
Six working modes:
CC/CV/CR/CP/CV+CC/CR-LED



● IT8700 Series

User-installable modules, extension frame to achieve 16 channels testing simultaneously



● IT8800 Series

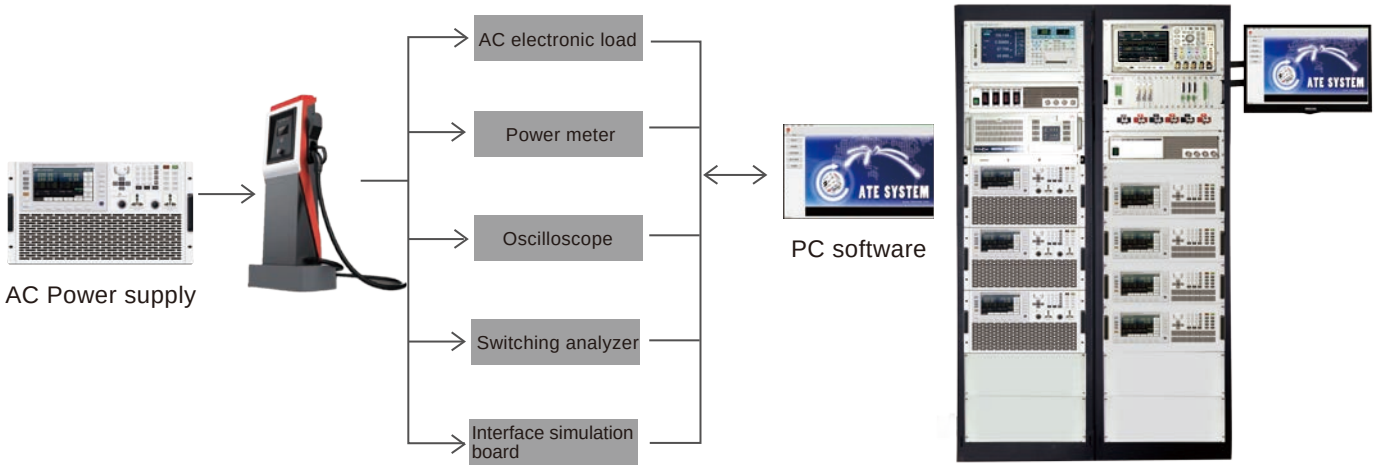
Input range:
0-800V/0-500A/0-10kW



Charging Station / Car Charger Test Solution

AC Charging Station Test Solution

AC charging station outputs AC and is converted to DC by on-board charger to charge the electric vehicle battery.

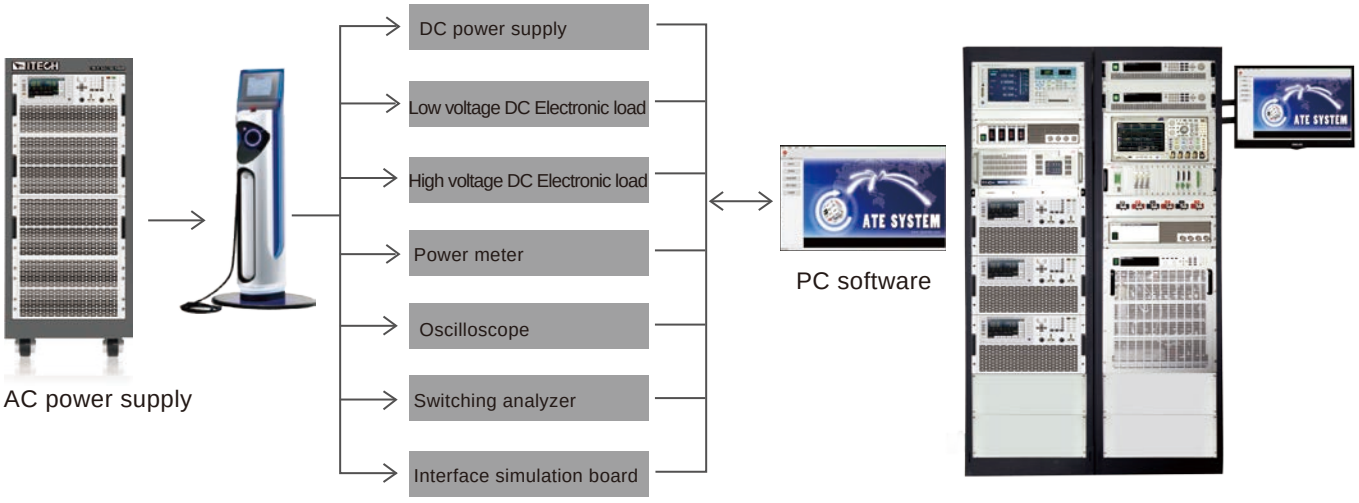


Test Items

	Sequence	Test Items	Sequence	Test Items
AC charging station	1	Test before power-on	8	Communication test
	2	Power on test	9	Over current protection test
	3	Control conductive test	10	Leakage current protection test
	4	open/close test with loads	11	Input over voltage protection test
	5	Input/output performance test	12	Input under voltage protection test
	6	Measured data compliance test	13	Abnormal connection test
	7	Display function test	14	Emergent stop function test

DC Charging Station Test Solution

As a fast-charging product, DC Charging station has high output power and voltage, so only high power and high voltage DC load can satisfy its testing demand.

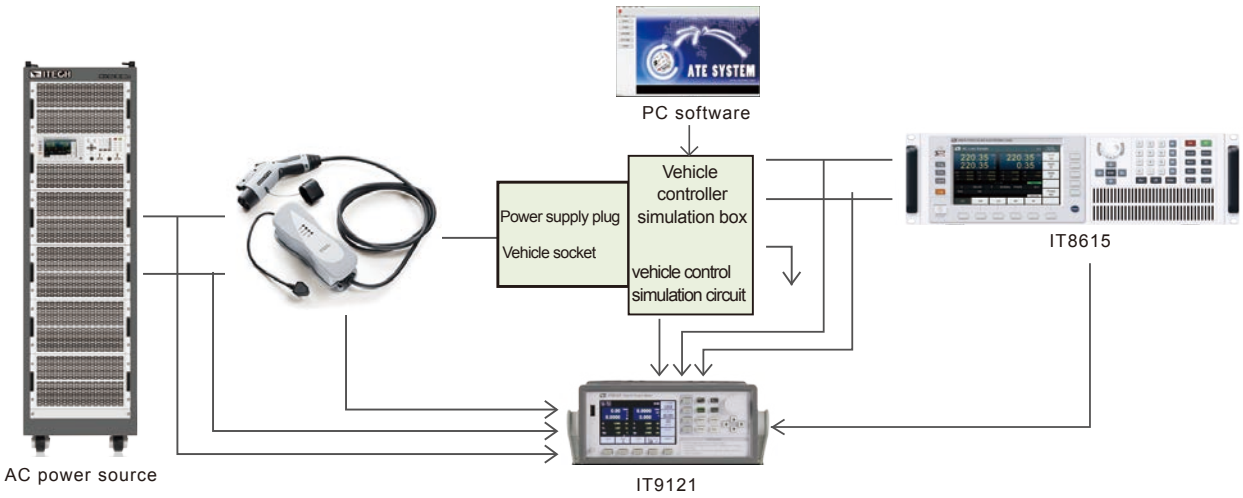


Test Items

	Sequence	Test Items	Sequence	Test Items
DC Charging Station	1	Output voltage deviation test	12	Input over voltage protection test
	2	Output current deviation test	13	Input under voltage protection test
	3	Regulated voltage & current accuracy test	14	Output over voltage protection test
	4	Ripple coefficient test	15	Output short circuit protection test
	5	Efficiency test	16	Inrush current test
	6	Power factor test	17	Battery reverse connection test
	7	Unbalanced equalizing current test	18	Abnormal connection test
	8	Voltage and current limit test	19	Emergent stop function test
	9	Display function test	20	Soft-start test
	10	Input function test	21	Discharge test
	11	Communication test		

Charge control box test program

Electric vehicle charging control box is mainly used for small current (less than 10A) for electric cars slow charging. ITECH provides charging control box test solution based on《GB / T18487.1-2015 electric vehicle conduction charging system first part: General requirements》and《electric vehicle conduction charge interoperability test specification》.



Test Items

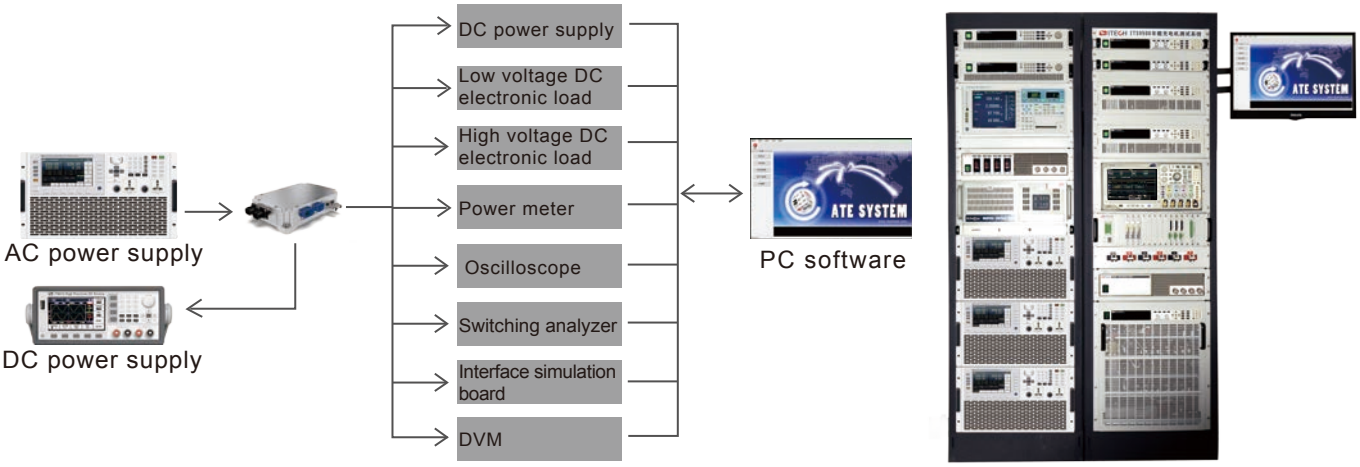
Sequence	Test type	Test items
1	Security test	Simulate leakage current test
2		Simulate ground connection abnormality test
3		Output over current protection test
4	Charge control voltage test	Test point 1 12V voltage error test
5		Test point 1 9V voltage error test
6		Test point 1 6V voltage error test
7	Charge control signal test	Frequency error test
8		Duty cycle error test
9		Rise time error test
10		Fall time error test

Sequence	Test type	Test items
11	Charge control timing test	Charge control timing test, and simulate full-connected, semi-connected and unconnected state
12	Connection exception simulation	Charging Station Detection Point 1 Voltage Abnormal simulation
13		Output Over Current Abnormal Simulation
14	Efficiency test	Test the efficiency of household chargers
15	Disturbance test	Superposition different harmonics, frequency limitation, voltage limitation, voltage dips and other tests

Charging Station / Car Charger Test Solution

Car Charger and Charging Interface Test

EV battery Charger can be classified into on-board charger and external charger. ITECH on-board charger test system includes electronic load for discharging battery, AC source for simulating grid supply, oscilloscope, power mater and professional software to guarantee the complete test for charger.



Test items

	Test type	Test item	GB/Test outline test item
Input	Input & Output Test	Charge Input Output Test	Power-on inrush current Efficiency Test Power Factor Test Power Test Voltage& Current Test
	StaticTest	Charge Static Test	Ripple and Noise Test Output Voltage & Current Test
	Line Regulation Test	Charge Line Regulation Test	Input Voltage Deviation Test Input Current Deviation Test
	AC Cycle Dropout Test	Charge Cycle Droput Test	AC Cycle Dropout Test
	Power Line Disturbance Test	Charge Power Line Disturbance Test	Power Line Disturbance Test
	Input Voltage Frequency Limitation Test	Charge Vin Fin Range Test	Input Voltage Frequency Range Test
Output	Load Regulation Test	Charge Load Regulation Test	Output Voltage Deviation Test Output Current Deviation Test
	Output Voltage Range Test	Charge Vout Range Test	Output Voltage Range Test
	Voltage Limit Test	Charge Voltgae Limit Test	Voltage Limit Test
	Current Limit Test	Charge Current Limit Test	Current Limit Test
	Total Regulation Test	Charge Total Regulation Test	Regulated Voltage Accuracy Test Regulated Current Accuracy Test
Protection	Input Voltage OVP UVP Test	Charge Input OVP Protect Test	Input UVP Test Input OVP Test
	Output Voltage OVP UVP Test	Charge Output OVP Protect Test	Output UVP Test Output OVP Test
	Short Circuit Protection Test	Charge Short Protect Test	Short Circuit Protection Test
	Communication Interrupt Test	Charge Communication Interrupt Test	Communication Interrupt Test
	Reversed Connection Protection Test	Charge Transposition Protect Test	Reversed Connection Protection Test
	Parameter Configuration Error Protection Test	Charge Config Param Test	Parameter Configuration Error Protection Test
Time Sequence Test	Turn On Test	Charge Turn On Test	Inrush Current Test Overshoot Voltage Test Steady State Current Test Turn On Time Test, Rise Time Test
	Turn Off Test	Charge Turn Off Test	Turn Off Time Test, Fall Time Test
Special tests	Reliability Test (Life Cycle Test)	Charge Reliably Test	Reliability Test (Life Cycle Test)