

FCTS-S Series

Fuel Cell Stack Test System



Product Introduction

The development of FCTS-S system is designed to provide a stable testing platform for fuel cell stacks. The system contains KDLF series fuel cell specific energy recycling DC electronic load, gas flow and pressure control module, gas humidity and temperature adjustment control module, cooling module, stack cell voltage detection module and sampling control and protection module, etc., it adopts the Kewell's self-developed system test software to test the output characteristics of fuel cell stacks under different working conditions. Based on online data monitoring and processing by fuel cell stack test system platform, the polarization curve, power curve and other characteristic curves of the measured cell stack can be analyzed to find the optimal output condition of the cell stack, and the output voltage of individual cells in the cell stack can be monitored. The system is applicable to the R&D and performance testing of fuel cell stacks.



Polarization curve test



Sensitivity test



Stable state test



Dynamic operating condition test



Activation test



Durability test



System insulation test



Consistency of cell voltage

Product Features

- Online adjustable gas inlet pressure, temperature and dew point temperature for cathode and anode.
- Reserved anode connection for hydrogen circulation pump.
- Cathode and anode gas with wet/dry switching.
- Adjustable test step & each protection variable.
- Data recording and analysis capacities, automatic report generation and one-click export.
- Fuel cell specific electronic loads, multiple operating modes: CV, CC, CP, etc.
- Double safety protection: hardware & software, with customizable alarm values.
- Dual operation mode: Manual/Auto, supports long periods unattended work.
- Online hydrogen leak alarm and online insulation detection.
- Hydrogen safety discharge channel.



Technical Parameters

Unit	Parameter	FCTS-S-60	FCTS-S-100	FCTS-S-150	FCTS-S-200	FCTS-S-250	FCTS-S-300	FCTS-S-400
Gas flow control	Power Range	15-60kW	25-100kW	37.5-150kW	50-200kW	62.5-250kW	75-300kW	100-400kW
	Anode flow range	15-1500 SLPM	25-2500 SLPM	40-4000 SLPM	50-5000 SLPM	60-6000 SLPM	80-8000 SLPM	100-10000 SLPM
	Flow control accuracy	$\pm(0.8\%Rdg+0.2\%F.S)$						
	Cathode flow range	45-4500 SLPM	80-8000 SLPM	120-12000 SLPM	150-15000 SLPM	180-18000 SLPM	200-20000 SLPM	250-25000 SLPM
	Flow control accuracy	$\pm (0.8\%Rdg+0.2\%FS)$						
	Nitrogen purging	It has nitrogen purging before and after testing, and nitrogen protection						
Gas pressure control	Back pressure control range	(Cell stack resistance + 15) kPa~300kPa.g						
	Back pressure control accuracy	$\pm 2kPa$ (stable state, hydrogen circulation, pulse discharge)						
Gas humidification control	Dew point temperature range	RT+5°C ~90°C						
	Dew point temperature control accuracy	$\pm 1^{\circ}C$ (stable-state)						
Gas heating control	Temperature control range	RT+5°C ~95°C						
	Temperature control accuracy	$\pm 1^{\circ}C$ (stable-state)						
Gas dry/wet bypass switch		Yes						
Cooling system temperature control range		RT+5°C ~90°C						
DC electronic load		100~400 kW						
Cell voltage inspection	Detection channel	Expanded to 1024 (max)						
	Measuring range	(-5~5) VDC						
	Measurement accuracy	$\pm 1mV$						

Optional Functions

- Gas mix function
- Quick dew point function
- Hydrogen circulation function
- Subzero startup performance test solution
- Customized pipeline interface
- Hydrogen concentration detection in exhaust gas
- Exhaust gas dehumidification
- Test cabinet
- Cooling circuit purging