

FCTS-M Series

Fuel Cell System(Engine) Test System



Product Introduction

The FCTS-M system is designed to provide a stable test platform for fuel cell engines. This system contains KDLF series fuel cell specific energy recycling DC electronic load, hydrogen supply unit, air supply unit (optional), cooling circulation unit, sampling control and protection unit, etc. The system test software is developed by Kewell independently. The system is used to test the function, performance, stability and safety of fuel cell engines, which is applicable to fuel cell engine R&D tests and end off-line tests.



Startup
performance test



Stable state
performance test



Dynamic
response test



Emergency stop
performance test



Insulation test



System
efficiency test



Hydrogen
utilization rate test



Calculation of heat
exchange power



Weight and
power density test



Peak power test



Durability test



Shutdown
strategy test

Product Features

- Double safety protection: hardware & software, with customizable alarm values.
- Nitrogen purging, cooling circulation purging, the circulating water preheating, coolant replenishment and gas exhaust, etc.
- Electronic loads with wide range of voltages and currents, multiple operating modes: CV, CC, CP, etc.
- Data recording and analysis capacities, automatic report generation and one-click export.
- Test work-step predefined functions.
- Dual operation mode: Manual/Auto, supports long periods unattended work.
- Manual debugging function.
- Online hydrogen leak alarm and online insulation detection.
- Engine DBC file import & parsing.
- The saved data can be viewed by CANOE software.
- Hydrogen safety discharge channel: timely discharge in case of high hydrogen pressure due to failure of the pressure reducing valve.
- Redundant design of safety.



Technical Parameters

Model		FCTS-M-150-G	FCTS-M-200-G	FCTS-M-250-G	FCTS-M-300-G	FCTS-M-350-G
Power range		15-150 kW	20-200 kW	25-250 kW	30-300 kW	35~350kW
Hydrogen /Nitrogen supply unit	Hydrogen flow detection range	60-3000 NLPM	80-4000 NLPM	100-5000 NLPM	110-5000 NLPM	120-6000 NLPM
	Nitrogen purging	Yes				
	Exhaust emission mode	Mixed (exhaust gas condensation function as option)				
Cooling circulation unit	Cooling power	225kW	270kW	350kW	400kW	450kW
	Measurement range of coolant flow	2-30m³/h	4-60m³/h			5-75m³/h
	Hydrogen flow display accuracy	±1%FS				+0.25%FS
	Internal circulation cooling mode	Water circulation and cooling				
	Coolant	Deionized water or glycol + deionized water				
	Temperature control accuracy	±1℃ (stable state)				
	Cooling mode	2 stages cooling circulation				
	Online monitoring on conductivity	Measurement range: 0.01~20 us/cm, Accuracy ≤1.5%FS				
	Cooling circulation purging function	Compressed air or nitrogen				
Auxiliary cooling unit (optional)	Cooling power	30kW	30kW	40kW	40kW	60kW
	Outlet temperature	≤50℃				
	Coolant flow	≥30L/min	≥40L/min	≥50L/min	≥60L/min	≥60L/min
	Coolant	Deionized water or glycol + deionized water				
Protection unit	Hydrogen leak alarm	Alarm value which can be set (0-40000ppm & ±10%)				
	Online insulation detection	Range 0-50MΩ & response time < 20s Measurement accuracy ±15%@100kΩ~50MΩ & ±10kΩ@0~100kΩ The insulation alarm value can be set				
	Emergency stop	Emergency stop button and tri-color operating state indicator lamp				
Electronic Load	Rated power	200kW	300kW	300kW	400kW	400kW
	Electronic load type	Energy recycling DC electronic load (full power range energy feedback)				
	Current response time	≤10ms				
	Adaptability of power grid	Comprehensive protection functions (such as overvoltage, undervoltage and overcurrent) , grid current distortion (THD) ≤3%				
	Electronic load input voltage range	24 ~ 800Vdc/1000Vdc				
	Electronic load input current range	0~1000A				
General specifications	Control unit	PLC (NI as option)				
	Communication	CAN				
	Remote control interface	LAN				
	Power supply	AC380V, three-phase and five-wire				
	Low voltage power supply	Adjustable power supply 0-30V/100A (customizable)				
	Ambient temperature	0~40℃				
	Dimensions (W x D x H) mm	2200*1600*2100			2600*1800*2100	