珠海九源电力电子科技有限公司
Zhuhai Jiuyuan Power Electronics Technology Co.,LTD

JHT Series Grid Analog Power System

01/Product Overview

The JHT Series Grid Simulation Power System is a high-precision (voltage accuracy ≤±0.1%, frequency accuracy ≤±0.001Hz), high-dynamics (1ms response time), and full-featured power grid simulator designed for grid adaptability testing of converter equipment in energy storage, photovoltaic, and other renewable energy applications. Leveraging advanced digital control technology (supporting software programming and real-time adjustments), it enables four-quadrant operation (bidirectional energy flow) and simulates grid characteristics ranging from "ideal" to "extremely harsh" conditions. This system addresses critical testing needs of renewable energy converters, including grid-connected impact resistance, harmonic tolerance, and frequency ride-through capabilities.

02/ Key Features

1.High-Precision Simulation

Sine wave and harmonic superposition modes to simulate grid anomalies including over/under-voltage, over/under-frequency, three-phase imbalance, and voltage ride-through conditions.

2.Four-Quadrant Operation

Bidirectional energy transfer capability reduces energy consumption by up to 90% and lowers operational costs.

3.Intelligent Testing

32-bit floating-point DSP technology enables fully programmable test sequences with real-time adaptive control.

4.Comprehensive Testing Functions

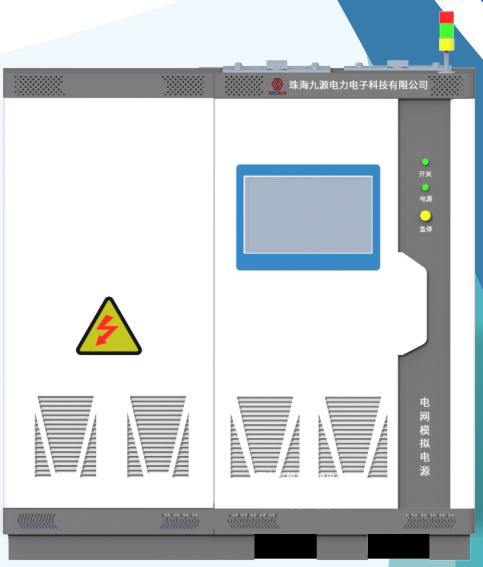
Supports high/low (zero) voltage ride-through, step changes, voltage sags, flicker testing, and 1ms transient response.

5.Advanced Monitoring& Data Logging

Real-time monitoring of critical parameters (e.g., IGBT/transformer temperatures) with 16-bit resolution data recording for predictive maintenance.

6.Versatile Communication Interfaces

Equipped with CAN2.0A/B, RS485, Ethernet (standard) and optional RS232/GPIB interfaces for flexible integration.



03/ Applications

1. Renewable Energy Testing

Grid-connected/off-grid performance validation of PV inverters and PCS, MPPT efficiency analysis.

2. Electric Vehicle Testing

Charging/discharging characteristics and grid compatibility tests for OBCs and charging stations;

3. Power Electronics R&D

Dynamic response and fault simulation for inverters and UPS systems;

4. Smart Grid Simulation

Microgrid stability analysis, power quality disturbance emulation (e.g. flicker, frequency shifts).

04/Technical Specifications

Typical Device Models

Model	Rated Power (kVA)	Voltage Range (V)	Frequency (Hz)	Maximum current/phase (A)	Weight (kg)	Dimensions (WxDxH/mm)
JHT-063F-4Q	63	0~470	40~70	150	240	1000X1000X1500
JHT-100F-4Q	100	0~470	40~70	200	300	1000X1000X1500
JHT-150F-4Q	150	0~470	40~70	400	400	1000X1000X1900
JHT-240F-4Q	240	0~470	40~70	450	500	1140X1000X1900
JHT-320F-4Q	320	0~470	40~70	500	2400	1140X1000X1900
JHT-630F-4Q	630	0~900	40~70	900	4500	5840X1200X1900
JHT-1000F-4Q	1000	0~900	40~70	1000	6800	7840X1200X1900

System Parameters

Load-side parameters	Load output mode		Three-phase four-wire output, each phase can be output independently
	Voltage		Line voltage: AC0V~900V
	Frequency		40Hz~70Hz
	Resolution/ Accuracy	voltage	Resolution: 0.01V, Accuracy: 0.1%*Full Scale Value
		frequency	Resolution: 0.001Hz, Accuracy: 0.01%
	Measurement accuracy	voltage	Resolution: 0.01V, Accuracy: 0.1%× full-scale value
		frequency	Resolution: 0.001Hz, Accuracy: 0.01%
		current	Resolution: 0.1A/1A, Accuracy: 0.2%× full-scale value
		power	Resolution: 0.1kW/0.01kW/0.001kW, accuracy: 0.3%× full-scale value
	Frequency stability		≤0.01%
	Voltage distortion		THD: Linear load<1%
	Response time		1ms
	Three-phase phase difference		Three-phase standard mode: 120°±0.3°
			Three-phase unbalance mode: 0.0°~359.9°, 0.1° adjustable
	Phase voltage crest coefficient		1.41±0.1
	Source effects		≤0.05%
	Loading effect		≤0.05%
	Overload capacity		100% < output≤ 110% 600 sec shutdown output; 110% < output≤ 150% 60 sec shutdown output; 150% < output≤ 200% 2 sec shutdown output; 200% < output is immediately turned off output.
	Protections		Over-voltage,over-current,short circuit, IGBT/transformer overheating, phase loss,etc
Functional mode	How it is displayed		Background computer display
	Output waveform		Sine wave, harmonic (superimposed 2~50th harmonic), interharmonic
	Transient mode		Yes, voltage step (sag) from high voltage to low voltage or low voltage to high voltage
	Flicker mode		Yes, any set of flicker parameters in 1~39 groups can be called
	High/low voltage ride-through mode		Yes, standard curves can be called up or individually adjusted according to the user's own needs
	Unbalanced mode		Yes, the three-phase voltage and three-phase phase difference can be adjusted separately or the three-phase unbalance degree can be directly set
	Programming mode		200 steps 999999 cycle, voltage, frequency, phase angle can be arbitrarily programmed output
	Start the ramp-up time		0.0~99.9 seconds
	On-line adjustment function		In normal mode, the output voltage,frequency, and waveform can all be adjusted and switched online without interruption to power output
	Memory function		Power-down memory function, which can remember the last output mode and parameters
	Communication interfaces		CAN2.0A/B, RS485, RS232 (optional), GPIB (optional), Ethernet (standard), synchronization signal (standard)
	Parallel function		Support 4 or more units in parallel
Environmental needs	Operating temperature		-10～40°C
	Humidity		10～90%RH

Contact us

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We look forward to cooperating with you!

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