CALIFORNIA INSTRUMENTS

5001IX

The California Instruments 5001iX is a high-performance programmable AC and DC power source from the iX Series, providing up to 5000 VA of AC power and 3750 W of DC power. Designed for precision testing, frequency conversion, and power simulation, the 5001iX features a built-in analyzer for comprehensive measurements, arbitrary waveform generation, and standard GPIB and RS-232 interfaces in a compact 4U rackmount chassis.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), RS-232
Display	Backlit graphic LCD

Physical

Power Supply	208-240 VAC (1-Phase or 3-Phase) or 380-415 VAC (3-Phase) ±10%, 47-63 Hz
Operating Temperature	0 to 40 °C °C
Dimensions (W×H×D)	483 mm × 178 mm × 602 mm mm
Weight	50 kg

AC Input Specifications

Input Phase Configuration	1-Phase or 3-Phase (factory configured)
Input Voltage Range	187 to 264 VAC (208/240V model) or 342 to 456 VAC (380/415V model)
Input Frequency Range	47 to 63 Hz

AC Output Specifications

Maximum Output Power	5000 VA
AC Output Voltage Ranges	0 to 150 VRMS / 0 to 300 VRMS
Maximum AC Current (Low Range)	33.3 ARMS
Maximum AC Current (High Range)	16.6 ARMS
Output Frequency Range	16 Hz to 1000 Hz (up to 5000 Hz with Option HF)
Frequency Resolution	0.01 Hz (16.00 to 99.99 Hz), 0.1 Hz (100.0 to 999.9 Hz), 1 Hz (1000 to 5000 Hz with Option HF)
Frequency Accuracy	±0.01%
Voltage Resolution	0.1 V
Voltage Programming Accuracy	±0.2% of full scale
Output Phase Configuration	1-Phase
Crest Factor	3:1
Voltage Line Regulation	±0.1% for ±10% line change
Total Harmonic Distortion (THD)	< 0.5% (45 to 66 Hz), < 1.0% (66 to 500 Hz), < 2.0% (500 to 1000 Hz)

DC Output Specifications

Maximum DC Power	3750 W
DC Output Voltage Ranges	0 to 200 VDC / 0 to 400 VDC
Maximum DC Current (Low Range)	18.75 ADC
Maximum DC Current (High Range)	9.37 ADC
DC Voltage Load Regulation	±0.1% with remote sense
DC Voltage Line Regulation	±0.1% for ±10% line change

Measurement & Metrology

Voltage Measurement Range (RMS)	0 to 300 VRMS
Voltage Measurement Accuracy	±(0.1% of reading + 0.2% of range)
Voltage Measurement Resolution	0.1 V
Current Measurement Range (RMS)	0 to 33.3 ARMS
Current Measurement Accuracy	±(0.2% of reading + 0.4% of range)
Current Measurement Resolution	0.01 A
Real Power Measurement Range	0 to 5000 W
Real Power Measurement Accuracy	±(0.3% of reading + 0.5% of range)
Apparent Power Measurement Range	0 to 5000 VA
Power Factor Measurement Range	0.00 to 1.00
Harmonic Distortion Measurement (THD)	Up to 50th harmonic

Transient & Waveform Programming

Standard Waveform Types	Sine, Square, Clipped Sine
Arbitrary Waveform Memory Depth	1024 points per waveform
Transient Programming Modes	List, Step, Pulse
Number of Arbitrary Waveforms	Up to 16 user-defined waveforms

Protection & Safety

Over-Voltage Protection (OVP) Range	Programmable shutdown
Over-Current Protection (OCP) Range	Programmable (current limit or shutdown)
Over-Temperature Protection (OTP)	Automatic shutdown

System Control & Connectivity

Remote Sense Terminals	Yes (rear panel)
External Trigger Input / Output	Yes (BNC connectors)

Environmental Specifications

Storage Temperature Range	-40 °C to 85 °C
Cooling Mechanism	Forced air, side-to-rear

Physical & Regulatory

Enclosure Type / Rack Units (U)	Rackmount, 4U
Safety Compliance Certifications	CE Mark

Output Specifications

Peak AC Current (Low Range)	112 A peak
Peak AC Current (High Range)	56 A peak
DC Output Offset Voltage	< 50 mV

Power Specifications

Maximum Input Current (208 V AC Input)	24 A RMS per phase
Maximum Input Current (400 V AC Input)	13 A RMS per phase

Measurement Specifications

Reactive Power (VAR) Measurement Range	0 to 5000 VAR
Phase Angle Measurement Range	0.0° to 359.9°

Arbitrary Waveform Generator

Waveform Generation Method	Direct Digital Synthesis (DDS)
Waveform DAC Resolution	12-bit
Waveform Point Memory	1024 points per cycle

Programmable Impedance (Option -I)

Output Impedance Rs Programming Range (Option -I)	0 to 2000 mΩ
Output Impedance Ls Programming Range (Option -I)	0 to 2000 µH
Output Impedance Programming Resolution (Option -I)	1 mΩ / 1 µH

Controller

Programming Language	SCPI

Input

Input Protection	Internal circuit breaker

TECHNOLOGY

PWM Switcher

APPLICATIONS

AC/DC Power Simulation, Compliance Testing, Frequency Conversion