GXC804B SERIES

AC/DC POWER SOURCE & LOAD

At a Glance

The GXC804B series is XGY's benchmark-grade AC/DC source and electronic load that offers laboratory-grade RF performance in a compact chassis design.

Utilizing a SiC-based, interleaved topology to achieve an effective switching frequency of 160kHz, the unit is equipped with comprehensive simulation capabilities including grid simulation, regenerative AC/DC loading, BiPolar DC power supply operation, and Hardware-in-the-Loop (HIL) testing. A single GXC804B unit provides a maximum rated output power of up to 22.5kW within a compact 4U chassis.

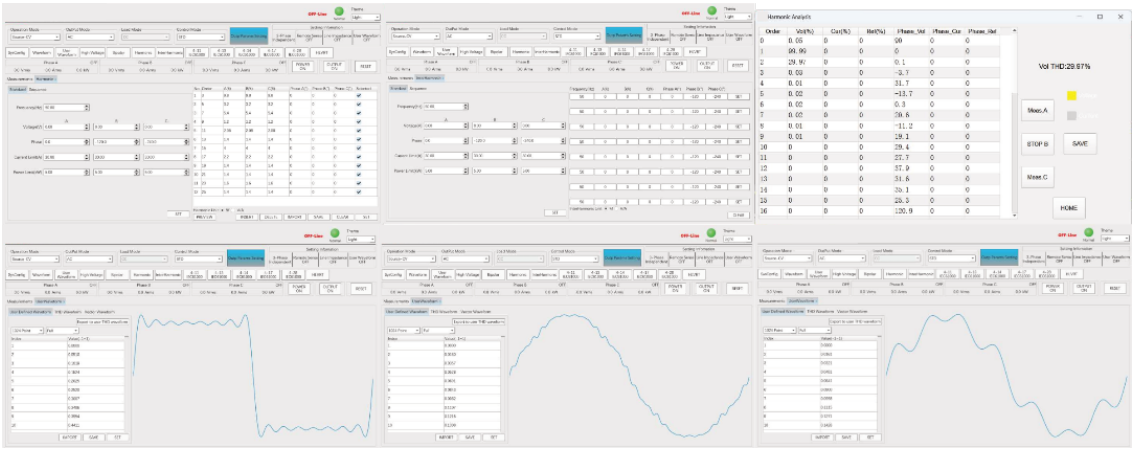
Features

- Single-phase and selectable three-phase 208V, 230V, 380V, 400V (L-L) input
- AC, DC, and AC+DC output
- **4-Quadrant Operation:**
  - Regenerative AC/DC source and load
  - Regenerative RLC/RCD electronic load
  - BiPolar DC power supply
- Single-phase/three-phase/split-phase/reverse-phase/multi-channel output, each phase independently controllable
- Up to 100th harmonic waveform generation
- Supports low/high voltage ride-through and continuous fault ride-through
- Programmable phase angle jump and user-defined waveforms
- Current-limiting output for short-circuit testing and TTL trigger signal output
- High voltage output mode and true current source
- Low leakage current (< 10mA)
- Hardware-in-the-loop
- Standard LAN interface, USB interface on the front panel, Modbus/SCPI communication

Core Capabilities

1. Harmonic and Inter-harmonic Waveforms Generation

The GXC804B series utilizes a dual DSP control architecture, delivering exceptional waveform generation capabilities. Users can independently configure the amplitude and phase for up to the 100th harmonic relative to a 50Hz or 60Hz fundamental frequency. It incorporates 30 preset harmonic distortion waveforms for quick user access. It also supports real-time harmonic analysis of output voltage and current for each individual phase (A/B/C) and precise measurements of Total Harmonic Distortion (THD).

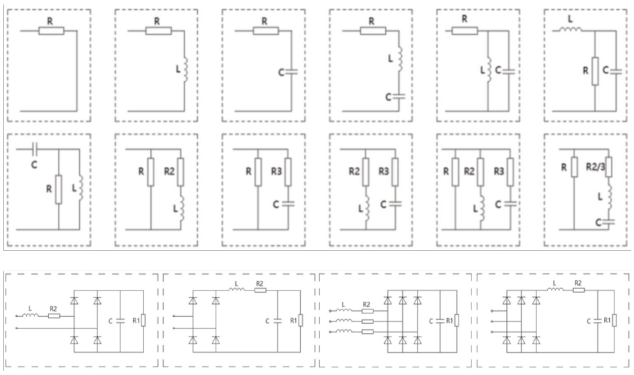


2. High Voltage Mode and BiPolar DC Power Supply

The GXC804B series offers a High Voltage Mode that doubles the output voltage range utilizing reverse phase output capability (up to 900V L-N in AC, and 1272V in DC). In BiPolar DC mode, it supports both two-port and three-port connection modes, allowing for independent setting of positive and negative output voltages and rapid polarity switching.

3. Regenerative Electronic Load and RLC/RCD Simulation

Integrated regenerative AC and DC electronic load functionality. AC mode provides Constant Resistance (CR), Constant Current (CC), Constant Power (CP), and Rectification modes. Advanced RLC load simulation can accurately simulate complex impedance loads with 12 classic RLC topological structures and independent per-phase programming. It also provides four types of RCD nonlinear load simulation functions.



4. High-Speed Dynamic Output Performance & PHIL

The GXC804B series delivers excellent dynamic output performance with a voltage slew rate > 3V/μs and current slew rate > 0.5A/μs. With the optional EXDA Analog & Digital IO Extension Box, it provides a small-signal bandwidth of 10kHz and response time < 20μs, perfectly meeting the rigorous demands of Power Hardware-in-the-Loop (PHIL) testing applications.

Technical Specifications

Output Ranges: Models GXC804B-5K & GXC804B-15K

Model			GXC804B-5K	GXC804B-15K
Output Power Range			5KW	15KW
Output Voltage Range	AC Source and Load		0~450V L-N @ 0.01~70Hz; 0~300V L-N @ 70~1kHz	
	DC Source and Load		0~636V	
Output Current Range	AC Source and Load	Single-Phase	0~30A	0~90A
		3-Phase Mode	-	0~30A/ph
	DC Source and Load	Single Ch	-30A~30A	
		Parallel (3Ch)	-90A~90A	
High Voltage AC	Output Voltage Range		-	0~900V L-N @ 0.01~70Hz
	Output Current Range		-	0~30A
High Vol. DC	Output Voltage Range		-	0~1272V
Bipolar DC	Output Current Range		-	-30A~30A

Output Ranges: Models GXC804B-20K & GXC804B-22P5K

Model			GXC804B-20K	GXC804B-22P5K
Output Power Range			20KW	22.5KW
Output Voltage Range	AC Source and Load		0~450V L-N @ 0.01~70Hz; 0~300V L-N @ 70~1kHz	
	DC Source and Load		0~636V	
Output Current Range	AC Source and Load	Single-Phase	0~105A	
		3-Phase Mode	0~35A/ph	
	DC Source and Load	Single Ch	-35A~35A	
		Parallel (3Ch)	-105A~105A	
High Voltage AC	Output Voltage Range		0~900V L-N @ 0.01~70Hz	
	Output Current Range		0~35A	
High Vol. DC	Output Voltage Range		0~1272V	
Bipolar DC	Output Current Range		-35A~35A	

Note: In AC+DC mode, output power, voltage, and current ranges are the same as those in DC mode.

General Specifications

AC input	
Voltage	1ø, 220VL-N, 230VL-N; 3ø, 3P+GND, 380VL-L, 400VL-L
Frequency	47~63Hz
Efficiency	≥90%
Power Factor @ Rated Power	>0.99
THDi	<1%
Output	
Output Mode	AC, DC or AC+DC
Load Regulation	0.1%FS
Line Regulation	0.10%
AC Mode	
Frequency Range	0.01 ~ 1000Hz
Phase Angle	Phase B/C relative to phase A, 0.0~360.0°
THD	<0.5% @DC~400Hz; <1% @400~1000Hz (measured at 250VL-N, Resistive Load)
Harmonic Generation	100th@50/60Hz; 25th@400Hz
Voltage Slew Rate	≤3V/μs
Current Slew Rate	≤0.4A/μs
Small-Signal bandwidth	10kHz
Power Accuracy	0.2%FS
Voltage Accuracy	0.1%FS
Current Accuracy	0.4%FS(<30Hz); 0.2%FS(30~350Hz); 0.3%FS(350.01~500Hz); 0.3%+(0.7%*kHz)FS(500.01~1000Hz)
Frequency Accuracy	0.01%+0.01Hz
Phase Accuracy	<1° (@50Hz)
Power Resolution	0.001kW
Voltage Resolution	0.1V
Current Resolution	0.01A
Frequency Resolution	0.01Hz (~100Hz), 0.05Hz (>100Hz)
Phase Resolution	<0.1°
Leakage Current	<10mA @230V L-N

DC Mode	
Operating Mode	CV, CC, CP, CR, Bipolar DC Output
Voltage Accuracy	0.1%FS
Voltage Resolution	0.1V
Current Accuracy	0.1%FS
Current Resolution	0.01A
Voltage Ripple	0.1%FS
Measurement Accuracy	
AC Source Measurement Accuracy	0.2%FS
AC Voltage Measurement Accuracy	0.1%FS
AC Current Measurement Accuracy	0.1%FS(<30Hz); 0.2%FS(30~350Hz); 0.1%+0.3%FS(350.01~500Hz); 0.3%+(0.7%*kHz)FS(500.01~1000Hz)
DC Voltage Measurement Accuracy	0.1%FS
DC Current Measurement Accuracy	0.1%FS
Frequency Measurement Accuracy	0.01%+0.01Hz
RLC Mode Parameters	
R (Resistance)	Range: 0.1~1000Ω. Resolution: 0.1Ω. Accuracy: ±0.1%FS
L (Inductance)	Range: 0.01~500mH. Resolution: 0.01mH. Accuracy: ±0.1%FS
C (Capacitance)	Range: 0.001~50mF. Resolution: 1μF. Accuracy: ±0.1%FS
Physical & Environmental	
Standard Interfaces	LAN, USB
Protection	OVP, OCP, OPP, OTP
IP Ingress protection	IP21
Cooling	Forced Air Cooling
Temperature	Operating: 0~40°C Storage: -20~85°C
Operating Humidity	20~90%RH (None Condensing)
Dimensions (W * D * H, mm)	440*670*178 (4U Chassis)
Weight (kg)	5K: <40kg 15K: About 47kg 20K: About 50kg 22.5K: About 50kg

1. When a single-phase input is used, the rated three-phase output power of the 15K, 20K, and 22.5 model is reduced to 5.0 kW, 6.6 kW, and 7.5 kW, respectively.
2. The optional 208/230V L-L, three-phase input is offered exclusively on the 5K and 15K models.

Options

-S Slave Unit, available for GXC804B-15K and GXC804B-20K	
-EXDA Analog & Digital IO Extension Box	

AC Input Configuration

/380, Input Voltage 380VLL±10%, 3P+PE

/400, Input Voltage 400VLL±10%, 3P+PE

/480, Input Voltage 480VLL±10%, 3P+PE

/208, Input Voltage 208VLL±10%, 3P+PE

/230, Input Voltage 230VLL±10%, 3P+PE

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Specifications subject to change without notice. Per AS/NZS standards.