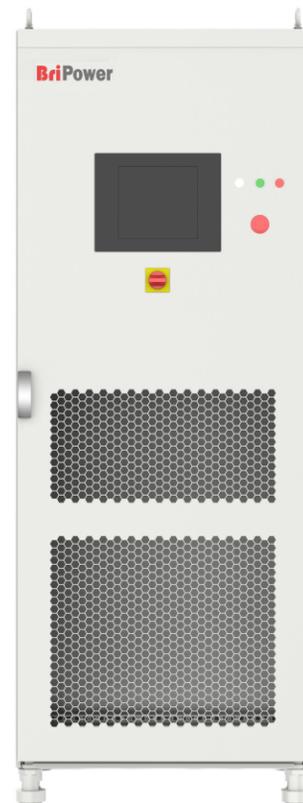


# BriPower KGS Series

## Programmable AC/DC Power Supply

### Features

- Modular design, output power from 15kVA to 500kVA
- Bi-directional power source, seamless transition between source and sink modes
- Output: AC, DC, AC+DC
- Using true current feedback control when working in CC mode
- Frequency Range: DC~ 1kHz (-HF option: DC~2kHz)
- Regenerative load function (-LD option)
- Soft start: effectively restrain the impulse current when power on
- Standard output 300V L-N (higher voltage can be customized, -HV1/-HV2 option)
- Up to 50th harmonic waveform generation, inter-harmonic generation
- Trigger out, TTL signal output for voltage or frequency change
- AC output, ON/ OFF output phase angle can be programmed
- LAN/RS485 interfaces (standard)
- RS232/Analog control interface (-RS232/-ATI option)
- Emergency stop button and indicators on front panel
- TFT-Touch panel operation
- Mod-bus/SCPI protocols
- CE conformity



### Overview

The BriPower KGS series is a high-performance AC/DC power source, using SiC MOSFET PWM technology, which contains multi output power levels from 15kVA to 500kVA. With an output frequency range from DC to 2kHz (standard 1kHz, 2kHz with -HF option), standard output 300V L-N (higher voltage can be customized).

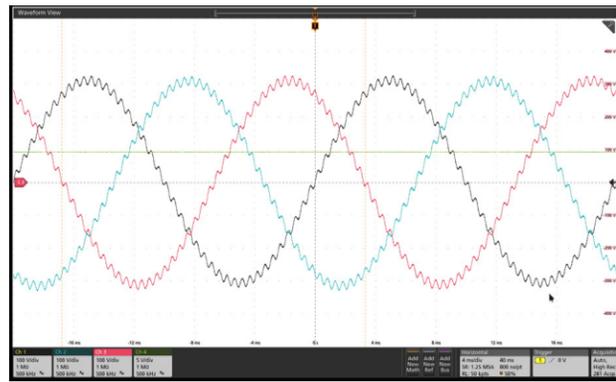
KGS series uses bi-directional design, which makes it possible to be used as grid simulator to test distributed generation systems. KGS Series is well suited for aerospace applications. Remote control interfaces and SCPI command language are provided for easy integration into ATE systems.

KGS series adopts dual DSP+FPGA design, with powerful calculation and control capabilities, and can display and save measured values at 10k/s sampling. The KGS series adopts optical fiber communication and performs multiple monitoring and protection of all main components, communication connections and systems. It is the most reliable power supply product in the industry.

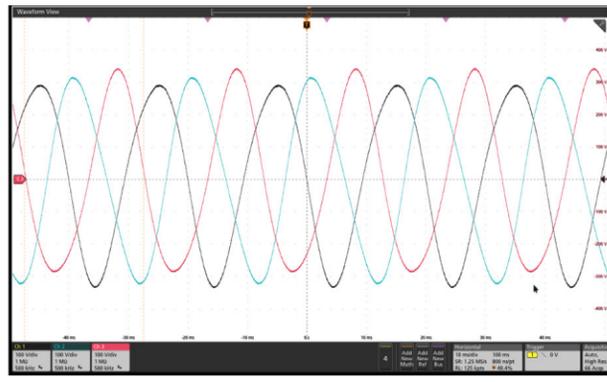
With touch panel on the front panel, users can control the power source through GUI software. System status indicators and emergency stop button are installed on the front panel. RS485 and LAN standard interface, optional RS232 and analog control interfaces are available for automated test applications.

### Grid Simulation

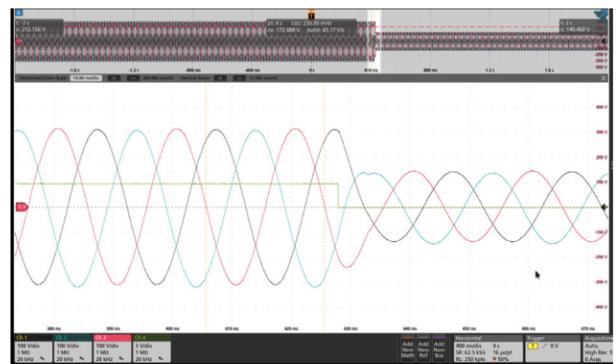
KGS series can be used as a grid simulator to test distributed generation systems, such as the electrical characteristics of energy storage PCS, PV inverter, etc. The simulation functions include voltage and frequency fluctuation, voltage drop, low/zero voltage, three-phase unbalance, harmonic and inter-harmonic etc. KGS series can meet the requirements of grid tied DG regulations testing, such as: grid voltage abnormality test, grid frequency abnormality test, low/zero voltage ride through test, anti-islanding test, etc. KGS series provides standard software that can simulate various real-world power grid operating conditions and supports multiple parameter settings.



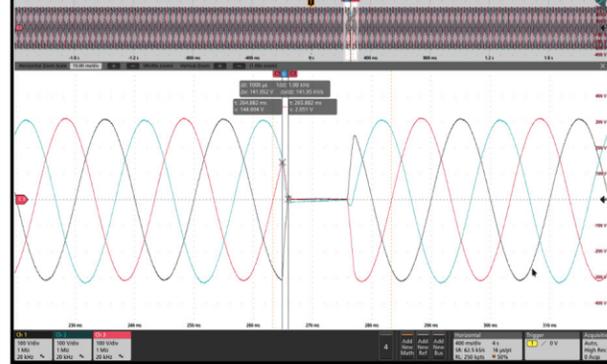
Harmonic waveform



Inter-harmonic waveform



Voltage drop



Zero voltage ride

## Current Source Mode

The KGS Series uses true current feedback control when working in Current source mode. It is different from power supplies using voltage feedback with constant current mode, which is called voltage controlled current. The voltage controlled current power supplies maintain setting current value by adjusting output voltage and have relatively long response time to sudden impedance changes, which typically results in dynamic current overshoot or undershoot as the load impedance changes. KGS series working in CC mode does not have such problem and will always maintain the current at the setting value, regardless of transient load conditions.

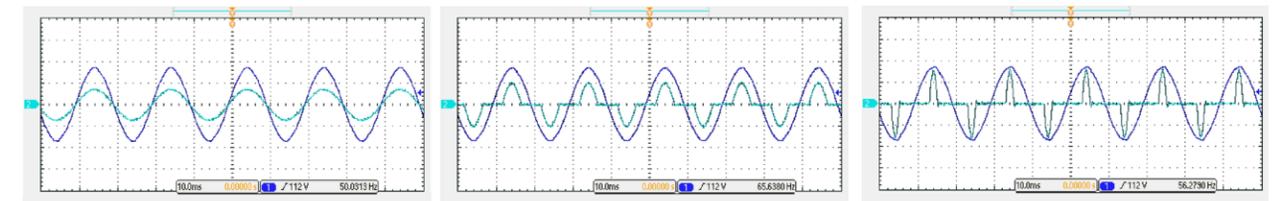
## Modular Design

The KGS series power supply contains one or more 15kVA power modules. Each power module is fully self-contained and forms a complete AC to AC or AC to DC converter.



## Re-generative AC Load -LD option<sup>1</sup>

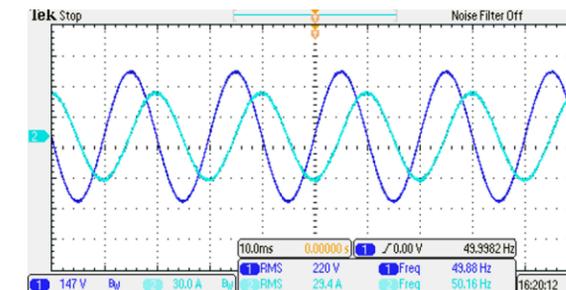
KGS series with -LD option can be used as regenerative AC electronic load. This function consists of CR mode, Rectifier mode, CC/CP phase lead/lag mode. CR mode is used to simulate three-phase resistive loads, the CR mode and three-phase resistance parameters can be set through the panel and can realize the program of resistance sequence. Rectifier mode can be used to simulate non-linear loads, the CC/CP mode and CF (setting range: 1.414~3) parameters can be set through the panel. CC/CP phase lead/lag mode can simulate sinusoidal current, Constant current CC and constant power CP modes are available to adjust load current or power, phase angle can be set from 90° to -90° simulating the voltage and current conditions under inductive and capacitive loads.



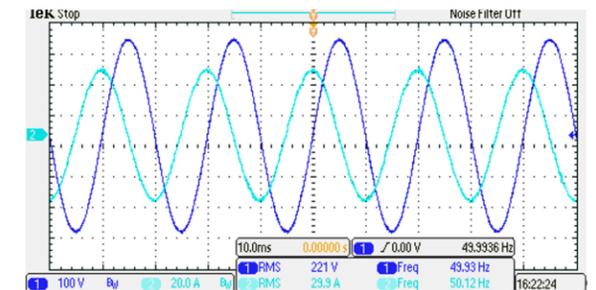
CF=1.414

CF=2

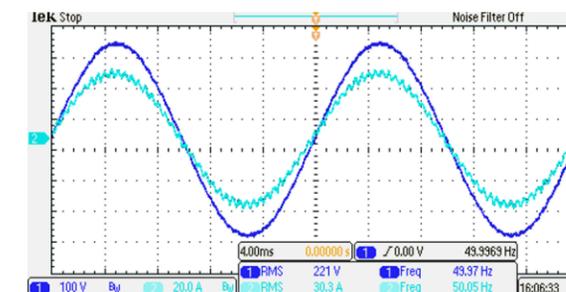
CF=3



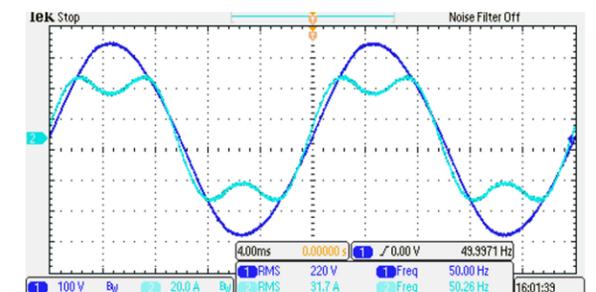
Angle=+90°



Angle=-90°



High harmonics

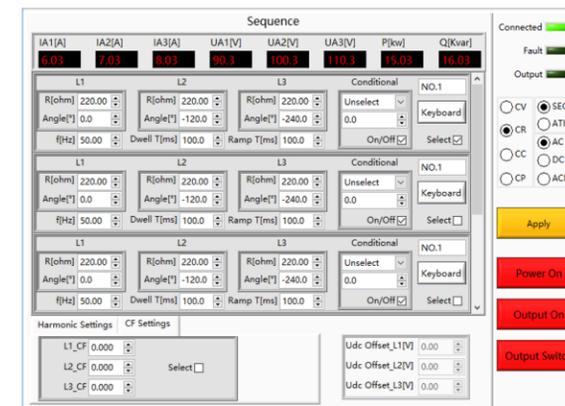


Low harmonics

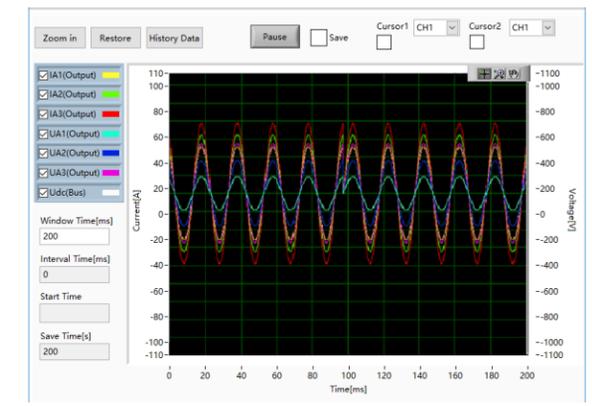
<sup>1</sup>KGS-LD can still output a stable and reliable current waveform even when the input voltage is not pure sine wave or the sine wave has large distortion.

# Avionics Power Line Simulation

The KGS series meets the requirements of avionics bus simulation, and can simulate working conditions including normal working, power interruption (conversion), abnormal power supply, emergency power supply, startup, power failure, etc., to meet the requirements of MIL-STD-704 and other test regulations. In addition, remote control interfaces and SCPI command language are provided for easy integration into ATE systems.



Sequence Programming



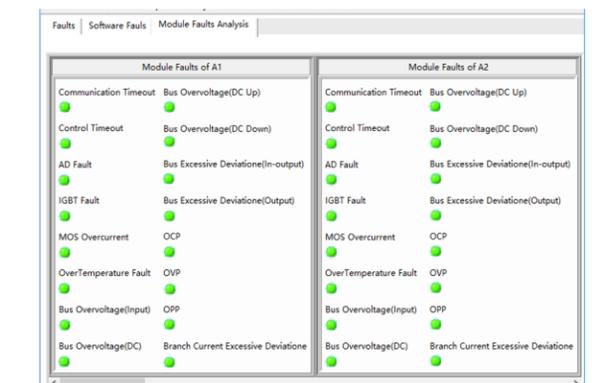
Waveform Display

# IEC Related Test Applications

KGS series can meet the requirements for AC power in IEC 61000 3-2, 3-3, 3-11, 3-12, 4-11, 4-13 and other standard tests.



Harmonic/Inter-harmonic editing



Fault Display

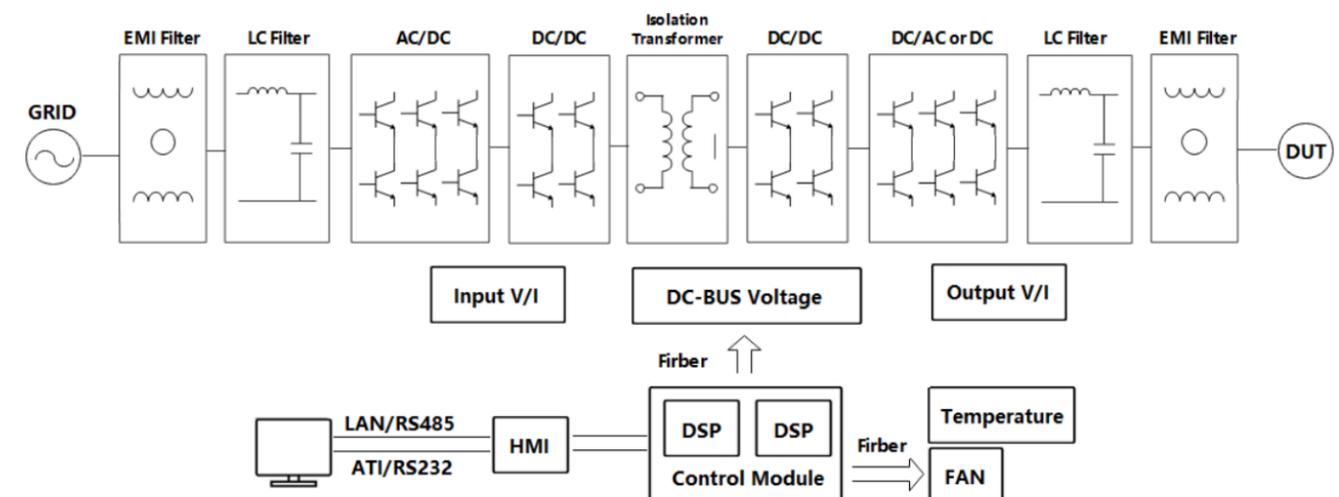
# Graphical User Interface

GUI software is installed in front touch panel, which uses Windows OS. The software provides following functions:

- Output limits and settings
- Sequence output settings
- The output phase voltage, angle, frequency, ON/OFF phase angle, dwell time, switching time and other parameters of the power supply can be set.
- Generate harmonic and inter-harmonic waveforms
- Up to 50th harmonic waveform generation, inter-harmonic generation
- Real time display measurements: voltage, current, power, etc.
- Capture, display and save output voltage and current waveforms
- Display power source faults



# Block Diagram



## General Specification

(customized unit specification will be shown in the quotation)

<b>AC Input</b>	
Voltage	3P+N+PE, 380VLL±10%(std)
Frequency	47-63Hz
Efficiency	≥85%
Power Factor	0.95
<b>Output</b>	
Output Modes	AC, DC, or AC+DC
Power Level	From 15kVA to 500kVA
Output Voltage Load Regulation	0.2%FS
Output Voltage Line Regulation	0.1% (10% input line change)
<b>AC Output</b>	
Voltage Range (L-N)	0-300V (std), 0~375V (-HV1 option), higher voltage (-HV2 option)
Current Range	Max 50A per 15kVA module
Phase Angle Range	Phase B/C relative to phase A, 0.0~360.0°
Frequency Range	DC -1000Hz (std), DC -2000Hz (-HF option)
THD	<1% (Resistive Load)
Harmonic Generation	Up to 50 <sup>th</sup>
Voltage Slew Rate	5V/us
Power Accuracy	0.5%FS
Voltage Accuracy	0.3%FS
Current Accuracy	0.3%FS
Frequency Resolution	0.01%FS+0.01Hz

Phase Angle Accuracy	<1.2° (@50Hz)
Power Resolution	0.01kW
Voltage Resolution	0.1V
Current Resolution	0.01A
Frequency Resolution	0.01Hz (~100Hz), 0.05Hz (>100Hz)

<b>DC Output</b>	
Voltage Range	0-550V (Std), customized voltage up to 1125V
Current Range	Max 50A per 15kVA module
Voltage Accuracy	0.2%FS
Current Accuracy	0.1%FS
Voltage Ripple	0.1%FS

<b>AC+DC Mode</b>	<b>Max Power, Voltage and Current are the same as DC Mode</b>
AC Voltage Measurement Accuracy	0.3%FS
AC Current Measurement Accuracy	0.3%FS
DC Voltage Measurement Accuracy	0.2%FS
DC Current Measurement Accuracy	0.1%FS
Frequency Measurement Accuracy	0.01%+0.01Hz

<b>Others</b>	
Standard Interface	LAN/RS485
Optional Interface	ATI/RS232
Protection	OVP, OCP, OTP
CE Conformity	EN 61010, EN 61326
Cooling	Forced Air Cooling

Temperature	Operating: 0~40°C Storage: -20~85°C
Operating Humidity	20-90%RH (None Condensing)

## Standard Models Specification

Model	KGS15	KGS45	KGS90
AC Output Mode	Single Phase	Single Phase or Three Phases	
AC Output Power	15kVA	45kVA	90kVA
AC Output Current	50A	50A/ph	100A/ph
DC Output Power	10kW	30kW	60kW
DC Output Current	25A	75A	150A
Dimension (W*D*H mm)	800*900*1700	800*900*1700	2*800*900*1700
Weight	<500kg	<550kg	<950kg

### Note:

1. Other Power/Voltage Level can be offered. Please consult factory
2. Total weight < 1400KG, the cabinet bottom is wheel structure; otherwise, it is channel steel structure.

## Options

- 232 RS232 program interface
- ATI Analog control interface (0~5V)
- HF Output frequency range up to 2kHz
- 1P Add single phase output
- LD Regenerative load function
- HV1 AC output voltage extended to 0~375V
- HV2 Higher output voltage consult factory

## AC Input Configuration

Please specify the input voltage (L-L)

/208, Input Voltage 208V±10%, 3-phase

/230, Input Voltage 230V±10%, 3-phase

/380, Input Voltage 380V±10%, 3-phase

/400, Input Voltage 400V±10%, 3-phase

/480, Input Voltage 480V±10%, 3-phase

## Model Configuration

KGS AAA-BBB-CCC-DDD/EEE

AAA: Power, kVA

BBB: Voltage range (L-N), V (std, 300V L-N)

CCC: Current range, A

DDD: Option

EEE: Input configuration



## About BriPower

Bridge Technology is a company focusing on business of **power supplies and test systems for new energy applications**. We are devoted to providing high quality products and solutions for customers.

Bridge Technology has **a top-class R&D team** in China, works on modularization and standardization power supplies and systems. We have sales, technical support, R&D and manufacture in Shanghai, Nanjing and Chengdu.

**Nanjing Bridge New Energy Technology** was founded on Jan 12th, 2016, focusing on R&D and manufacturing BriPower brand power systems, including bi-directional AC sources for grid simulation, bi-directional DC sources for battery simulation, and regenerative loads. The BriPower AC&DC power systems are widely used in new energy and related fields.

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Sales Company:	Shanghai Bridge Electronic Technology Co., Ltd
General information:	<a href="mailto:info@bridgetech.cn">info@bridgetech.cn</a>
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Repair & Calibration:	<a href="mailto:service@bridgetech.cn">service@bridgetech.cn</a>
Tel:	40010-18618
Int'l Sales:	<a href="mailto:contact@bridgetech.com.sg">contact@bridgetech.com.sg</a>