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Datasheet: EAC-4Q-GS Series

EAC-4Q-GS Series High Power Bidirectional Programmable AC Power Supply

Version: 23.01.2026

THE WORLD OF POWER

Your Partner for: DC & AC power supplies, bidirectional AC / DC solutions, conventional & regenerative loads, and battery cell simulators.

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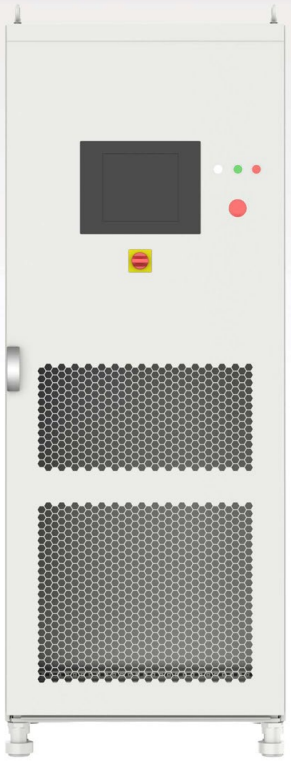
> EAC-4Q-GS SERIES HIGH-POWER AC POWER SUPPLY



The EAC-4Q-GS Series high-power AC power supply features a modular design with optional functions, delivering highly configurable power solutions, offering flexible output performance and multiple control methods, including communication interfaces and graphical software, to meet diverse testing and power supply requirements. EAC-4Q Series is widely used in applications such as new energy testing, power electronics R&D, motor drive sys-tems, industrial manufacturing, and scientific research.

Product Features

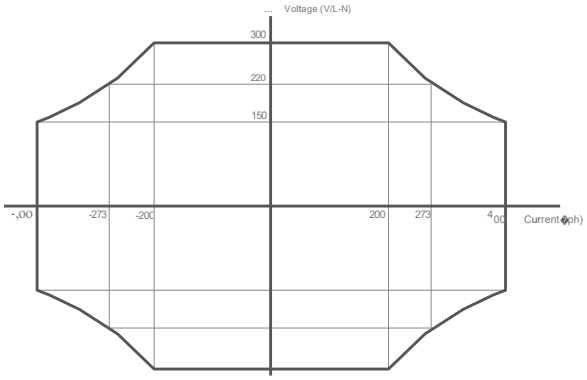
- Configurable output power, voltage, current, and frequency ranges
- Master-slave parallel operation for system expansion
- Programmable voltage/frequency sequences via GUI with control-lable slew rates
- Optional DC output mode
- Built-in soft-start function to suppress inrush current
- Custom waveform output (clipped wave, rectified wave)
- Optional air-cooling or liquid-cooling configurations
- Grid simulator
- Regenerative electronic load
- RLC electronic load
- Touchscreen with GUI software
- LAN and RS485 interfaces
- Optional analog 1/0 interfaces
- Modbus and SCPI protocol
- Remote sense

Four-Quadrant Operation

The "-R" option provides four-quadrant operation, allowing for bidirectional energy flow.

Constant Power Auto-Ranging Output

The EAC-4Q-GS Series provides configurable output power, voltage, and current ranges. It operates in a constant-power mode, au-tomatically adjusting the voltage and current output within the limits.



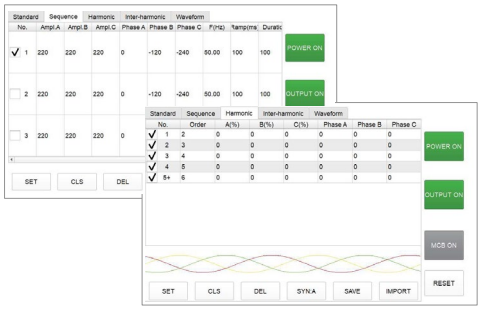
Grid Simulator

The EAC-4Q-GS Series with the -R option functions as a grid simulator via its four-quadrant operation, capable of compliance testing for distributed generation. Key capabilities include simulating voltage and frequency fluctuations, dips, (LVRT/ HVRT), three-phase unbalance, and harmonics.

- **Three-Phase Independent Output**
- **Programmable Voltage/Frequency/Phase Sequences**
- **Up to 50th Harmonie Waveform Generation**
- **LVRT/HVRT and continuous fault ride-through**
- **Islanding Mode:**
  RLC load simulation for anti-islanding testing
- **Programmable Phase Angle Jumps**
- **Current-Limited Output Mode:**
  Supports short-circuit testing at output terminals
- **TTL Trigger Signal Output:**
  Activates during voltage/frequency transitions
- **Line Impedance (RL) Simulation**

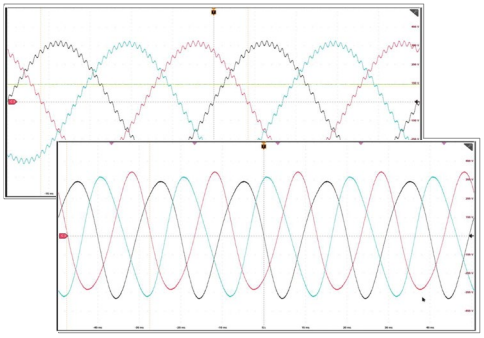
Programmable Voltage/Frequency/Phase Sequences

The GUI allows precise programming of output parameters in-cluding voltage, frequency, slew rates, and phase angles with full in-dependent control over all three phases.

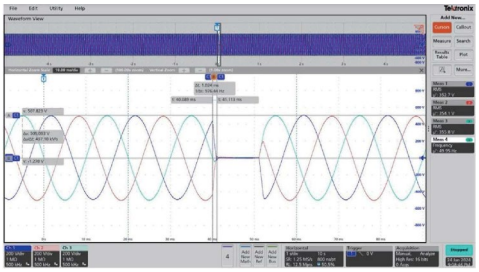


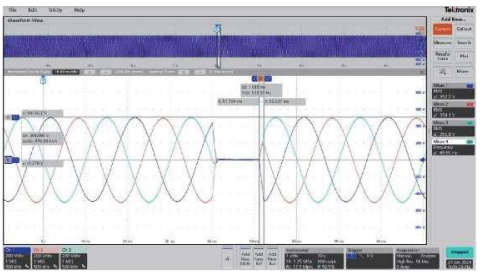
Harmonie & Interharmonic Generation

The EAC-4Q-GS Series generates harmonics up to the 50th order and supports interharmonic editing. The GUI software allows precise programming of phase angles and amplitudes, allowing for indepen-dent three-phase waveform generation.



High/Low Voltage Ride-through





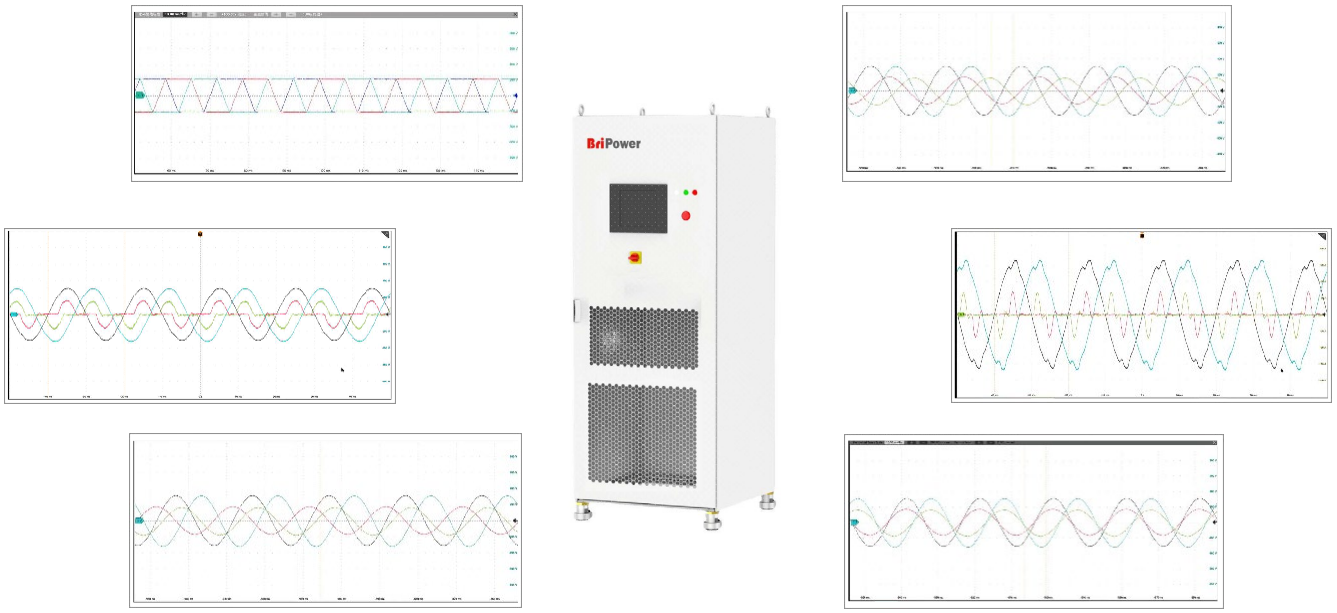
Regenerative AC Load (-LD option) [1,2]

With the -LD option, the EAC-4Q-GS Series operates as a regenerative AC load, featuring four operational modes:

Constant Resistance (CR) Mode: Simulates three-phase resistive loads. Users can configure CR mode and set three-phase resistance parameters, enabling resistance sequence simulation.

Constant Current (CC) & Constant Power (CP) Modes: Simulate sinusoidal current loads. Users can adjust load current/power and phase angle (adjustable from90° to -90°), replicating leading/lagging voltage-current phase relationships in inductive/capacitive loads.

Rectifier Load Simulation Mode: Designed for nonlinear rectifier load testing. Users can configure CC/CP modes and set waveform parameters (e.g., Waveform Factor:0-2.121, CF=WF*1.414) .



Extends to Independent DC output (-DC option)

DC output mode is available with the -DC option. The output will be DC and AC 0~100Hz.There is up to 50% output power and current derating below 30Hz.

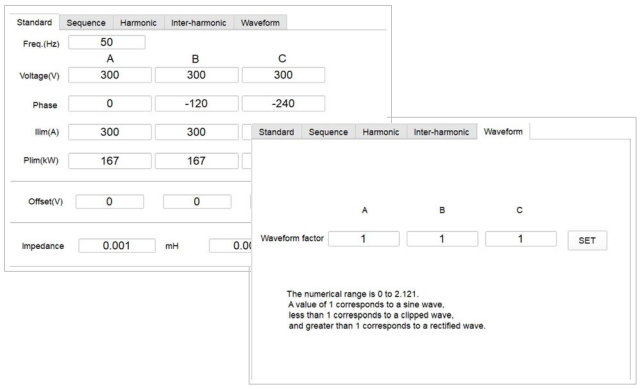
Line impedance (RL) Simulation (-IMP option)

-IMP option is designed to simulate line impedance by setting Rand L value.The setting range is: Rmax=0.2Urated Irated; Lmax: Rmax/314

1. EAC-4Q-GS -LD as regenerative eload is design for sine waveform input, if the input is not a pure sine waveform, the output current waveform could be distorted. The -LD option must be used in combination with the -R option.
2. When WF=1, theoutput waveform is a sine wave; when WF<1, the output waveform is a clipped wave; when WF>1, the outputwaveform is a rectified wave.

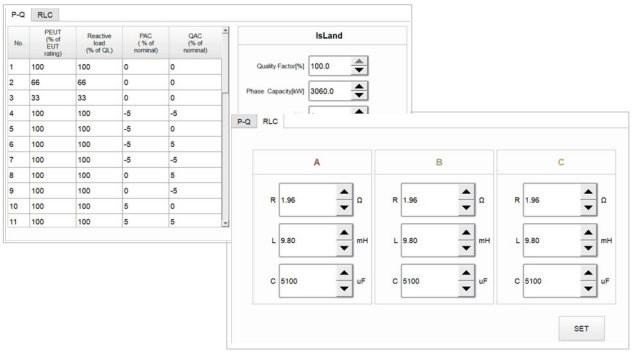
Custom waveform

Custom waveforms including clipped sine wave and rectified wave are available with EAC-4Q-GS series. The waveform is pro-grammable by modifying waveform factor. Waveform factor (WF) refers to the ratio of the peak value of a custom waveform to that of standard sine wave. When WF=1, the output waveform is a sine wave; when WF<1, the out-put waveform is a clipped wave; when WF>1, the output waveform is a rectified wave.This function is available in CV mode when EAC-4Q-GS is used as source, and also in rectifier mode when EAC-4Q-GS is used as eload.



Island mode for IEC 62116 anti-island test (-62116 Option)[3]

Island mode of EAC-4Q-GS simulates RLC load behavior for anti-island test. Two simulation modes are provided, which are setting parameters of PAC, QAC, PEUT and QL in mode 1, and set-ting R, L, C Value in mode 2.



Graphical User Interface

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

-Output settings and limits

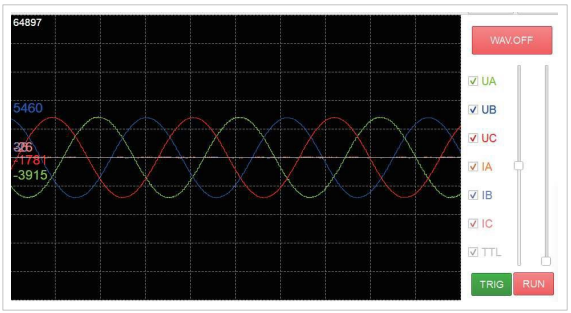
-Sequence output settings

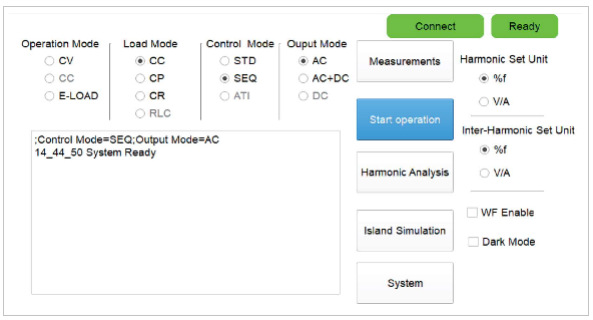
-Generate harmonic and inter-harmonic waveforms.

-Display measurements: voltage, current, power, etc.

-Capture, display and save output voltage and current waveforms. -

Display power source faults

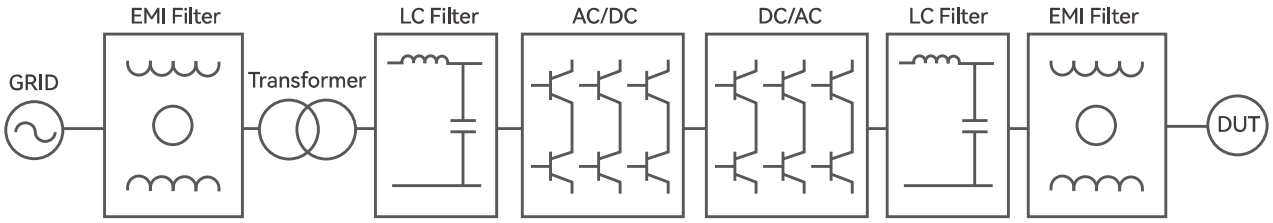




3. EAC-4Q-GS -62116 can only simulate RLC load for sine waveform, 50/60Hz input.

Block Diagram

The topology of standard EAC-4Q-GS is shown in Figure. The transformer for isolation and phase-shift is on the front by default, and then the 3-phase AC input is rectified by four quadrant PWM converters for DC bus, which is followed by DC/AC power modules. Three channels of DC/AC power modules are used for independent 3-phase AC output.



Note: The EAC-4Q-GS series AC power supply topology with -TR option is different from the above figure

General Specification (customized unit specification will be shown in the proposal)

Input	
AC input Voltage	3P+N+PE, 380VLL±10%(std)
Frequency	47-63Hz
Efficiency	≥90%
Power Factor	0.95
THDi	≤3%
Output	
Output Mode	AC (std),DC,AC+DC (-DC option)
Power Range	Configurable, from 30KVA~10MVA
Voltage Range	Configurable, 0~300V L-N (std), 50kV L-N (max)
Current Range	Configurable, up to 10kA/ph
Frequency range	30-100Hz (std), 40-70Hz (TR option)
Phase output	Phase B/C relative to phase A, 0.0~360.0°
Voltage Rise Time (0%~90%)	<1ms (std), <2ms (TR option)
Voltage Fall Time (90%~0%)	<1ms (std), <2ms (TR option)
Harmonic Generation	Up to 50th
Load Regulation	0.2%FS
Line Regulation	0.1%FS
Output Voltage THD	<1%FS (Resistive Load, @50/60Hz)
Power Accuracy	0.3%FS
Voltage Accuracy	0.1%FS (std), 0.2%FS (TR option)
Current Accuracy	0.2%FS
Frequency Accuracy	0.01Hz
Phase accuracy	±0.3° @50Hz
Power Resolution	0.1kW
Voltage Resolution	0.01V
Current Resolution	0.1A
Frequency Resolution	0.01Hz
Phase Resolution	0.1°

General specifications

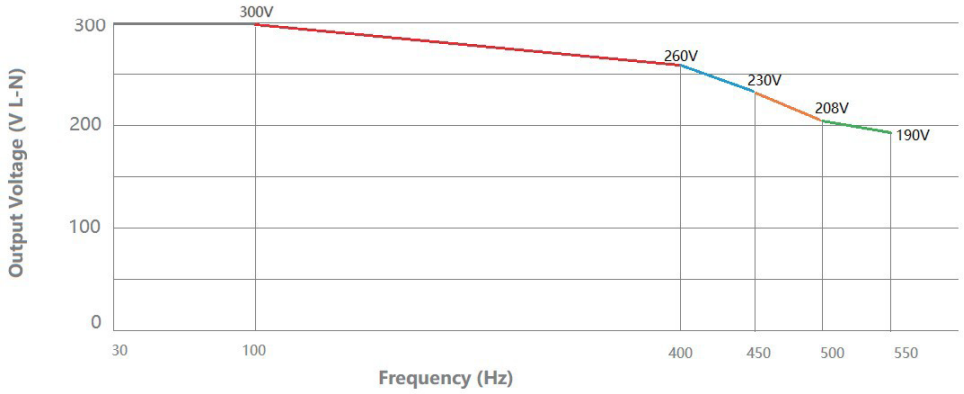
Measurements	
Power Accuracy	0.3%FS
Voltage Accuracy	0.1%FS(std), 0.2%FS (TR option)
Current Accuracy	0.2%FS
Frequency Accuracy	0.01Hz
Phase accuracy	±0.3° @50Hz
Others	
Standard Interface	LAN/RS485
Optional Interface	ATI/RS232
Protection	OVP, OCP, OPP, OTP
CE Conformity	EN 62040-1, EN 62040-2
Cooling	Forced Air Cooling
Temperature	Operating: 0~40°C Storage: -20~85°C
Operating Humidity	20-90%RH (None Condensing)

Standard Models Specification

Model	Power	Voltage	Current	Dimension (W*D*H mm)	Weight(kg)
EAC-4Q 30-300-46	30kVA	300V	46A	800*800*1900	680
EAC-4Q 45-300-68	45kVA	300V	69A	800*800*2000	770
EAC-4Q 60-300-91	60kVA	300V	91A	800*800*2100	980
EAC-4Q 120-300-182	120kVA	300V	182A	1600*900*1700	1400
EAC-4Q 180-300-273	180kVA	300V	273A	1600*900*2100	1800
EAC-4Q 240-300-364	240kVA	300V	364A	1800*900*2100	2100
EAC-4Q 300-300-455	300kVA	300V	455A	2000*1000*2100	2700

Options

-232	RS232 program interface
-LD	Regenerative AC load function
-R	Regenerative mode
-ATI	Analog control interface (0~5V)
-DC	Extend to Independent DC output (&-1P 3-ph output DC in parallel)
-1P	Add single phase output
-IMP	Line impedance (RL) simulation
-MS	Master-Slave interface
-W	Use water-cooling
-TR	Change to transformer output topology
-62116	Island mode for IEC 62116 anti-island test
-HFXXX[4]	AC output frequency extended to XXXHz (only for CV mode)
-FHR	Frequency resolution 0.005Hz (max frequency: 70Hz)



AC Input Configuration[5]

Please specify the input voltage (L-L)

/380, Input Voltage 380VLL±10%, 3P+N+PE/3P+PE

/400, Input Voltage 400VLL±10%, 3P+N+PE/3P+PE

/480, Input Voltage 480VLL±10%, 3P+N+PE/3P+PE

4. Max VF Derating 300V l-N Range

5. Other AC Input is available, please consult factory.

) Model Configuration

EAC-4Q-GS AAA-BBB-CCC-DDD/

EEE AAA: Power, KVA

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

CCC: Current (per Phase), A

DDD: Option

EEE: Input configuration