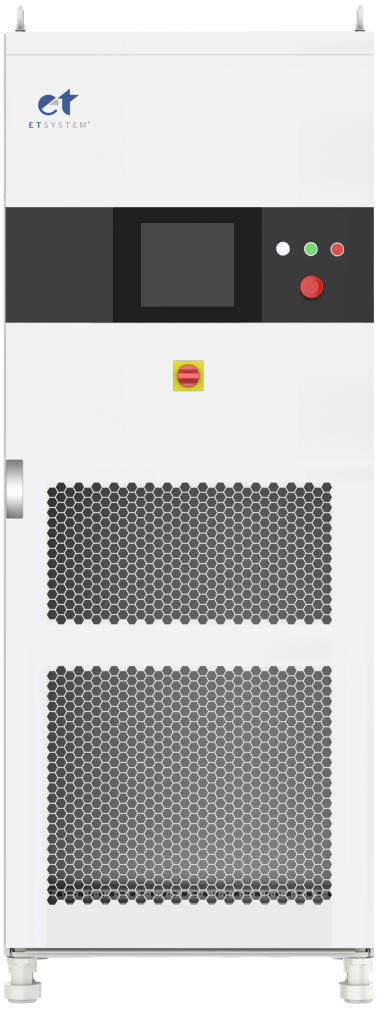
EAC-4Q-KS
Bi-directional AC/DC Source

- Single system from 15kVA single phase to 90kVA three-phase, and paralleled system up to 500kVA
- Bi-directional power source, seamless transition between source and sink modes
- Output: AC, DC, AC+DC
- Use true current feedback control when working in CC mode
- Frequency Range: DC~ 1kHz (-HF option: DC~2kHz)
- Add single phase output (-1P option)
- Standard output 300V L-N (higher voltage can be customized)
- Up to 40th harmonic waveform generation, inter-harmonic generation
- Triger out, TTL signal output for voltage or frequency change
- AC output, ON and OFF output phase angle can be programmed
- LAN/RS485 interfaces (standard), RS232/Analog control interface (optional)
- Modular design
- TFT touch screen based on Windows system, can run full functional software as PC
- Mod-bus/SCPI protocols
- Emergency stop button
- CE conformity
- Special versions available on request



Overview

The ET System EAC-4Q-KS series is a high-performance AC/DC power source, which contains multi output power levels from 15kVA to 500kVA. Using SiC MOSFET PWM technology, the output power is up to 45kVA for single 800*1700*900 mm(W*H*D) cabinet.

EAC-4Q-KS series uses bi-directional design, which makes it possible to be used as AC/DC power source for testing of PV inverter, smart grid, etc. With an output frequency range from DC to 2kHz (Standard 1KHz, 2000Hz with HF option), and output voltage up to 750V L-N (Standard 300V L-N, customized voltage up to 750V L-N). EAC-4Q-KS Series is well suited for aerospace applications. Remote control interfaces and SCPI command language are provided for easy integration into ATE systems.

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

Modular Design

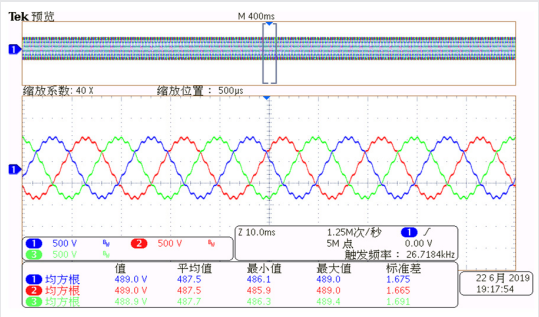
The EAC-4Q-KS series power supply contains one or more 15kVA power modules. Each power module is fully self-contained and forms a complete AC to AC or AC to DC converter.

Grid Simulation

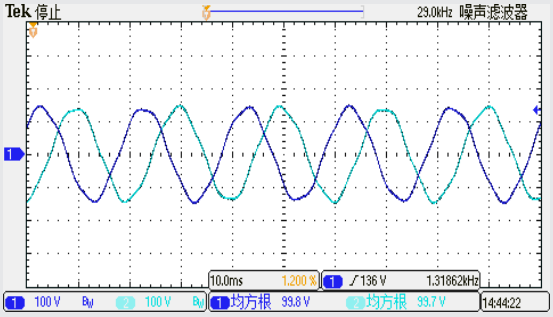
EAC-4Q-KS series can be used as grid simulator to test distributed generation systems, such as the electrical characteristics of energy storage PCS, PV inverter, etc. The simulation functions include voltage and frequency fluctuation, voltage drop, low/zero voltage, three-phase unbalance, harmonic and inter-harmonic etc.EAC-4Q-

EAC-4Q-KS 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.

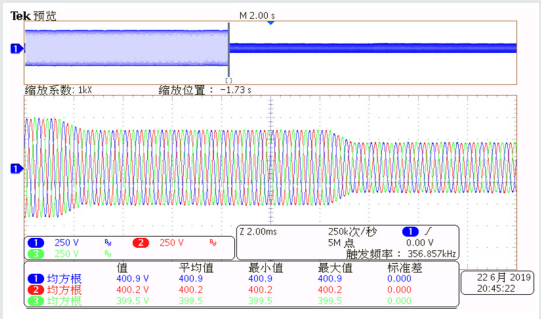
EAC-4Q-KS series provides standard software that can simulate various real-world power grid operating conditions and supports multiple parameter settings.



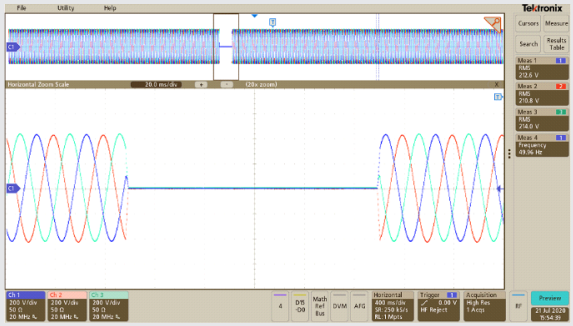
Harmonic waveform



Interharmonic waveform



Voltage drop



Zero voltage ride

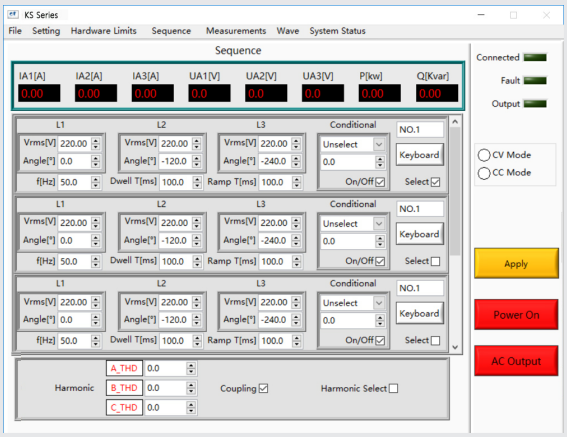
Graphical User Interface

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

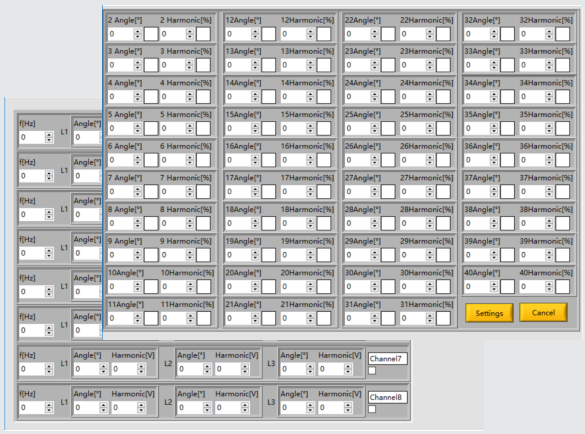
- Output limits and settings
- Sequence output settings

  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

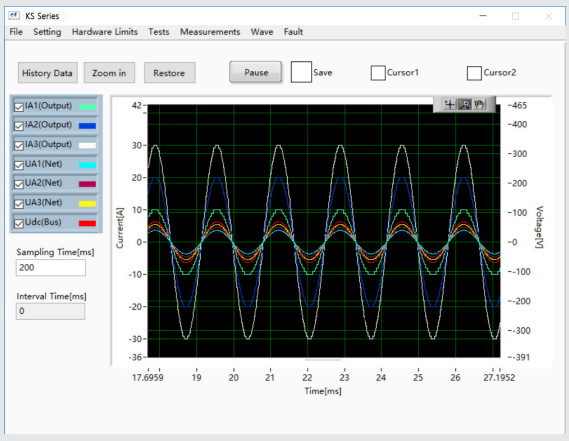
  Up to 40th harmonic waveform generation, inter-harmonic generation
- Real time display measurements: voltage, current, power, etc.
- Capture, display and save output voltage and current waveforms.
- Display power source faults



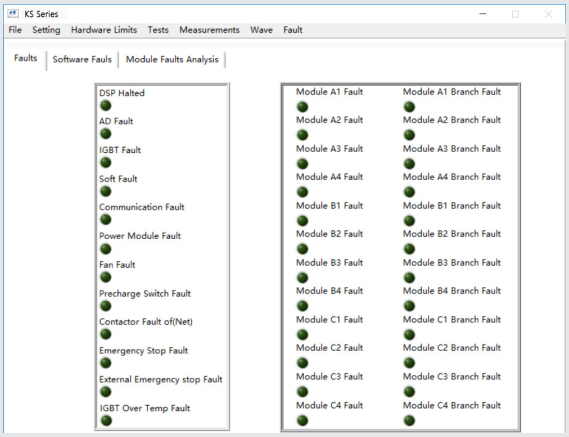
Sequence Mode



Harmonic and Inter-harmonic generation



Waveform Display



Faults Display

Current Source Mode

EAC-4Q-KS series uses true current feedback control when working in CC 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. KS 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.

Model Configuration

EAC-4Q-KS	AAA	-BBB	-CCC	-DDD	/EEE
Series Models	Power, kVA	Voltage range(L-N), V(std, 300V L-N)	Current range, A	Option	Input configuration

Option

-232	RS232 program interface
-ATI	Analog control interface (0~5V)
-HF	Output frequency range up to 2000Hz
-1P	Add single phase output

AC Input Configuration

3 x 208 V (L-L) ±10 %
3 x 230 V (L-L) ±10 %
3 x 380 V (L-L) ±10 %
3 x 400 V (L-L) ±10 %
3 x 480 V (L-L) ±10 %

AC Input Configuration

AC input	
Voltage	3P+N+PE, 380VLL±10% (std)
Frequency	47-63Hz
Efficiency	≥85%
Power Factor	0.95
Output	
Output Modes	AC, DC, or AC+DC
Power Level	From15kVA to 90kVA in single cabinet. Max paralleled system power 500kVA.
Voltage Ranges	0~750V (L-N), voltage can be customized.
Output Voltage Load Regulation	0.2%FS
Output Voltage Line Regulation	0.1% (10% input line change)
AC Output	
Voltage Range (L-N)	0-300V (std), customized voltage up to 750V
Voltage Resolution	0.1V
Voltage Accuracy	0.5%FS
Voltage THD	<1% (Resistive Load)
Current Resolution	0.01A
Current Accuracy	0.3%FS
Frequency Range	DC -1000Hz (Std)
Frequency Resolution	0.01Hz (~100Hz), 0.05Hz (>100Hz)
Frequency Accuracy	0.01%+0.01Hz
Phase Angle Range	Phase B/C relative to phase A, 0.0~360.0°
Phase Angle Accuracy	<1.2° (@50Hz)
Harmonic Generation	Up to 40th
Voltage Slew Rate	5V/us
Power Accuracy	0.5%FS
Power Resolution	0.01kW
DC Output	
Voltage Range	0-550V (std), customized voltage up to 1125V
Voltage Accuracy	0.2%FS
Voltage Ripple	0.1%FS
Current Range	Max 25A per 15kVA module
Current Accuracy	0.1%FS
AC+DC Mode	Max Power, Voltage and Current are the same as DC Mode
Measurement	
AC Voltage Accuracy	0.5%FS
DC Voltage Accuracy	0.2%FS
AC Current Accuracy	0.3%FS
DC Current Accuracy	0.1%FS
Frequency Accuracy	0.01%+0.01Hz
Measurements	Current, Voltage, Power, Phase angle, Frequency, Waveform, Faults.

Others	
Protection	OVP, OCP, OTP
Regulatory	CE Conformity
Cooling	Forced Air Cooling
Temperature	Operating: 0~40℃ Storage: -20~85°C
Operating Humidity	20-90%RH (None Condensing)

Standard Models Specification

Model	EAC-4Q-KS 15	EAC-4Q-KS 45	EAC-4Q-KS 90
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

*other Power/Voltage Level can be offered. Please consult factory

* Constant Power output is available. Please consult factory