# ET System EAC-4Q-GS

## Bi-directional AC Source

- Single system from 30kVA to 500kVA and parallel up to 2MVA and above
- Bi-directional current flow, regenerative up to 100% of rated output power back to grid
- Independent three-phase output
- Up to 40th harmonic waveform generation
- Voltage drop simulation (LVRT for inverter test)
- Regenerative AC load function (-LD option )
- Voltage and frequency sequencing programming via GUI, slew rate can be programmed
- ON and OFF output phase angle can be programmed
- Current limit can be programmed, output can be shorted for short circuit test
- Triger out, TTL signal output for voltage or frequency change
- Extend output frequency to DC (-DC option)
- Add single phase output (-1P option)
- Standard support 4 master-slave control(-MS option)
- TFT touch screen based on Windows system, can run full functional software as PC
- LAN/RS485 interfaces (standard)
  RS232/Analog control interfaces (optional)
- Mod-bus/SCPI protocols
- Emergency stop button in the front panel
- Switchable insulation monitoring
- Output contactor
- Remote sense
- CE conformity
- Customized voltage, current and power ranges
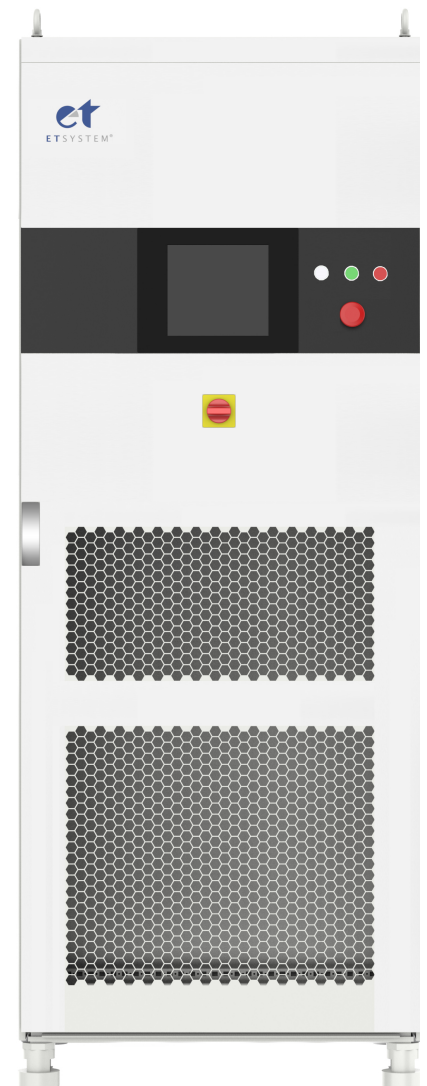
## ■ Re-generative AC Load -LD option

EAC-4Q-GS 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. Rectifier mode can be used to simulate non-linear loads, the CC/CP mode and CF 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 |
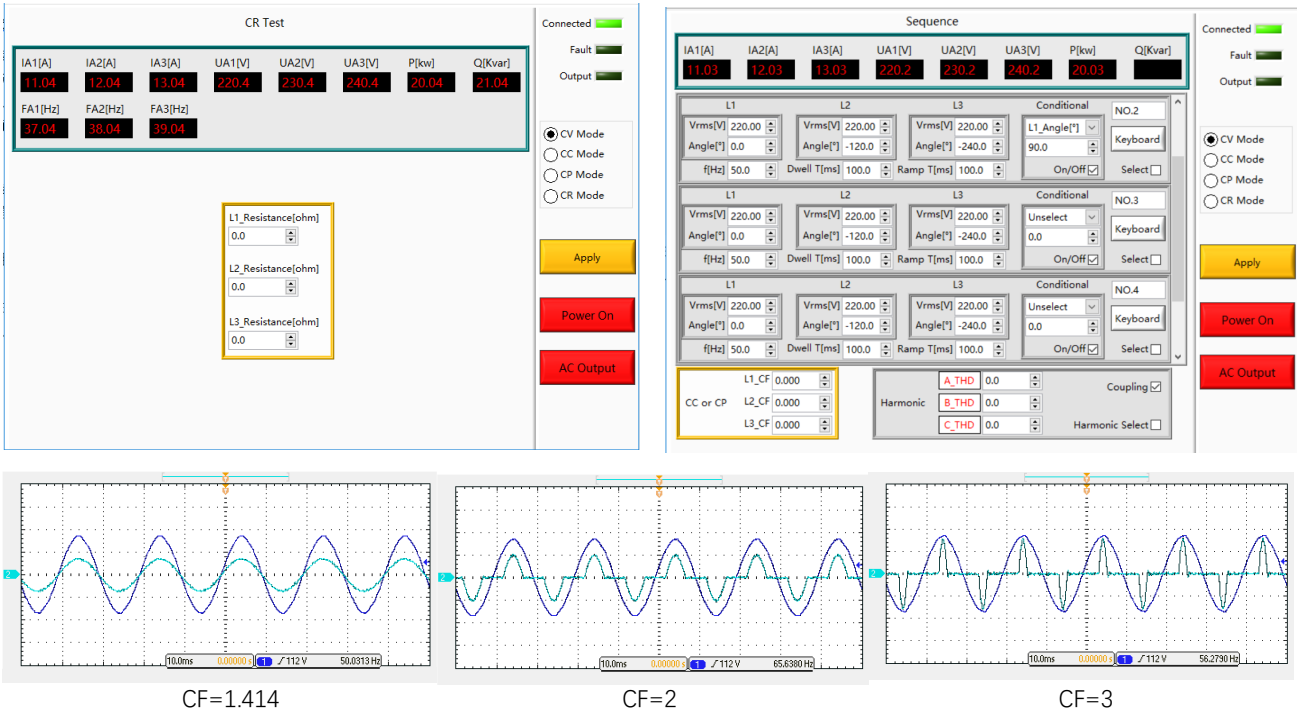
## ■ Extends to DC output  -DC option

EAC-4Q-GS can also be DC output, the frequency range will be DC~100Hz, in both source and sink modes. The DC voltage range is 420V (std), and accuracy is 0.2%FS. The output mode can be AC, DC, AC+DC.

## ■ Grid Simulation

EAC-4Q-GS series can be used as a grid simulator to 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-GS series have Various simulation functions, including: voltage and frequency fluctuations, voltage sags, low/zero voltage ride through, three-phase unbalance, harmonics and inter-harmonics. EAC-4Q-GS series provides standard software that can simulate various real-world power grid operating conditions and supports multiple parameter settings.

### Voltage/frequency sequence programming

Voltage and frequency sequence programming via GUI, and the output voltage, frequency, slew rate, ON and OFF output phase angle, dwell time, switching time can be programmed. Three-phase can be independently programmed.
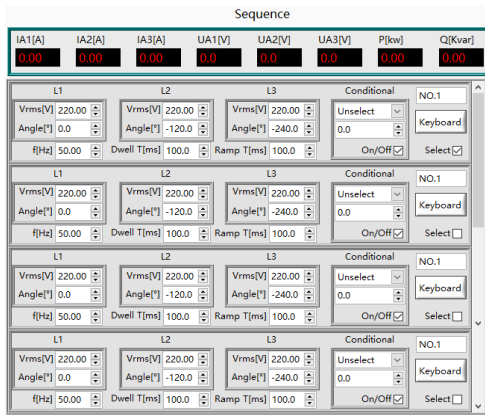
Sequence Programming
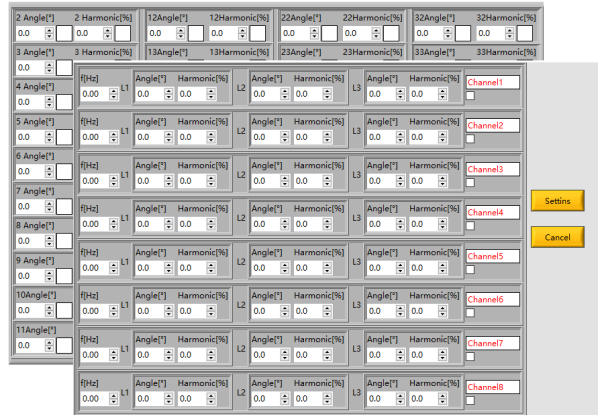


Harmonic/Inter-harmonic generation

## Harmonic and inter-harmonic waveforms

DSP+FPGA technology are use in EAC-4Q-GS series to generate up to 40th harmonic. And EAC-4Q-GS supports inter-harmonics editing. User can program the phase angle and amplitude of the harmonic through the GUI, allowing generate three-phase harmonic/inter-harmonic waveforms independently.
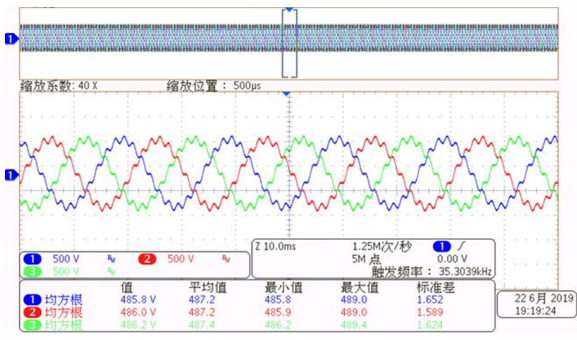

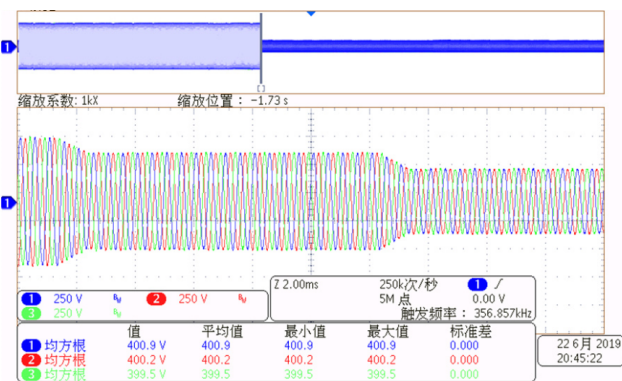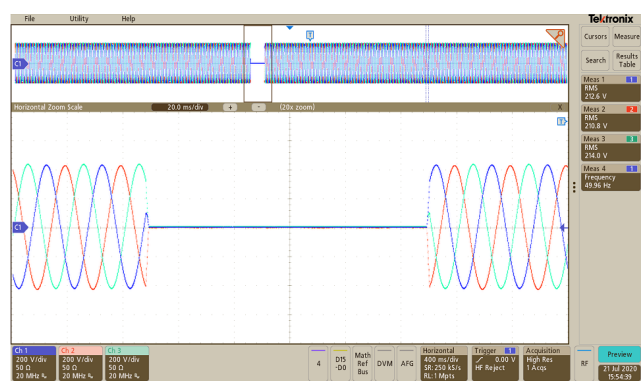
Harmonic waveform
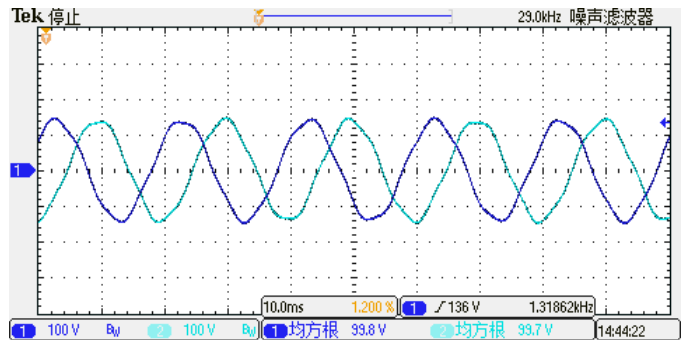


Interharmonic waveform

## Voltage drop simulation (LVRT for inverter test)

EAC-4Q-GS series provide firmware and software support for low/zero voltage ride through test for PV inverters.



Voltage drop



Zero voltage ride

## ■ Constant Power Output

Highly customizable Output Power, Voltage and Current is available with the EAC-4Q-GS Series. Please consult us with your required specification for a customized offer. The customization is basically standard with all our units. We provide with every quote the customized specification.



ESA 120-300-182
300V L-N, 182A/phase output
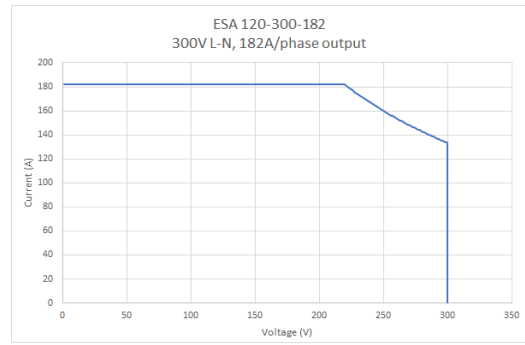
## ■ Graphical User Interface

GUI software is included, and 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
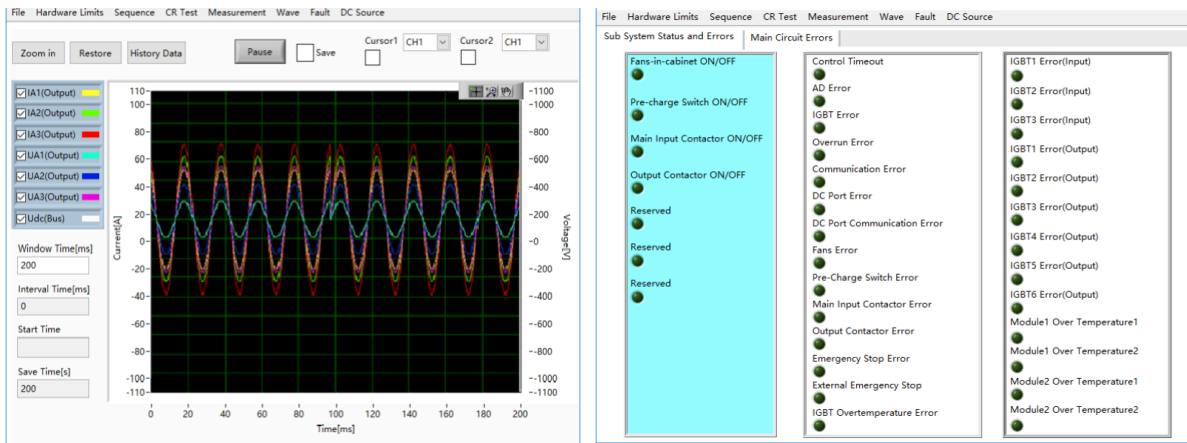


## ■ Model Configuration

| EAC-4Q-GS | AAA | -BBB | -CCC | -DDD | /EEE |
|---|---|---|---|---|---|
| Series Models | Power, kVA | Voltage(L-N), V | Current(per phase), A | Option | Input configuration |

## ■ Options

| | |
|---|---|
| -232 | RS232 program interface |
| -ATI | Analog control interface(0~5V) |
| -LD | Regenerative AC load function |
| -DC | Extend output frequency to DC-100Hz |
| -1P | Add single phase output |
| -MS | Master-Slave interface |
| -W | Use water-cooling |

## 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 %

## Specification

| Model | GS 30 | GS 60 | GS 120 | GS 250 | GS 500 Input |
|---|---|---|---|---|---|
| Voltage | 3P+N+PE, 380 VLL ±10 % | | | | |
| Frequency | 47 – 63 Hz | | | | |
| Efficiency | ≥90 % | | | | |
| Power Factor | 0.95 | | | | |
| Output Power | 30kVA | 60kVA | 120kVA | 250kVA | 500kVA |
| Output Voltage Range | 300V L-N（std），voltage can be customizde | | | | |
| Voltage Resolution | 0.1V | | | | |
| Voltage Accuracy | 0.5%FS | | | | |
| THD | <1%  (Resistive Load) | | | | |
| Load Regulation | 0.2%FS | | | | |
| Line Regulation | 0.1%FS | | | | |
| Output Current Range | 46A/ph | 91A/ph | 182A/ph | 379A/ph | 758A/ph |
| Current Resolution | 0.1A | | | | |
| Current Accuracy | 0.3%FS | | | | |
| Frequency range | 30~100Hz | | | | |
| Frequency Resolution | 0.01Hz | | | | |
| Frequency Accuracy | 0.01Hz | | | | |
| Phase output | Phase B/C relative to phase A, 0.0~360.0° | | | | |
| Phase Accuracy | <1.2° (@50 Hz) | | | | |
| Harmonic Generation | Up to 40$^{th}$ | | | | |
| Protection | OVP, OCP, OTP | | | | |
| Cooling | Forced Air Cooling | | | | |
| Regulatory | CE Conformity | | | | |
| Temperature | Operating: 0~40°C   Storage: -20~85°C | | | | |
| Operating Humidity | 20-90%RH (None Condensing) | | | | |
| Measurement | List of all type measurements done | | | | |
| Power Accuracy | 0.5%FS | | | | |
| AC Voltage Accuracy | 0.5%FS | | | | |
| AC Current Accuracy | 0.3%FS | | | | |
| Frequency Accuracy | 0.01Hz | | | | |
| Phase Accuracy | <1.2° (@50 Hz) | | | | |
| Dimension (W*D*H mm) | 800*800*1900 | 800*800*2200 | 2*800*800*2200 | 3*900*900*2000 | 2*3*900*900*2000 |
| Weight (kg) | <800 | <1000 | <1700 | <2500 | <5000 |

Note: 1.  Specifications are subject to change without notice.

2.  Specifications are warranted over an ambient temperature range of 25°± 5° C.

3.  Customized power/voltage/current output is available.