

# KAC Series Bidirectional Grid Simulator



- General/Step/Gradient mode
- Superposition of harmonics/inter-harmonics
- Voltage flicker simulation
- Three-phase imbalance
- High/Low voltage ride through

## Production Introduction

KAC Series is a high precision programmable grid simulator based on two-stage power conversion structure, with three-phase adjustable by each independently. It can simulate the disturbance from the grid such as voltage and frequency, as well as superposition of harmonics, low-voltage ride through, and flicker simulation. Ideal match for PV inverter, power conversion system, on-board charger, and wind power converter testing.

## Product Advantages

- Support parallel operation;
- Voltage response time:  $\leq 2\text{ms}$ ;
- Low THD  $\leq 1\%$  (linear load);
- Complete safety protection: OVP/OCP/OTP/OPP;
- Superior PF;
- High voltage/current precision;
- Standard communication interfaces: LAN/RS485.

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## Specifications

Models	Rated Power [kVA]	Rated Current* [A]	Rated Voltage* [V]	Frequency* [Hz]	Phase	Voltage Range* [V]
KAC-75-345-33	75	113	220	40-70	3 $\phi$ 4W	5-345
KAC-150-345-33		227	220			5-345
KAC-150-690-33	150	125	400	40-70	3 $\phi$ 4W	5-690
KAC-300-345-33		454	220			5-345
KAC-300-690-33	300	250	400	40-70	3 $\phi$ 4W	5-690
KAC-400-345-33		606	220			5-345
KAC-400-690-33	400	333	400	40-70	3 $\phi$ 4W	5-690
KAC-500-345-33		757	220			5-345
KAC-500-690-33	500	417	400	40-70	3 $\phi$ 4W	5-690
KAC-800-345-33		1212	220			5-345
KAC-800-690-33	800	667	400	40-70	3 $\phi$ 4W	5-690
KAC-1200-345-33		1818	220			5-345
KAC-1200-690-33	1200	1000	400	40-70	3 $\phi$ 4W	5-690
KAC-1500-345-33		2272	220			5-345
KAC-1500-690-33	1500	1250	400	40-70	3 $\phi$ 4W	5-690

NOTE: Rated Current/Voltage/Frequency\* can be customized.

Input Characteristics		Feedback Characteristics	
Phase	3 $\phi$ 3W + PE	Energy Recovery	Energy recovery is available in full power range.
Voltage	380V $\pm$ 15%	ITHD	$\leq 3\%$
Frequency	50Hz $\pm$ 5Hz	Power Factor	$\geq 0.99$

Functions	
Step Mode	Work step index: 100 sets, Voltage, frequency, and run time of each set can be edited.
Gradient Mode	Work step index: 100 sets, Voltage, frequency, and run time of each set can be edited.
Superposition of Harmonics	Each test can support 2-50 times of voltage harmonics superposition. Meet the NB/T32004-2018 standard.
Inter-harmonics	Inter-harmonics injection
Voltage Flicker	Meet the NB/T32004-2018 standard.
High/Low Voltage Ride Through	Available with multiple standards or customized standard.

Output Characteristics		
Voltage	Waveform	Standard sinusoidal wave
	Precision	$\pm 0.2\%$ FS (linear load)
	Display resolution	0.1V
	Load regulation	0.2% FS
	THD	$\leq 1\%$ (linear load)
Current	Response time	$\leq 2\text{ms}$ (10%-90%)
	Precision	(Frequency changes at the same time.)
	Display resolution	$\pm 0.5\%$ FS (linear load)
Frequency	Precision	0.1A
	Display resolution	$\pm 0.01\text{Hz}$
Phase	Regulation step	0.01Hz
	Regulation range	0.1°

Communication & Interfaces		Safety & Ambient Conditions	
Touch Screen	LCD	Insulation Resistance	$\geq 20\text{M}\Omega$ (500Vdc)
Remote Comms	RS485/LAN	Withstand Voltage	2000Vac (60s, no arcing/breakdown)
Others	Emergency stop/Fault signal	Protection Level	IP21 (Indoor)

Cooling	Fan cooling
Ambient Temperature	-10~40°C
Humidity	0-90%RH (Non-condensing at 25°C.)
Altitude	$\leq 2000\text{m}$

The amplitude, frequency, and position of each phase can be adjusted independently. Various operating modes: General/Step/Gradient/ Low-voltage ride through/Harmonics superposition etc.

Software Interfaces



Gradient Mode



Low-voltage Ride Through