

## Programmable AC Test Power Supply AN61(F) Series



### Product Introduction

The AN61(F) Series Programmable AC Test Power Supply adopts SPWM technology, digital processing technology and high-power switching power supply technology, and it can output AC, DC, and AC+DC power supply, providing precise power input for AC load, DC load, rectifier load, etc. With the ability to provide 3-4 times peak current, it is the best test instrument for measuring surge current and can set waveform switch-on and switch-off angles for testing surge current and output maintenance time. It can also set the rate of change of voltage and frequency to scan the range of power input specifications for the object to be tested. The power supply can simulate abnormal instantaneous rise, drop, short circuit, jitter and other phenomena in the power grid, and simulate distortion of the mains power waveform through harmonic or interharmonic overlay functions. It can also provide accurate and fast measurement of power parameters and harmonics. The AN61 Series Programmable AC Test Power Supply has excellent power output quality and is widely used in power electronics, military, aviation electronics, IEC standard tests and other industry laboratories and production lines.

The AN61(F) Series Programmable AC Test Power Supply has powerful programmable functions and can complete IEC61000-4-11 (pre-certification test)/4-13/4-14/4-28 regulatory immunity tests. In addition, with programmable output impedance, it can be combined with a power analyzer to achieve IEC 61000-3-2/-3-3 harmonic current limitation and flicker regulatory tests, making it the best choice for IEC regulatory tests.

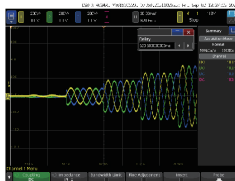
### Features

- It has advanced SPWM technology, DSP and FPGA digital processing technology and high-power switching power
- It has output modes include AC, DC, and AC+DC;
- It provides programmable output impedance for IEC61000-3-3 tests;
- It provides voltage and frequency variation tests for IEC61000-4-11, IEC61000-4-14, and IEC61000-4-28;
- It provides harmonic and sub-harmonic waveform synthesis tests for IEC61000-4-13;
- It provides high output peak current for ideal surge current testing;
- It has the pulse output function for voltage dip tests and simulating interference in actual grids;
- It has a step output function, and the step test mode provides a simple automatic switching function to change the output voltage, which changes in a step-like manner instead of gradually;
- It has the sequence output function and the output waveform in the sequence test mode is a combination of all configured serial numbers. Users can edit the required output voltage sequence based on their needs;
- It provides external analog signal input interface for power amplification of external input signals; (available in 615 and 618 Series only)
- It features an LCD, small size, and lightweight, meeting the requirements for standard cabinet installation;
- The 615 and 618 Series is equipped with RS232 communication interface as standard, with optional RS485, GPIB, and Ethernet communication interfaces;
- The AN619(F) Series is equipped with RS485 and Ethernet communication interfaces as standard, with optional RS232 and GPIB communication interfaces.

## Applications

### Analog power supply input interference

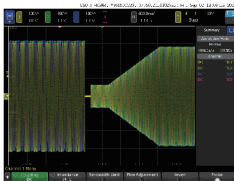
Through pulse, step, sequence, and other output modes, it can simulate arbitrary output waveforms in single-step or continuous mode, simulating grid fluctuations and interference for testing the DUT (device under test).



Step output waveform



Step output waveform



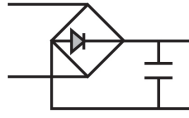
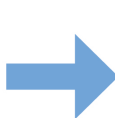
Sequence voltage variation test



Sequence Test Angle Trigger

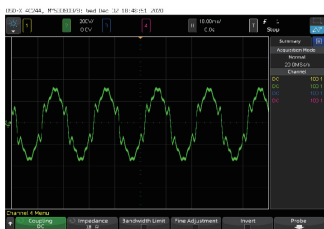
### Switching power supply surge current test

By setting startup and stop angles and providing up to 3-6 times peak current output capability through the output waveform, the AN61 Series Power Supply is an ideal device for testing switching power supply surge currents.

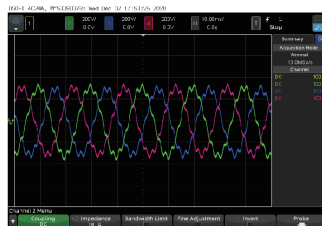
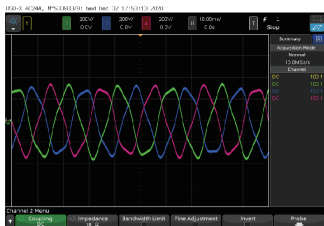


### Harmonic and interharmonic synthesis (available in 615 and 619 Series only)

Can superimpose 2-40 harmonics and interharmonics for more comprehensive harmonic simulation tests.



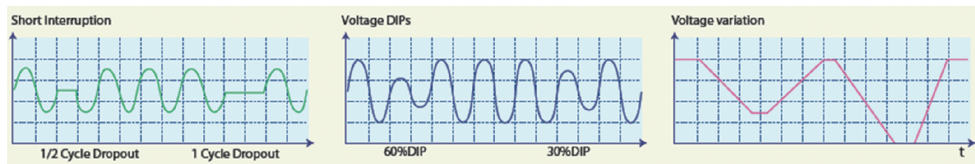
Harmonic output waveform



Interharmonic output waveform

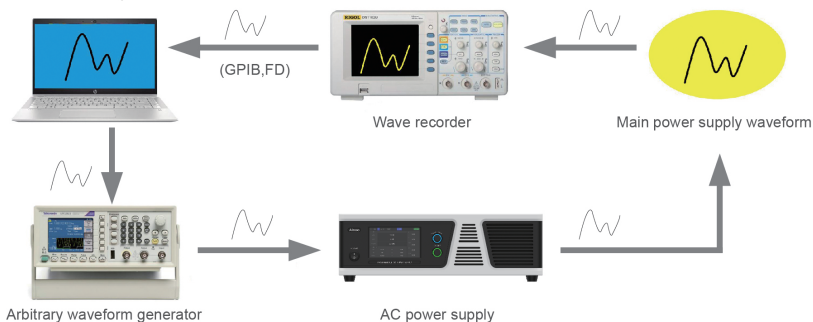
### IEC regulatory test

The power supply can output test voltages that meet IEC test conditions. The upper computer software also includes the test process for relevant IEC regulations, making it convenient for customers to quickly set up and use.

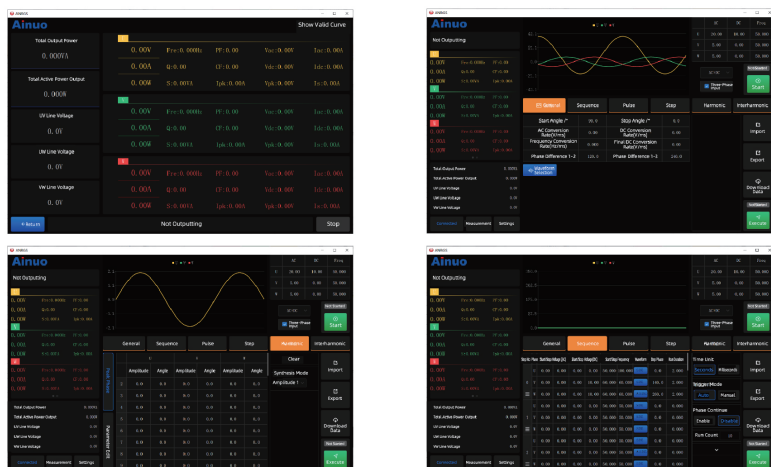


### Arbitrary waveform amplification (available in 615 and 618 Series only)

The AN61(F) Series Programmable AC Test Power Supply can amplify any waveform through an external port. Customers can record the actual waveform on-site using a waveform recorder; send it to the external port of the AN61 power supply for amplification using a waveform generator, thereby achieving a realistic simulation of using the actual on-site waveform to test the DUT (device under test).



### Computer control software



## Specifications

Model		AN615 00S-350(F)	AN615 01S-350(F)	AN615 02S-350(F)	AN615 04S-350(F)	AN615 06S-350(F)	AN618 00S-350(F)	AN618 01S-350(F)	AN618 02S-350(F)	AN618 04S-350(F)	AN618 06S-350(F)		
AC Input	Power supply capacity	500VA	1000VA	2000VA	4000VA	6000VA	500VA	1000VA	2000VA	4000VA	6000VA		
	Voltage	90 ~ 250V single-phase two-wire +PE			Phase Voltage: 198~250V 3-phase 4-wire +PE		90 ~ 250V single-phase two-wire +PE			Phase Voltage: 198~250V 3-phase 4-wire +PE			
	Current	8A Max @90V	16A Max @90V	28A Max @90V	18A Max @198V	25A Max @198V	8A Max @90V	16A Max @90V	28A Max @90V	18A Max @198V	25A Max @198V		
	Frequency	47 ~ 63Hz											
	Power factor <sup>#1</sup>	≥0.97			≥0.98		≥0.97			≥0.98			
AC Output	Phase number		Single-phase										
	Total Power		500VA	1000VA	2000VA	4000VA	6000VA	500VA	1000VA	2000VA	4000VA	6000VA	
	Voltage	Gear range	Low grade: 0.0 ~ 175.0V, High grade: 0.0 ~ 350.0V; Low gear/high gear/automatic gear										
		Resolution	0.01V										
		Accuracy	0.2%+0.2%F.S.										
		Distortion <sup>#2</sup>	0.3% <sup>@50/60Hz</sup> ; 1% <sup>@15 ~ 1000Hz</sup>										
		Source voltage effect <sup>#3</sup>	≤0.1%										
	Current /phase	Load effect <sup>#4</sup>	≤0.2%										
		Effective value range	0-175V	5A	10A	20A	40A	60A	5A	10A	20A	40A	60A
		Peak value range	0-350V	2.5A	5A	10A	20A	30A	2.5A	5A	10A	20A	30A
		Peak value range	0-175V	20A	40A	80A	160A	240A	20A	40A	80A	160A	240A
	Frequency	Range/Resolution /Accuracy	15 ~ 1000Hz, 0.001Hz, 0.15%										
DC Output	Power		250W	500W	1000W	2000W	3000W	250W	500W	1000W	2000W	3000W	
	Voltage	Gear range/Resolution/Accuracy	-247.5V~-247.5V, high gear: -495.00V~-495.00V; Low gear/high gear/automatic gear/0.01V/0.1%F.S.										
	Current	-247.5~-247.5V	2.5A	5A	10A	20A	30A	2.5A	5A	10A	20A	30A	
		-495.0~-495.0V	1.25A	2.5A	5A	10A	15A	1.25A	2.5A	5A	10A	15A	
Measure- ment accuracy	Voltage	Range/Resolution /Accuracy *5	AC: 350.00V, DC: 495.00V; 0.01V; 0.2%+0.2%F.S.										
	Current	Range	24A	48A	96A	160A	240A	24A	48A	96A	160A	240A	
		Resolution	0.01A										
		Effective value accuracy*6	0.4%+0.6%F.S.										
		Peak value accuracy*6	0.4%+0.6%F.S.										
	Power	Resolution/Accuracy *7	0.01W; 0.4%+0.6%F.S.										
Function	Display/Waveform selection		5-inch color touch screen LCD/Sine wave, square wave, clipped sine wave, 30 sets of built-in waveforms										
	Start-stop angle/Knob function/ Programmable output impedance		0-359.9°/Knob adjustment available for conventional mode voltage and frequency settings /0Ω+0μH ~ 1Ω+1mH										
	Harmonics		2~40 times					None					
	Harmonic and interharmonic simulation bandwidth		2400Hz					None					
	Sequence mode		100 steps with 9,999 loops. Voltage, frequency, and phase angle can be programmatically outputted										
	Pulse mode		9,999 loops. Cyclic changes in voltage amplitude, frequency, and angle/										
	Step mode		9,999 loops. Change the voltage frequency according to the set voltage and frequency step values										
	Online regulation function		Under the conventional mode, the output voltage and frequency can be adjusted online, and the waveform can be switched online										
	Line drop compensation/Communication interface		The device has Sense terminals that allow remote sampling compensation/RS232 (standard), RS485 (optional), GPIB (optional), and Ethernet (optional)										
Working environment	Remote control		Analog control port (standard)										
	Temperature/Humidity		0 ~ 40 ℃/30 ~ 90%RH										
	Efficiency *8 /Protection		≥92%/Input abnormality, bus overvoltage, output overvoltage and undervoltage, output overcurrent, output overload, and module overheating										
Shape	Height		3U			5U			3U			5U	
	Dimensions (W×H×D mm)		432×134×630			432×222×640			432×134×630			432×222×640	
	Weight (Kg)		≤21			≤40			≤21			≤40	



### Specifications

Model		AN61903S	AN61905S	AN61906S	AN61910S	AN61912S	AN61915S	AN61920S	
		-350(F)	-350(F)	-350(F)	-350(F)	-350(F)	-350(F)	-350(F)	
Power supply capacity		3000VA	5000VA	6000VA	10000VA	12000VA	15000VA	20000VA	
AC input	Voltage	Line voltage: 342V-480V; 3-phase 3-wire +PE							
	Current(@342V)	15A Max	22A Max	25A Max	39A Max	40A Max	50A Max	65A Max	
	Frequency	47~63Hz							
	Power factor <sup>#1</sup>	≥0.98							
AC Output	NPhase number	Single-phase	Single-phase	Single-phase	Single-phase	Single-phase	Single-phase	Single-phase	
	Power	3000VA	5000VA	6000VA	10000VA	12000VA	15000VA	20000VA	
	Voltage	Range	0.00~350.00V						
		Resolution	0.01V						
		Precision	0.1%F.S.						
		Distortion <sup>#2</sup>	0.3%@50/60Hz; 1%@30-100Hz						
		Source effect <sup>#3</sup>	≤0.02%						
		Load effect <sup>#4</sup>	≤0.02%						
	Current/phase	Effective value range	35A	35A	35A	60A	70A	120A	120A
		Peak value range	105A	105A	105A	180A	210A	360A	360A
	Frequency	Range	30.000~100.000Hz						
		Resolution	0.001Hz						
		Accuracy	0.01%						
	Power	Range	3000W	5000W	6000W	10000W	12000W	15000W	20000W
	DC output	Voltage	Range	3000W	5000W	6000W	10000W	12000W	15000W
Resolution			-495.00~-495.00V						
Accuracy			0.01V						
Current		Range	35A	35A	35A	60A	70A	120A	120A
Measur- ement acc- uracy	Voltage	Range	AC: 350V; DC: 495.00V						
		Resolution	0.01V						
		Accuracy <sup>*5</sup>	0.1%F.S.						
	Current	Range	35A	35A	35A	60A	70A	120A	120A
		Resolution	105A	105A	105A	180A	210A	360A	360A
		Effective value accuracy*6	0.01A						
		Peak value accuracy*6	0.2%F.S.						
	Power	Resolution	0.5%F.S.						
		Accuracy	0.01W						
		Accuracy <sup>*7</sup>	0.3%F.S.						
	Function	Display	5-inch color touch screen LCD						
		Waveform selection	Sine wave, triangle wave, square wave, clipped sine wave, 30 sets of built-in waveforms, and 6 sets of custom waveforms						
Start-stop angle		0-359.9°							
Knob function		Knob adjustment available for conventional mode voltage and frequency settings							
Parallel operation function		Can achieve parallel operation of multiple units							
Harmonics		2-50th							
Harmonic and interharmonic simulation bandwidth		3000Hz							
Sequence mode		200 steps with 9,999 loops. Voltage, frequency, and phase angle can be programmatically outputted							
Pulse mode		9,999 loops. Cyclic changes in voltage amplitude, frequency, and angle							
Step mode		9,999 loops. Change the voltage frequency according to the set voltage and frequency step values							
Online regulation		Under the conventional mode, the output voltage and frequency can be adjusted online, and the waveform can be switched online							
Line drop compensation		The device has Sense terminals that allow remote sampling compensation							
Working environmen	Communication interface	RS485 (standard), Ethernet (standard), synchronization signal (standard), RS232 (optional), GPIB (optional)							
	Remote control	None							
	Temperature	0~40℃							
	Humidity	30~90%RH							
Efficiency <sup>#8</sup>		≥92%							
Shape	Protection	Input abnormality, bus overvoltage, output overvoltage and undervoltage, output overcurrent, output overload, and module overheating							
	Height	432×175×700							
	Dimensions (W×H×D mm)	432×175×700	432×175×700	432×175×700	432×175×735	432×175×700	432×175×735	432×175×735	
	Weight (Kg)	≤25	≤25	≤25	≤26	≤35	≤38	≤38	

Any changes to the above parameter specifications will not be notified separately.

## Specifications

Model		AN61906A -350(F)	AN61909A -350(F)	AN61912A -350(F)	AN61915A 350(F)	AN61918A -350(F)	AN61920A -350(F)	AN61925A -350(F)	AN61930A 350(F)		
Power supply capacity		6000VA	9000VA	12000VA	15000VA	18000VA	20000VA	25000VA	30000VA		
AC input	Voltage	Line voltage: 342V-480V; 3-phase 3-wire +PE									
	Current(@342V)	20A Max	25A Max	30A Max	35A Max	40A Max	45A Max	55A Max	65A Max		
	Frequency	47-63Hz									
	Power factor <sup>#1</sup>	≥0.98									
AC Output	Phase number		Three-phase & single-phase								
	Power	Total power	6000VA	9000VA	12000VA	15000VA	18000VA	20000VA	25000VA	30000VA	
		Per phase power	2000VA	3000VA	4000VA	5000VA	6000VA	6667VA	8333VA	10000VA	
	Voltage	Range	0.00-350.00V								
		Resolution	0.01V								
		Precision	0.1%F.S.								
		Distortion <sup>#2</sup>	0.3% $\leq$ 50/60Hz; 1% $\leq$ 30-100Hz								
		Source effect <sup>#3</sup>	$\leq$ 0.02%								
		Load effect <sup>#4</sup>	$\leq$ 0.02%								
	Current/phase	Effective value range Three-phase mode	35A	35A	35A	35A	35A	60A	60A	60A	
		Effective value range Single-phase mode	105A	105A	105A	105A	105A	180A	180A	180A	
		Peak value range Three-phase mode	105A	105A	105A	105A	105A	180A	180A	180A	
		Peak value range Single-phase mode	315A	315A	315A	315A	315A	540A	540A	540A	
	Frequency	Range	30.000-100.000Hz								
Resolution		0.001Hz									
DC output	Power	Accuracy	0.01%								
		Total power	6000W	9000W	12000W	15000W	18000W	20000W	25000W	30000W	
	Power per channel	2000W	3000W	4000W	5000W	6000W	6667W	8333W	10000W		
	Voltage	Range	-495.00-495.00V								
		Resolution	0.01V								
		Accuracy	0.1%F.S.								
	Current	Range	35A	35A	35A	35A	35A	60A	60A	60A	
		Single channel Parallel connection	105A	105A	105A	105A	105A	180A	180A	180A	
	Measur- ement acc- uracy	Voltage	Range	AC: 350V; DC: 495.00V							
			Resolution	0.01V							
Accuracy <sup>#5</sup>			0.1%F.S.								
Current		Range	105A	105A	105A	105A	105A	180A	180A	180A	
		Effective value	315A	315A	315A	315A	315A	540A	540A	540A	
		Peak value	315A	315A	315A	315A	315A	540A	540A	540A	
		Resolution	0.01A								
Power		Effective value accuracy <sup>#6</sup>	0.2%F.S.								
		Peak value accuracy <sup>#6</sup>	0.5%F.S.								
		Resolution	0.01W								
Function	Accuracy <sup>#7</sup>		0.3%F.S.								
	Display		5-inch color touch screen LCD								
	Waveform selection		Sine wave, triangle wave, square wave, clipped sine wave, 30 sets of built-in waveforms, and 6 sets of custom waveforms								
	Start-stop angle		0-359.9°								
	Knob function		Knob adjustment available for conventional mode voltage and frequency settings								
	Parallel operation function		Can achieve parallel operation of multiple units								
	Harmonics		2-50 times								
	Harmonic and interharmonic simulation bandwidth		3000Hz								
	Sequence mode		200 steps with 9,999 loops. Voltage, frequency, and phase angle can be programmatically outputted								
	Pulse mode		9,999 loops. Cyclic changes in voltage amplitude, frequency, and angle								
	Step mode		9,999 loops. Change the voltage frequency according to the set voltage and frequency step values								
	Online regulation function		In Common mode, the output voltage/frequency can be adjusted online, and waveforms can be switched online								
	Line drop compensation		Under the conventional mode, the output voltage and frequency can be adjusted online, and the waveform can be switched online								
Working environment	Communication interface		RS485 (standard), Ethernet (standard), synchronous signal (standard), RS232 (optional) and GPIB (optional)								
	Remote control		None								
	Temperature		0-40℃								
	Humidity		30-90%RH								
Efficiency <sup>#8</sup>		≥92%									
Protection		Input abnormality, bus overvoltage, output overvoltage and undervoltage, output overcurrent, output overload, and module overheating									
Shape	Height	4U									
	Dimensions (W×H×D mm)	432×175×700 432×175×700 432×175×700 432×175×700 432×175×700 432×175×735 432×175×735 432×175×735 The width of 432mm is the standard 19-inch chassis size without handles, with handles the width is 480mm. The height of 175mm is without feet, with feet the height is 188mm. The feet are detachable. The depth of 700mm/735mm is the front and rear panel size excluding terminals and protective parts, the depth including terminals is 779mm/814mm.									
Weight (Kg)		≤45	≤45	≤45	≤45	≤45	≤52	≤52	≤52		

Any changes to the above parameter specifications will not be notified separately.

### Specifications

Model				AN61950B-350(F)	AN61960B-350(F)	AN61975B-350(F)	AN61990B-350(F)	AN619100B-350(F)	AN619120B-350(F)	
AC input	Power supply capacity			50kVA	60kVA	75kVA	90kVA	100kVA	120kVA	
	Voltage			Lin voltage: 342V-480V; 3-phase 3-wire +PE						
	Current(@342V)			110A Max	130A Max	165A Max	195A Max	220A Max	260A Max	
	Frequency			47 ~ 63Hz						
Power factor <sup>#1</sup>				≥0.98						
AC Output	Phase number			Three-phase& Single-Phase						
	Power	Total power		50kVA	60kVA	75kVA	90kVA	100kVA	120kVA	
		Per phase power		16.66kVA	20kVA	25kVA	30kVA	33.33kVA	40kVA	
	Voltage	Range		0.00 ~ 350.00V						
		Resolution		0.01V						
		Accuracy		0.1%F.S.						
		Distortion <sup>#2</sup>		0.3%@50/60Hz; 1%@30-100Hz						
		Source effect <sup>#3</sup>		≤0.02%						
		Load effect <sup>#4</sup>		≤0.02%						
	Current	Effective value range	Three-phase mode	120A	120A	180A	180A	240A	240A	
			Single-phase mode	360A	360A	540A	540A	720A	720A	
		Peak value range	Three-phase mode	360A	360A	540A	540A	720A	720A	
			Single-phase mode	1080A	1080A	1620A	1620A	2160A	2160A	
	Frequency	Range		30.000 ~ 100.000Hz						
		Resolution		0.001Hz						
		Accuracy		0.01%						
DC output	Power	Total power		50kW	60kW	75kW	90kW	100kW	120kW	
		Power per channel		16.66kW	20kW	25kW	30kW	33.33kW	40kW	
	Voltage	Range		-495.00V ~ -495.00V						
		Resolution		0.01V						
		Accuracy		0.1%F.S.						
	Current	Range	Single channel	120A	120A	180A	180A	240A	240A	
Parallel connection			360A	360A	540A	540A	720A	720A		
Measur- ement acc- uracy	Voltage	Range		AC: 350V; DC: 495.00V						
		Resolution		0.01V						
		Accuracy <sup>#5</sup>		0.1%F.S.						
	Current	Range	Effective value	360A	360A	540A	540A	720A	720A	
			Peak value	1080A	1080A	1620A	1620A	2160A	2160A	
		Resolution		0.01A						
		Effective value accuracy <sup>#6</sup>		0.2%F.S.						
	Peak value accuracy <sup>#6</sup>		0.5%F.S.							
	Power	Resolution		0.01W						
		Accuracy <sup>#7</sup>		0.3%F.S.						
	Function	Display			5-inch color touch screen LCD					
		Waveform selection			Sine wave, triangle wave, square wave, clipped sine wave, 30 sets of built-in waveforms, and 6 sets of custom waveforms					
Start-stop angle			0-359.9°							
Knob function			Knob adjustment available for conventional mode voltage and frequency settings							
Parallel operation function			None							
Harmonics			2-50th							
Harmonic and interharmonic simulation bandwidth			3000Hz							
Sequence mode			200 steps with 9,999 loops. Voltage, frequency, and phase angle can be programmatically outputted							
Pulse mode			9,999 loops. Cyclic changes in voltage amplitude, frequency, and angle							
Step mode			9,999 loops. Change the voltage frequency according to the set voltage and frequency step values							
Online regulation function			Under the conventional mode, the output voltage and frequency can be adjusted online, and the waveform can be switched online							
Lead drop compensation			The device has Sense terminals that allow remote sampling compensation							
Communication interface			RS485 (standard), Ethernet (standard), synchronous signal (standard), RS232 (optional) and GPIB (optional)							
Remote control			None							
Working environment	Temperature			0 ~ 40 °C						
	Humidity			30 ~ 90%RH						
Efficiency <sup>#8</sup>				≥92%						
Protection				Input abnormality, bus overvoltage, output overvoltage and undervoltage, output overcurrent, output overload, and module overheating						
Shape	Dimensions (W×H×D mm)			600x1,230 (the height with casters is 118)x 1,000						
	Weight (Kg)			≤330	≤330	≤380	≤380	≤440	≤440	

Any changes to the above parameter specifications will not be notified separately.

**Notes:**

- #1. Power factor is the measurement result of resistive load at rated power with input rated voltage of 380VLL and output usage;
- #2. Distortion is the measurement result of resistive load at rated power with an output voltage of 250V;
- #3. Source effect is calculated by the measured output voltage under two conditions: input rated voltages of 380VLL and 420VLL during no-load;
- #4. Load effect is calculated by the measured output voltage under no-load and the output measurement at rated power using a resistive load with an output voltage of 250V;
- #5. The FS appearing in parameters related to AC voltage and DC voltage in the parameter table refers to the corresponding AC and DC maximum output voltage values of the voltage measurement range of the corresponding model machine.
- #6. The FS appearing in parameters related to current in the parameter table refers to the maximum measured current effective value and peak value of the current measurement range of the corresponding model machine.
- #7. The FS appearing in parameters related to power in the parameter table refers to the maximum measured power value of the corresponding model machine;
- #8. The efficiency is the measurement result of resistive load measured at rated power with input voltage set at the input rated voltage of 380VLL and output voltage at 250V;
- Any changes to the above parameter specifications will not be notified separately. The power supply parameters at the time of shipment shall prevail.