ANRAL(F) Series Regenerative AC Electronic Load



Product Features

- It has functions of Constant Current/Constant Resistance/Constant Active Power/Constant Apparent Power/RLC Analog Circuit Load/PQ Mode etc.;
- The RLC mode supports various linear network models and nonlinear network models, and the PQ mode enables islanding protection characteristic tests;
- Load parameters support online adjustment, allowing for the switching of different load characteristics during operation;
- It has a 5-inch LCD, which is small in size, light in weight and 4U in height, meeting the installation requirements of standard cabinets.
- It is equipped with RS485 and Ethernet communication interfaces as standard, with optional RS232, GPIB, and CAN communication interfaces;
- The load is set with CF and PF values, to simulate various types of loads.

Product Overview

The ANRAL(F) series regenerative AC electronic load adopts advanced SPWM technology, FPGA digital processing technology, and high-power switching power supply technology. It can absorb full rated capacity energy and perform high-efficiency grid feedback, reducing energy consumption. It also has functions such as constant current, constant resistance, constant power, PQ and RLC analog circuit load. The ANRAL Series Regenerative AC Electronic Load adopts advanced SPWM technology with excellent power regeneration quality, widely used in laboratories and production lines in the photovoltaic, new energy vehicle, and other industries.

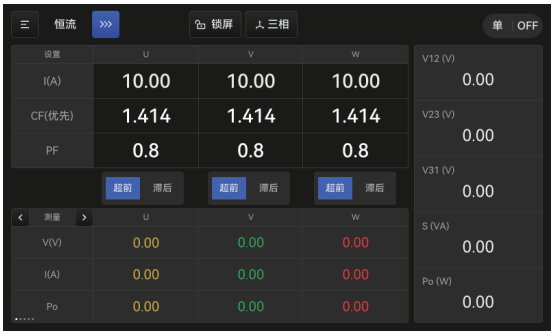
Selection List

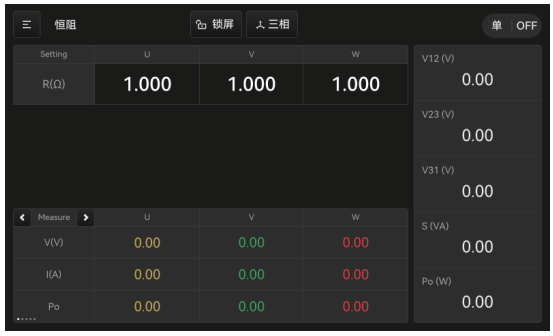
Product Model	Total Unit Power	Output Phase Number	AC Voltage	Frequency	Per-phase Current	Dimension(W*H*D mm)
ANRAL002S-450(F)	2kVA	Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL003S-450(F)	3kVA	Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL005S-450(F)	5kVA	Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL006S-450(F)	6kVA	Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL010S-450(F)	10kVA	Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	60A	432*175*735
ANRAL012S-450(F)	12kVA	Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	70A	432*175*735
ANRAL015S-450(F)	15kVA	Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	120A	432*175*735
ANRAL020S-450(F)	20kVA	Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	120A	432*175*735
ANRAL003A-450(F)	3kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL006A-450(F)	6kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL009A-450(F)	9kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL012A-450(F)	12kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL015A-450(F)	15kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL018A-450(F)	18kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	35A	432*175*735
ANRAL020A-450(F)	20kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	60A	432*175*735
ANRAL025A-450(F)	25kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	60A	432*175*735
ANRAL030A-450(F)	30kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	60A	432*175*735
ANRAL050B-450(F)	50kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	120A	600*1230*1000
ANRAL060B-450(F)	60kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	120A	600*1230*1000
ANRAL075B-450(F)	75kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	180A	600*1230*1000
ANRAL090B-450(F)	90kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	180A	600*1230*1000
ANRAL100B-450(F)	100kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	240A	600*1230*1000
ANRAL120B-450(F)	120kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	240A	600*1230*1000
ANRAL150B-450(F)	150kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	300A	600*1590*1000
ANRAL180B-450(F)	180kVA	Three-phase & Single-phase	0 ~ 450.00V	30.000 ~ 200.000Hz	360A	600*1590*1000

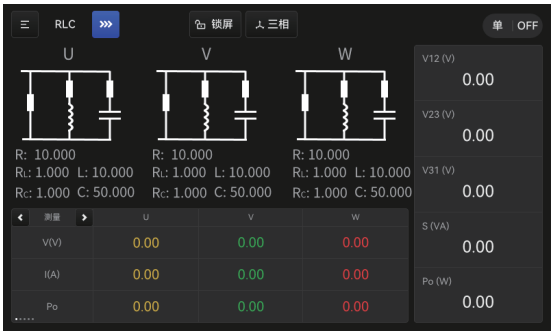
*The above specifications are subject to change without notice.

Operation:

- 5-inch color capacitive touch screen, allows setting of various mode parameters; buttons responsible for start and stop of conventional modes, simple and convenient operation







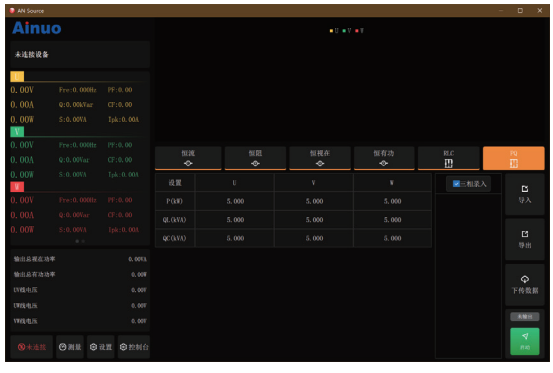


- Host computer: It is equipped with the standard host computer software, with a graphical user interface for convenient and efficient operation.

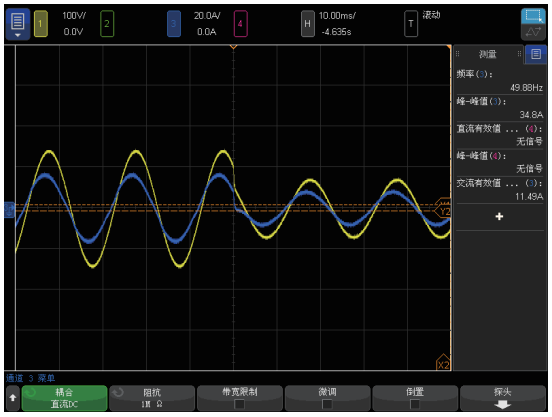




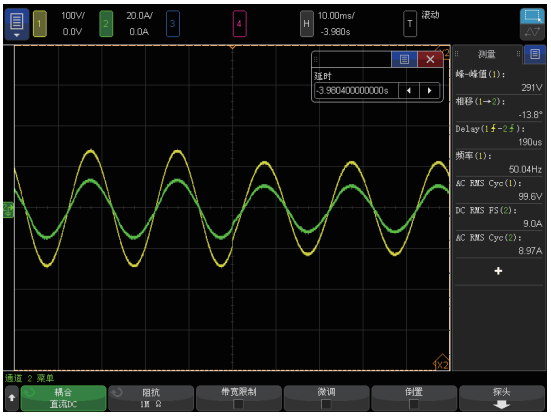




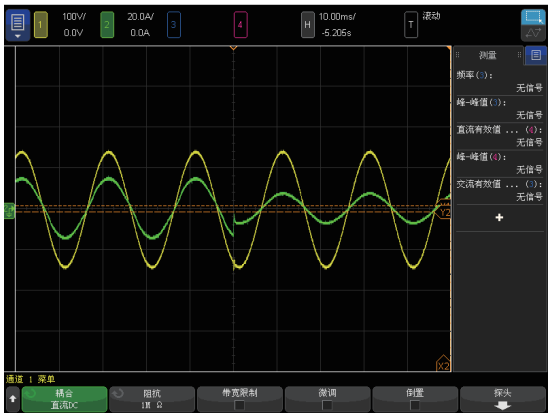
Product Application /



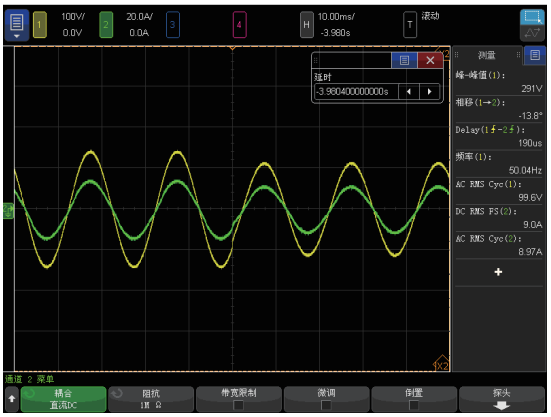
RLC Mode



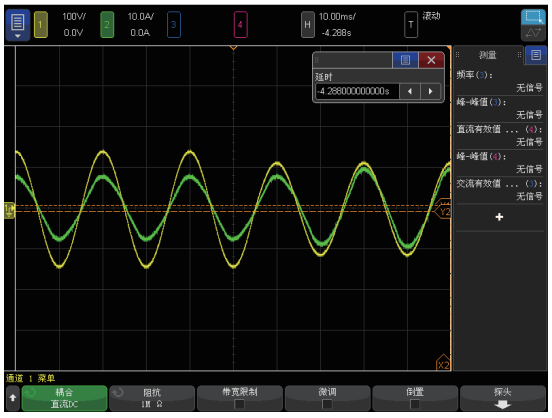
Changing Voltage in Constant Current Mode



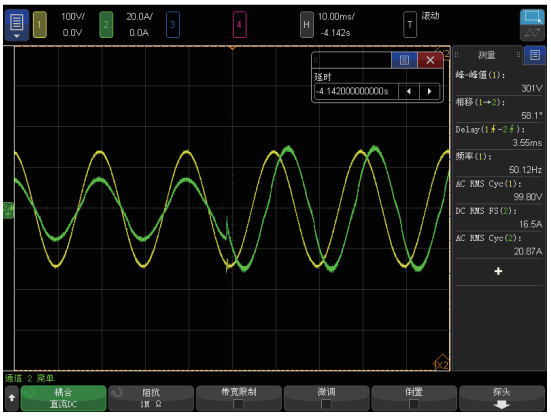
Modifying Resistance Value Online in Constant Resistance Mode



Changing Voltage in Constant Current Mode



Changing Voltage in Constant Power Mode



Changing Load Angle in Constant Power Mode

Technical Specifications (single-phase standalone)

Product Model			ANRAL002S -450(F)	ANRAL003S -450(F)	ANRAL005S -450(F)	ANRAL006S -450(F)	ANRAL010S -450(F)	ANRAL012S -450(F)	ANRAL015S -450(F)	ANRAL020S -450(F)
Capacity			2kVA	3kVA	5kVA	6kVA	10kVA	12kVA	15kVA	20kVA
AC Supply	Voltage		Line voltage: 342V-480V; 3-phase 3-wire+ PE							
	Frequency		47～63Hz							
Operating Load Input	Voltage Range		30-450V							
	Current Range (Effective Value)		35A	35A	35A	35A	60A	70A	120A	120A
	Current Range Current (Peak Value)		105A	105A	105A	105A	180A	210A	360A	360A
	Frequency Range		30～200Hz							
CC/Constant Current Mode	Current	Setting Range	0-35A	0-35A	0-35A	0-35A	0-60A	0-70A	0-120A	0-120A
		Resolution	0.01A							
		Setting Accuracy*5	0.1%+0.2%F.S.							
	Crest Factor CF	Scope	1.414-3.000							
		Resolution	0.001							
	Power Factor PF	Scope	0.1-1.00							
		Resolution	0.01							
CP Constant Active Power Mode	Current	Scope	0-2kW	0-3kW	0-5kW	0-6kW	0-10kW	0-12kW	0-15kW	0-20kW
		Resolution	0.01W							
		Setting Accuracy*5	0.3%+0.3%F.S.							
	Crest Factor CF	Scope	1.414-3.000							
		Resolution	0.001							
	Power Factor PF	Scope	0.1-1.00							
		Resolution	0.01							
CS Constant Apparent Power Mode	Current	Scope	0-2kVA	0-3kVA	0-5kVA	0-6kVA	0-10kVA	0-12kVA	0-15kVA	0-20kVA
		Resolution	0.01VA							
		Setting Accuracy*5	0.3%+0.3%F.S.							
	Crest Factor CF	Scope	1.414-3.000							
		Resolution	0.001							
	Power Factor PF	Scope	0.1-1.00							
		Resolution	0.01							
CR Constant Resistance Mode	Resistance	Scope	1Ω-1200Ω							
		Resolution	0.001Ω							
		Setting Accuracy*5	0.3%+0.4%F.S.（1-150Ω）							
RLC Mode	Resistance R	Scope	1Ω-1200Ω							
		Resolution	0.001Ω							
	Inductance L	Scope	0.1-5000mH							
		Resolution	0.001mH							
	Capacitance C	Scope	0.001-5000μF							
		Resolution	0.001μF							
	Resistance RL	Scope	0Ω-1200Ω							
		Resolution	0.001Ω							
	Resistance RC	Scope	0Ω-1200Ω							
		Resolution	0.001Ω							
Measurement Accuracy	Voltage	Scope	AC：450.00V							
		Resolution	0.01V							
		Accuracy	0.1%F.S.							
	Current	Range RMS Value	35A	35A	35A	35A	60A	70A	120A	120A
		Range Peak Value	105A	105A	105A	105A	180A	210A	360A	360A
		Resolution	0.01A							
		RMS Accuracy	0.1%+0.2%F.S.							
		Peak Accuracy	0.3%+0.6%F.S.							
	Power	Range	6kVA	6kVA	6kVA	6kVA	10kVA	12kVA	20kVA	20kVA
		Resolution	0.01W							
		Active Power Accuracy	0.3%+0.3%F.S.							
		Apparent Power Accuracy	0.3%+0.3%F.S.							
Function	Display		5-inch color touch screen LCD							
	Parallel Operation*6		Can achieve parallel operation of multiple units							
	Online Regulation Function		Load parameters can be adjusted online in conventional mode							
	Communication Interface		RS485 (standard), Ethernet (standard), synchronous signal (standard), RS232 (optional) and GPIB (optional)							
Working Environment	Temperature		0～40℃							
	Humidity		30～90%RH							
Efficiency			≥90%							
Protection			Input abnormality, output overvoltage, output overcurrent, output short circuit, output overload, and module overheating							
Shape	Height		4U							
	Dimension (W*H*D mm)		432*175*735	432*175*735	432*175*735	432*175*735	432*175*775	432*175*735	432*175*775	432*175*775
			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 735mm/775mm is the front and rear panel size excluding terminals and protective parts, including terminals the depth is 814mm/854mm.							
Weight			≤25Kg	≤25Kg	≤25Kg	≤25Kg	≤26Kg	≤38Kg	≤38Kg	≤38Kg

*The above specifications are subject to change without notice.

Ainuo Electronic Load Product Series

Technical Specifications (single three-phase standalone) /

Product Model			ANRAL003A -450(F)	ANRAL006A -450(F)	ANRAL009A -450(F)	ANRAL012A -450(F)	ANRAL015A -450(F)	ANRAL018A -450(F)	ANRAL020A -450(F)	ANRAL025A -450(F)	ANRAL030A -450(F)
Capacity			3kVA	6kVA	9kVA	12kVA	15kVA	18kVA	20kVA	25kVA	30kVA
AC Supply	Voltage		Line voltage: 342V-480V; 3-phase 3-wire+ PE								
	Frequency		47 ~ 63Hz								
Operating Load Input (Per Phase)	Voltage Range		30-450V								
	Current Range (Effective Value)		35A	35A	35A	35A	35A	35A	60A	60A	60A
	Current Range Current (Peak Value)		105A	105A	105A	105A	105A	105A	180A	180A	180A
	Frequency Range		30 ~ 200Hz								
CC/Constant Current Mode (Per Phase)	Current	Setting Range	0-35A	0-35A	0-35A	0-35A	0-35A	0-35A	0-60A	0-60A	0-60A
		Resolution	0.01A								
		Setting Accuracy*5	0.1%+0.2%F.S.								
	Crest Factor CF	Scope	1.414-3.000								
		Resolution	0.001								
	Power Factor PF	Scope	0.1-1.00								
		Resolution	0.01								
CP Constant Active Power Mode (Per Phase)	Current	Scope	0-1kW	0-2kW	0-3kW	0-4kW	0-5kW	0-6kW	0-6.6kW	0-8.3kW	0-10kW
		Resolution	0.01W								
		Setting Accuracy*5	0.3%+0.3%F.S.								
	Crest Factor CF	Scope	1.414-3.000								
		Resolution	0.001								
	Power Factor PF	Scope	0.1-1.00								
		Resolution	0.01								
CS Constant Apparent Power Mode (Per Phase)	Current	Scope	0-1kVA	0-2kVA	0-3kVA	0-4kVA	0-5kVA	0-6kVA	0-6.6kVA	0-8.3kVA	0-10kVA
		Resolution	0.01VA								
		Setting Accuracy*5	0.3%+0.3%F.S.								
	Crest Factor CF	Scope	1.414-3.000								
		Resolution	0.001								
	Power Factor PF	Scope	0.1-1.00								
		Resolution	0.01								
CR Constant Resistance Mode (Per Phase)	Resistance	Scope	1Ω-1200Ω								
		Resolution	0.001Ω								
		Setting Accuracy*5	0.3%+0.4%F.S. (1-150Ω)								
RLC Mode (Per Phase)	Resistance R	Scope	1Ω-1200Ω								
		Resolution	0.001Ω								
	Inductance L	Scope	0.1-5000mH								
		Resolution	0.001mH								
	Capacitance C	Scope	0.001-5000μF								
		Resolution	0.001μF								
	Resistance RL	Scope	0Ω-1200Ω								
		Resolution	0.001Ω								
	Resistance RC	Scope	0Ω-1200Ω								
		Resolution	0.001Ω								
Measurement Accuracy	Voltage	Scope	AC: 450.00V								
		Resolution	0.01V								
		Accuracy	0.1%F.S.								
	Current	Range RMS Value	105A	105A	105A	105A	105A	105A	180A	180A	180A
		Range Peak Value	315A	315A	315A	315A	315A	315A	540A	540A	540A
		Resolution	0.01A								
		RMS Accuracy	0.1%+0.2%F.S.								
		Peak Accuracy	0.3%+0.6%F.S.								
	Power	Range	18kVA	18kVA	18kVA	18kVA	18kVA	18kVA	30kVA	30kVA	30kVA
		Resolution	0.01W								
		Active Power Accuracy	0.3%+0.3%F.S.								
		Apparent Power Accuracy	0.3%+0.3%F.S.								
Function	Display		5-inch color touch screen LCD								
	Parallel Operation*6		Can achieve parallel operation of multiple units								
	Online Regulation Function		Load parameters can be adjusted online in conventional mode								
	Communication Interface		RS485 (standard), Ethernet (standard), synchronous signal (standard), RS232 (optional) and GPIB (optional)								
Working Environment	Temperature		0 ~ 40℃								
	Humidity		30 ~ 90%RH								
Efficiency			≥90%								
Protection			Input abnormality, output overvoltage, output overcurrent, output short circuit, output overload, and module overheating								
Shape	Height		4U								
	Dimension (W*H*D mm)		432*175*735	432*175*735	432*175*735	432*175*735	432*175*735	432*175*735	432*175*775	432*175*775	432*175*775
			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 735mm/775mm is the front and rear panel size excluding terminals and protective parts, including terminals the depth is 814mm/854mm.								
Weight			≤45Kg	≤45Kg	≤45Kg	≤45Kg	≤45Kg	≤45Kg	≤52Kg	≤52Kg	≤52Kg

*The above specifications are subject to change without notice.

Technical Specifications (cabinet) /

Product Model			ANRAL50B -450(F)	ANRAL60B -450(F)	ANRAL75B -450(F)	ANRAL90B -450(F)	ANRAL100B -450(F)	ANRAL120B -450(F)	ANRAL150B -450(F)	ANRAL180B -450(F)
Capacity			50kVA	60kVA	75kVA	90kVA	100kVA	120kVA	150kVA	180kVA
AC Supply	Voltage		Line voltage: 342V-480V; 3-phase 3-wire+ PE							
	Frequency		47 ~ 63Hz							
Operating Load Input (Per Phase)	Voltage Range		30-450V							
	Current Range (Effective Value)		120A	120A	180A	180A	240A	240A	300A	360A
	Current Range Current (Peak Value)		360A	360A	540A	540A	720A	720A	900A	1080A
	Frequency Range		30 ~ 200Hz							
CC/Constant Current Mode (Per Phase)	Current	Setting Range	0-120A	0-120A	0-180A	0-180A	0-240A	0-240A	0-300A	0-360A
		Resolution	0.01A							
		Setting Accuracy*5	0.1%+0.2%F.S.							
	Crest Factor CF	Scope	1.414-3.000							
		Resolution	0.001							
	Power Factor PF	Scope	0.1-1.00							
		Resolution	0.01							
CP Constant Active Power Mode (Per Phase)	Current	Scope	0-16.6kW	0-20kW	0-25kW	0-30kW	0-33.3kW	0-40kW	0-50kW	0-60kW
		Resolution	0.01W							
		Setting Accuracy*5	0.3%+0.3%F.S.							
	Crest Factor CF	Scope	1.414-3.000							
		Resolution	0.001							
	Power Factor PF	Scope	0.1-1.00							
		Resolution	0.01							
CS Constant Apparent Power Mode (Per Phase)	Current	Scope	0-16.6kVA	0-20kVA	0-25kVA	0-30kVA	0-33.3kVA	0-40kVA	0-50kVA	0-60kVA
		Resolution	0.01VA							
		Setting Accuracy*5	0.3%+0.3%F.S.							
	Crest Factor CF	Scope	1.414-3.000							
		Resolution	0.001							
	Power Factor PF	Scope	0.1-1.00							
		Resolution	0.01							
CR Constant Resistance Mode (Per Phase)	Resistance	Scope	1Ω-1200Ω							
		Resolution	0.001Ω							
		Setting Accuracy*5	0.3%+0.4%F.S. (1-150Ω)							
RLC Mode (Per Phase)	Resistance R	Scope	1Ω-1200Ω							
		Resolution	0.001Ω							
	Inductance L	Scope	0.1-5000mH							
		Resolution	0.001mH							
	Capacitance C	Scope	0.001-5000μF							
		Resolution	0.001μF							
	Resistance RL	Scope	0Ω-1200Ω							
		Resolution	0.001Ω							
	Resistance RC	Scope	0Ω-1200Ω							
		Resolution	0.001Ω							
Measurement Accuracy	Voltage	Scope	AC: 450.00V							
		Resolution	0.01V							
		Accuracy	0.1%F.S.							
	Current	Range RMS Value	360A	360A	540A	540A	720A	720A	900A	1080A
		Range Peak Value	1080A	1080A	1620A	1620A	2160A	2160A	2700A	3240A
		Resolution	0.01A							
		RMS Accuracy	0.1%+0.2%F.S.							
		Peak Accuracy	0.3%+0.6%F.S.							
	Power	Range	50kVA	60kVA	75kVA	90kVA	100kVA	120kVA	150kVA	180kVA
		Resolution	0.01W							
		Active Power Accuracy	0.3%+0.3%F.S.							
		Apparent Power Accuracy	0.3%+0.3%F.S.							
Function	Display		5-inch color touch screen LCD							
	Parallel Operation*6		Can achieve parallel operation of multiple units							
	Online Regulation Function		Load parameters can be adjusted online in conventional mode							
	Communication Interface		RS485 (standard), Ethernet (standard), synchronous signal (standard), RS232 (optional) and GPIB (optional)							
Working Environment	Temperature		0 ~ 40℃							
	Humidity		30 ~ 90%RH							
Efficiency			≥90%							
Protection			Input abnormality, output overvoltage, output overcurrent, output short circuit, output overload, and module overheating							
Dimension(W*H*D mm)			600*1,230 (the height with casters is 118)*1,000						600*1590 (the height with casters is 118)*1000	
Weight			≤330Kg	≤330Kg	≤380Kg	≤380Kg	≤440Kg	≤440Kg	≤500Kg	≤560Kg

Note* 1: 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.
*2. 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.
*3. The FS appearing in parameters related to power in the parameter table refers to the maximum measured power value of the corresponding model machine;
*4. 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;
*5.All accuracy values in the parameter table are measured under stable operation with an AC input of 160V;
*6.Parallel units shall be tested with the remote measurement mode activated.
Any changes to the above parameter specifications will not be notified separately. The load parameters at the time of shipment shall prevail.