ANBPS(F) Series Bipolar Power Supply



Product Overview

The Four-Quadrant Bipolar Power Supply ANBPS(F) Series employs advanced technology combining switching power supply and linear power amplifier technologies. It integrates the functions of both DC source load and high-frequency AC power supply, featuring three output modes: DC, DC+AC, and AC. It is capable of measuring voltage, current, and other parameters, while supporting sequence, synchronous trigger, parallel operation, and external analog input functions. It ensures reliable and stable power supply operation through multiple protection functions such as overvoltage, overcurrent, and overtemperature. Its superior programming feature, combined with high bandwidth and fast response characteristics, provides efficient and precise power supply variation test solutions for vehicle-mounted and airborne electrical equipment.

Relevant automotive electrical and electronic performance standards:

(1)ISO16750-2: Road Vehicles–Environmental Conditions and Testing for Electrical and Electronic Equipment–Part 2: Electrical Loads
(2)GB/T28046-2: Road Vehicles–Environmental Conditions and Testing for Electrical and Electronic Equipment–Part 2: Electrical Loads
(3) ISO 21780:2020 Road vehicles – 48 V supply voltage – Electrical requirements and tests
(4)FMC1278: Electromagnetic Compatibility Specification For Low and High Voltage Electrical/Electronic Components and Subsystems
(5)VW80000: Electrical and Electronic Components in Motor Vehicles up to 3.5t–Test Objectives, Conditions, and Requirements
(6)LV124: Electrical and Electronic Components in Motor Vehicles up to 3.5t–Test Objectives, Conditions, and Requirements

Product Features

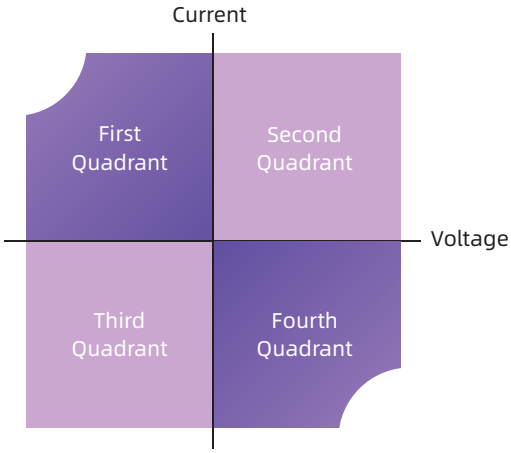
- **High power per unit:** A single unit (3U full width) can output a maximum power of 800W.
- **Short rise time:** No-load or full-load rise time is 3.5μs.
- **Low output noise:** Output noise is less than 8mVrms.
- **Wide bandwidth:** Under full-load rated resistive conditions, it can output the rated voltage from 0 to 100kHz (-3dB).
- **Powerful waveform generation:** Includes sine wave, triangular wave, square wave, along with 16 user-defined waveforms and 16 built-in waveforms.Combined with program and script programming modes, it can generate any test waveforms.

Product Functions

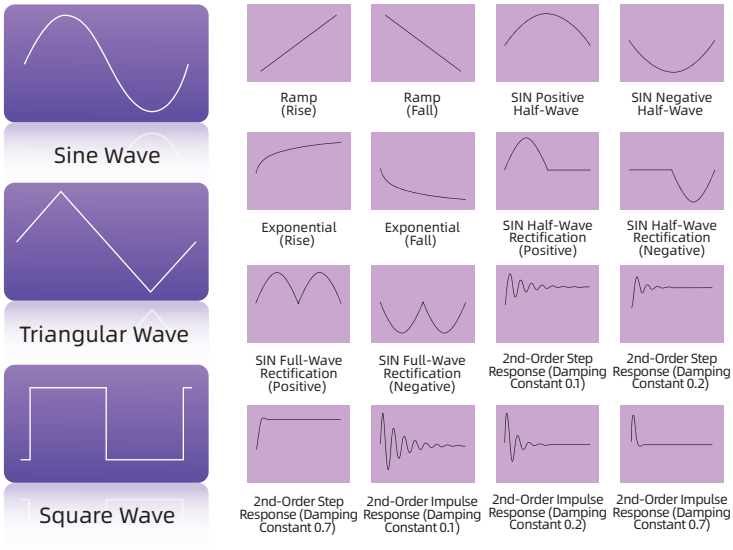
- **Four-quadrant operation:** Positive voltage positive current (first quadrant), negative voltage positive current (second quadrant), negative voltage and negative current (third quadrant), positive voltage and negative current (fourth quadrant).
- **Diverse output modes:** Three output modes, including AC output, DC output, and AC+DC output, each capable of operating in CC and CV modes.
- **Adjustable response time function:** The voltage response speeds are 3.5μs, 10μs, 35μs, and 130μs respectively; the current response speeds are 130μs, 190μs, 700μs, and 2ms respectively.
- **Comprehensive measurement functions:** It is equipped with robust measurement functions, providing DC, AC, and DC+AC measurements.
- **Powerful waveform editing function:** It is equipped with waveform editing function, allowing selection from sine wave, triangular wave, square wave, 16 built-in waveforms, and 16 user-defined waveforms.
- **Soft start/stop control:** When enabling/disabling the power output, the time for the output value to rise from zero/setting value to the setting value/zero is adjustable, with a setting range of 0.02ms to 1000s.
- **High precision output control:** It allows fine adjustment of DC voltage/current, with a voltage input range of -2.0000 to 2.0000V and a current input range of -0.5000 to 0.5000A.
- **S-terminal measurement compensation function:** It enables remote voltage sampling for line compensation.
- **Power amplifier function:** It provides power amplification of external input signals according to the set gain.
- **Parallel operation function:** It enables parallel output, supporting up to 10 units in parallel, with the function and performance after paralleling remaining consistent with a single unit.
- **Communication function:** Communication with the host computer via a communication interface facilitates operation.
- **Memory function:** It features multiple memory groups for storing setup parameters, meeting the demands of rapid production line testing.
- **Comprehensive host computer functions:** A user-friendly and convenient operation interaction interface enables all functions to be realized through the host computer.

Product Application /

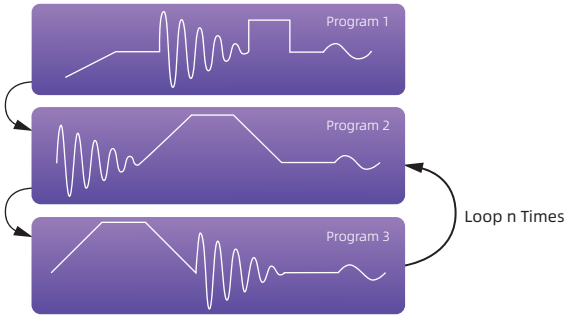
- **Operation mode:** Four-quadrant operation characteristics



- **Abundant waveform types:** Rich built-in waveforms and user-defined waves enable the generation of any test waveforms.



- **Powerful and flexible waveform programming function:** Built-in waves and user-defined waves can be freely combined as waveform units to create waveform programs; multiple waveform programs can then be arranged into a waveform script

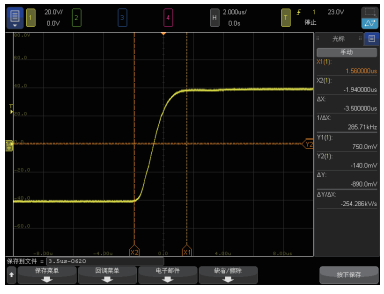


- **Flexible parallel operation:** It supports up to 10 units in parallel, expanding power up to 8kW. The functionality and performance of the entire parallel system remain consistent with a single unit.



Stand-Alone　　Parallel

- **High dynamic response characteristic:** The fastest rise time is less than 3.5μs with negligible overshoot



Rated Resistive Load

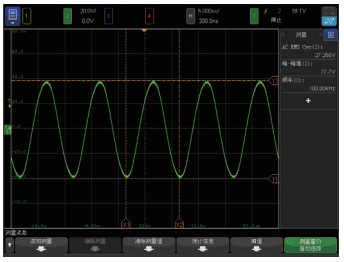
- **Output noise:** Low noise, with output noise less than 8mVrms



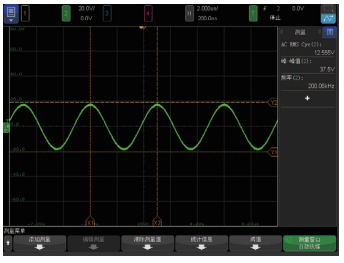
Output Noise

Ainuo Four-quadrant Power Supply Product Series

- **High bandwidth function:** It can output the rated voltage from 0 to 100kHz, and half the rated voltage (-3dB) above 100kHz
- **Automotive low-voltage system electrical performance testing:** It enables power supply variation tests on automotive electronic equipment according to standards such as ISO16750-2, LV124, and LV148

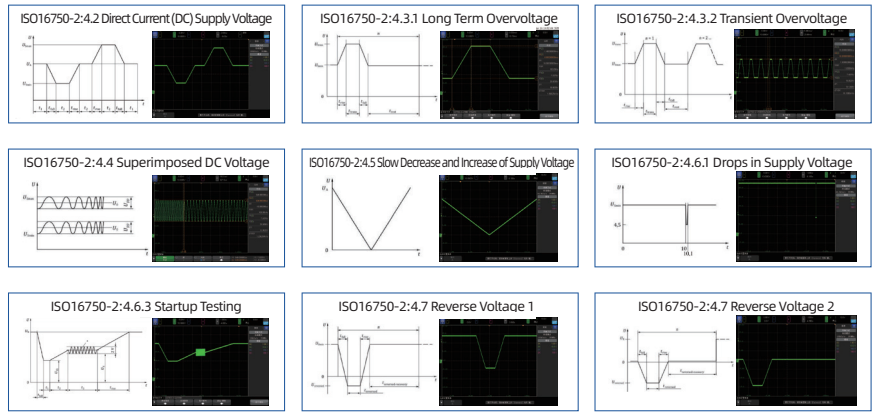


100kHz @ Rated Voltage



200kHz @ Half the Rated Voltage





Technical Specifications /

Product Model			ANBPS40-10(F)	ANBPS40-20(F)	ANBPS60-7(F)	ANBPS60-14(F)	ANBPS80-5(F)	ANBPS80-10(F)
Input		Input Voltage	100V~240Vac 47Hz~63Hz					
		Input Power	≤1kW	≤2kW	≤1kW	≤2kW	≤1kW	≤2kW
		Power Factor	≥0.95					
Output		Output Power	400W	800W	400W	800W	400W	800W
		Output Voltage	±40V	±40V	±60V	±60V	±80V	±80V
		Output current	±10A	±20A	±7A	±14A	±5A	±10A
Constant Voltage Mode	DC Voltage	Setting Range	0V~±40.000V		0V~±60.000V		0V~±80.000V	
		Setting Resolution	0.001V					
		Setting Accuracy	±(0.05% of setting + 0.05% of range)					
	AC Voltage	Setting Range	0Vp~40.00Vp		0Vp~60.00Vp		0Vp~80.00Vp	
		Setting Resolution	0.01V					
		Setting Accuracy	±0.5% of range					
	AC Frequency	Setting Range	0.01~100kHz(40Vp),100kHz~200kHz(20Vp)		0.01~100kHz(60Vp),100kHz~200kHz(30Vp)		0.01~100kHz(80Vp),100kHz~200kHz(40Vp)	
		Setting Resolution	0.01Hz					
		Sweep Mode	Linear, logarithmic					
		Sweep Time	100μs~1000s (Resolution 100μs)					
	AC Waveform	Types	Sine, Triangular, Square, Built-in (16 types), Custom (16 types)					
		Initial Phase	0°~359°					
		Square Wave Duty Ratio	0.1%~99.9%（f＜100Hz）； 1%~99%（100Hz≤f＜1kHz）； 10%~90%（1kHz≤f＜10kHz）； 50%（10kHz≤f）					
	Constant Voltage Characteristic	Reaction Time	3.5us、10us、35us、130us					
		Overshoot	Less than 5%					
		Noise	Less than 8mVrms					

*The above specifications are subject to change without notice.

Technical Specifications /

Product Model			ANBPS40-10(F)	ANBPS40-20(F)	ANBPS60-7(F)	ANBPS60-14(F)	ANBPS80-5(F)	ANBPS80-10(F)
Constant Current Mode	DC Current	Setting Range	0~±10.000A	0~±20.000A	0~±7.000A	0~±14.000A	0~±5.000A	0~±10.000A
		Setting Resolution	0.001A					
		Setting Accuracy	±0.3% of rated					
	AC Current	Setting Range	0~10.00Ap	0~20.00Ap	0~±7.00Ap	0~±14.00Ap	0~±5.00Ap	0~±10.00Ap
		Setting Resolution	0.01A					
		Setting Accuracy	±0.5% of rated					
	AC Frequency	Setting Range	0~5kHz					
		Setting Resolution	0.01Hz					
		Sweep Mode	Linear, logarithmic					
		Sweep Time	100us~1000s(Resolution 100us)					
	AC Waveform	Types	Sine, Triangular, Square, Built-in (16 types), Custom (16 types)					
		Initial Phase	0°~359°					
		Square Wave Duty Ratio	0.1%~99.9%（f＜100Hz）；1%~99%（100Hz≤f＜1kHz）；10%~90%（1kHz≤f＜10kHz）；50%（10kHz≤f）					
	Constant Current Characteristic	Reaction Time	130us、190us、700us、2ms					
		Overshoot	Below 5%					
		Noise	3mArms					
Voltage Measurement	DC	Measurement Range	120% of setting					
		Resolution	0.001V					
		Accuracy	±(0.05%*reading value + 0.05%*rated value)					
	AC	Measurement Range	120% of setting					
		Resolution	0.001V					
		Accuracy	±(0.5% reading value + 0.1% rated value) @ (5Hz~10kHz), ±(1% reading value + 0.2% rated value) @ (10kHz~50kHz), ±(2% reading value + 0.2% rated value) @ (50kHz~100kHz)					
	DC+AC	Measurement Range	120% of setting					
		Resolution	0.001V					
		Accuracy	±(0.5% reading value + 0.1% rated value) @ (5Hz~10kHz), ±(1% reading value + 0.2% rated value) @ (10kHz~50kHz), ±(2% reading value + 0.2% rated value) @ (50kHz~100kHz)					
Current Measurement	DC	Measurement Range	120% of setting					
		Resolution	0.001A					
		Accuracy	±(0.3% reading value + 0.1% rated value)					
	AC	Measurement Range	120% of setting					
		Resolution	0.001A					
		Accuracy	±(3% of reading value + 0.1% of rated value) @ (5Hz~5kHz)					
	DC+AC	Measurement Range	120% of setting					
		Resolution	0.001A					
		Accuracy	±(3% of reading value + 0.1% of rated value) @ (5Hz~5kHz)					
Other Functions	Second and Fourth Quadrant Power Limiting		180W	360W	180W	360W	180W	360W
	External Analog Input Amplitude		-10.5~+10.5V					
	Output Current Monitoring		I_{out}/I_{rated}*3.2V					
	Trigger Input	Level	High level (2.0V~5.0V), low level (0~0.8V)					
		Minimum Width	1us					
	Trigger Output	Level	High level (2.7V~5.0V), low level (0~0.4V)					
		Minimum Width	1us					
Number of Parallel Units			Up to 10					
Communication Port			LAN, CAN, RS485/RS232 (Select One)					
Dimension(W*H*D mm)			442*132.5*570					
Weight			≤ 25 Kg					
Cooling Method			Forced air cooling					
Color			Black, white, blue					

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Technical Specifications for ANBPS(F) Parallel Series /

Two-Unit Parallel Series

Product Model		ANBPS40-40P2(F)	ANBPS60-28P2(F)	ANBPS80-20P2(F)
Input	Input Voltage	100V~240Vac 47Hz~63Hz		
	Input Power	≤4kW	≤4kW	≤4kW
	Power Factor	≥0.95		
Output	Output Power	1.6kW		
	Output Voltage	±40V	±60V	±80V
	Output Current	±40A	±28A	±20A

Three-Unit Parallel Series

Product Model		ANBPS40-60P3(F)	ANBPS60-42P3(F)	ANBPS80-30P3(F)
Input	Input Voltage	100V~240Vac 47Hz~63Hz		
	Input Power	≤6kW	≤6kW	≤6kW
	Power Factor	≥0.95		
Output	Output Power	2.4kW		
	Output Voltage	±40V	±60V	±80V
	Output Current	±60A	±42A	±30A

Four-Unit Parallel Series

Product Model		ANBPS40-80P4(F)	ANBPS60-56P4(F)	ANBPS80-40P4(F)
Input	Input Voltage	100V~240Vac 47Hz~63Hz		
	Input Power	≤8kW	≤8kW	≤8kW
	Power Factor	≥0.95		
Output	Output Power	3.2kW		
	Output Voltage	±40V	±60V	±80V
	Output Current	±80A	±56A	±40A

Five-Unit Parallel Series

Product Model		ANBPS40-100P5(F)	ANBPS60-70P5(F)	ANBPS80-50P5(F)
Input	Input Voltage	100V~240Vac 47Hz~63Hz		
	Input Power	≤10kW	≤10kW	≤10kW
	Power Factor	≥0.95		
Output	Output Power	4kW		
	Output Voltage	±40V	±60V	±80V
	Output Current	±100A	±70A	±50A

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Six-Unit Parallel Series

Product Model		ANBPS40-120P6(F)	ANBPS60-84P6(F)	ANBPS80-60P6(F)
Input	Input Voltage	100V~240Vac 47Hz~63Hz		
	Input Power	≤12kW	≤12kW	≤12kW
	Power Factor	≥0.95		
Output	Output Power	4.8kW		
	Output Voltage	±40V	±60V	±80V
	Output Current	±120A	±84A	±60A

Seven-Unit Parallel Series

Product Model		ANBPS40-140P7(F)	ANBPS60-98P7(F)	ANBPS80-70P7(F)
Input	Input Voltage	100V~240Vac 47Hz~63Hz		
	Input Power	≤14kW	≤14kW	≤14kW
	Power Factor	≥0.95		
Output	Output Power	5.6kW		
	Output Voltage	±40V	±60V	±80V
	Output Current	±140A	±98A	±70A

Eight-Unit Parallel Series

Product Model		ANBPS40-160P8(F)	ANBPS60-112P8(F)	ANBPS80-80P8(F)
Input	Input Voltage	100V~240Vac 47Hz~63Hz		
	Input Power	≤16kW	≤16kW	≤16kW
	Power Factor	≥0.95		
Output	Output Power	6.4kW		
	Output Voltage	±40V	±60V	±80V
	Output Current	±160A	±112A	±80A

Nine-Unit Parallel Series

Product Model		ANBPS40-180P9(F)	ANBPS60-126P9(F)	ANBPS80-90P9(F)
Input	Input Voltage	100V~240Vac 47Hz~63Hz		
	Input Power	≤18kW	≤18kW	≤18kW
	Power Factor	≥0.95		
Output	Output Power	7.2kW		
	Output Voltage	±40V	±60V	±80V
	Output Current	±180A	±126A	±90A

Ten-Unit Parallel Series

Product Model		ANBPS40-200P10(F)	ANBPS60-140P10(F)	ANBPS80-100P10(F)
Input	Input Voltage	100V~240Vac 47Hz~63Hz		
	Input Power	≤20kW	≤20kW	≤20kW
	Power Factor	≥0.95		
Output	Output Power	8kW		
	Output Voltage	±40V	±60V	±80V
	Output Current	±200A	±140A	±100A

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