

# GENERAL PRODUCT CATALOG

# 2022 / 23

AC + DC Power Solutions

Vol.1

- Programmable AC Power Source
- Programmable DC Power Supply
- Regenerative Grid Simulator
- Power Supply for Military & Aerospace
- Power Conditioner / AVR
- Solutions & Systems

# New Generation for New Energy

Electric Vehicle Supply Equipment ATS

Preen's Electric Vehicle Supply Equipment(EVSE) Automatic Testing System(ATS) is designed with flexible system structure and intuitive control software. Aimed to automatic AC and DC chargers' testing, EVSE ATS is complied with related interoperability test specifications.

## Complied with EVSE Regulations

Complied with Relevant National Regulations & Standard Testing Items.

## Flexible System Configuration

Customized Platforms According to Different Requirements.

## Intuitive Control Software

Editable Testing Project and Report Generator



AC & DC Charger



Electric Vehicle Supply Equipment ATS



EVSE ATS Application



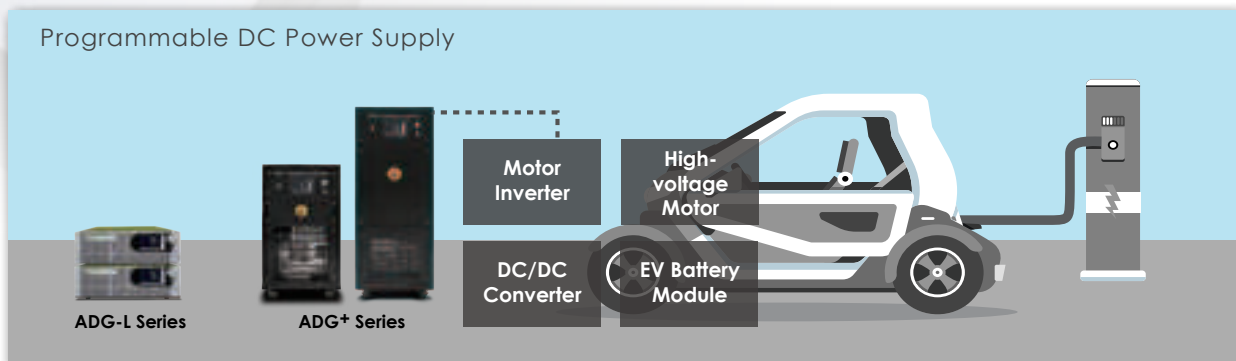
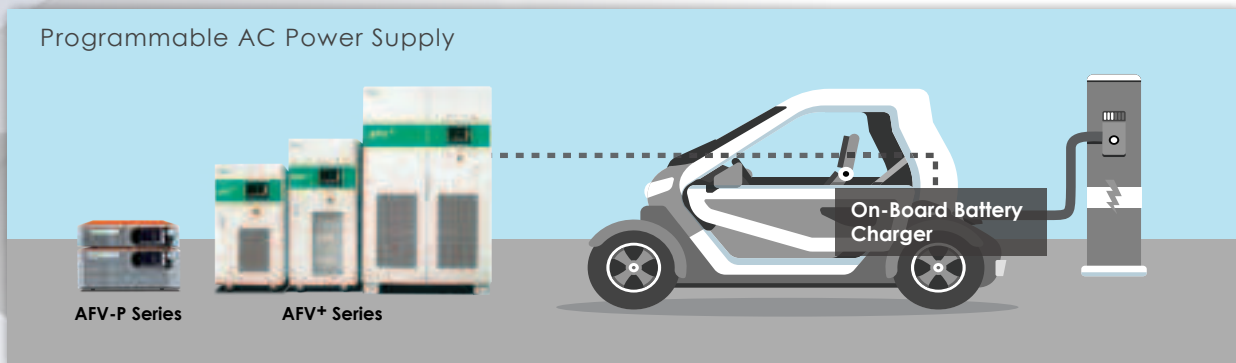
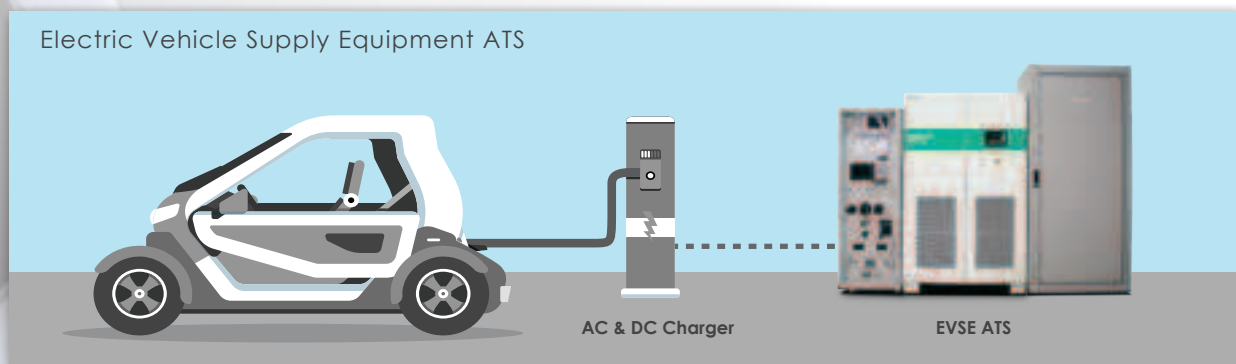
EV Related Application

# Driving Force Behind a Sustainable Future

## EV Testing Solution

Preen's EVSE ATS complies with US, EU, Japan, China and Taiwan related testing standards. The On-Board Battery Charger, Inverter, High-voltage Motor and DC/DC Converter can also be tested by our programmable AC or DC power source to verify product capability and reliability as your ideal solution for EV Test & Measurement applications.

- **Complied with multiple regulations and various EV charger:**  
SAE J1772, UL 2202, IEC 61851, CNS 15511, GB/T 18487.1, NB/T 33001
- **Programmable AC Power Supply :** 0.6~2000 kVA, 0~1240V
- **Programmable DC Power Supply :** 4~1800 kW, 0~2000V



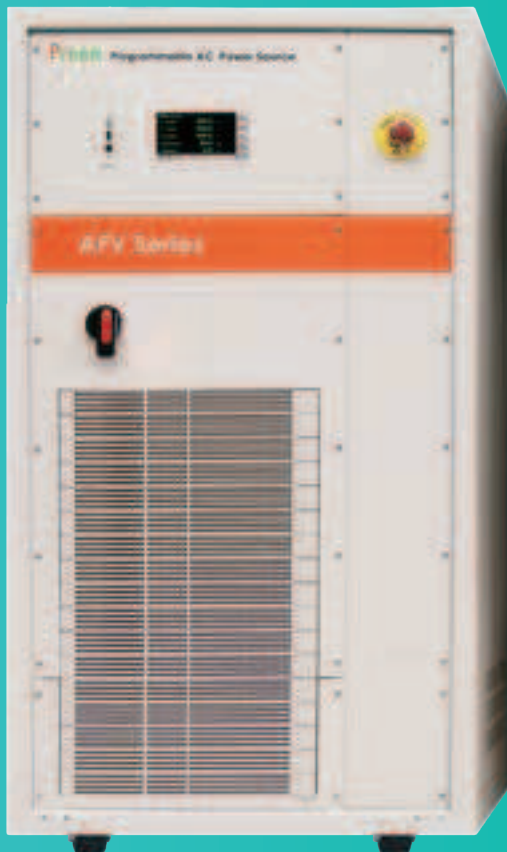
# Discover an Enhanced Performance and a Fresh New Look

## The New Generation of AFV and AFC Series from Preen

The redesigned AFV and AFC series brings the perfect combination of performance, clean design, intuitive controls and reliability. The AFV models feature RS-232, RS-485 and optional GPIB and Ethernet interfaces with upgraded communication stability. The AFC series is now equipped with 7" touch screen and built-in hot key functions for fast memory recall and setup.

### Features

- An inspiring new look with upgraded 7" touch screen control.
- Up to 500Hz output available for aerospace and defense applications.
- Single phase output up to 120kVA.



AFV Series

AFC Series



### Features

- Equipped with RS-232/RS-485 interface.
- Enhanced HMI with touch screen display and control.
- 6 built-in hot keys for quick recall and easy setup.



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# AC Power Corp. Over 30 Years of Excellence

For the past 30 years, AC Power Corp. (Preen) has been focusing on developing and manufacturing power supplies for testing, power conversion and power conditioning applications. With continuous effort on product innovations and quality improvements, AC Power Corp. is able to establish its name as the leading power supply provider and has one of the highest total power shipped in the world. AC Power Corp. today offers a portfolio of programmable power supplies and solutions under the brand “Preen” for countless industries that include renewable energy, electric vehicle, automotive testing system, aerospace and defense.



Driven by the company's motto: Value and Innovations, AC Power Corp.'s objective is to continuously provide the customers and markets with solutions that assist them to better innovate products and solve issues. The 30th Anniversary Logo is inspired by the idea of innovation, and it combines the number 30 with circuitry to symbolize the continuous endeavor and focus on product and organization innovations.

## AC & DC Power Solutions for a Variety of Applications

Found in 1989, Preen (AC Power Corp.) is a world leader in power supply systems and has been developing AC and DC power supplies based on the core technology of power conversion. We provide advanced, reliable and cost effective power products including AC power source, DC power supply, regenerative grid simulator, power supplies for aerospace and defense, and line conditioners.

Preen's customer base consists of major international corporations. The significant markets Preen served include electric vehicle, renewable energy, home appliance and consumer product manufacturing, military, aerospace, and general R&D and EMC compliance testing.



Renewable Energy



Electronics



Aerospace / Defense



EMC & Lab.












Control Room/  
Data Center

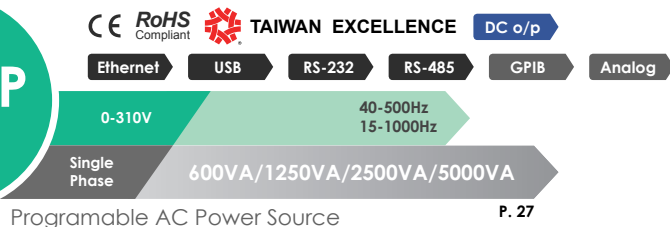
# Value & Innovation

With corporate office located in Taipei, Taiwan, Preen has total three manufacturing facilities and multiple branch offices and service location worldwide, including the U.S. office located in Irvine, CA. Preen's core philosophy, Value & Innovation reflects on the continuously improvement of product quality and design. Many of our products are CE and RoHS certified, in line with international safety standard and environmental friendly development. All Preen's manufacturing facilities have ISO9001:2015 certifications. We keep rigorous controls on manufacturing processes and plant management to ensure only the top-quality products are delivered.

## Company History

<p><b>2021</b></p> <ul style="list-style-type: none"> <li>- Launched New Generation of AFV &amp; AFC series</li> <li>- Delivered industrial leading <b>1.8MW</b> DC power supply</li> </ul> 	<p><b>2012</b></p> <ul style="list-style-type: none"> <li>- Launched the new regenerative grid simulator, PAS series.</li> <li>- Granted "Enterprise Technology Center" by Suzhou city.</li> </ul>
<p><b>2020</b></p> <ul style="list-style-type: none"> <li>- Delivered <b>1MW</b> PV Inverter Test System, the biggest inverter system ever installed in Taiwan.</li> <li>- Launched High Power Programmable DC Power Supply, ADG<sup>+</sup> series.</li> <li>- Awarded with <b>D&amp;B Top 1000 Elite SME Award</b> three years in a row.</li> </ul>  	<p><b>2011</b></p> <ul style="list-style-type: none"> <li>- Annual sales of AC source exceeded <b>65MVA</b>, which made Preen the world's biggest AC source manufacturer.</li> </ul> <p style="font-size: 2em; color: green; margin-left: 10px;"><b>65</b> MVA</p>
<p><b>2019</b></p> <ul style="list-style-type: none"> <li>- Launched high power programmable AC power supply, AFV<sup>+</sup> series.</li> </ul> 	<p><b>2009</b></p> <ul style="list-style-type: none"> <li>- U.S. office established.</li> </ul>
<p><b>2018</b></p> <ul style="list-style-type: none"> <li>- Granted Taiwan Excellence Award for ADG-P series</li> <li>- Launched programmable DC power supply, ADG-L series</li> </ul> 	<p><b>2007</b></p> <ul style="list-style-type: none"> <li>- Launched updated AFC series AC power source.</li> <li>- Launched the rack-mount DC power supply, ADC series.</li> </ul> 
<p><b>2017</b></p> <ul style="list-style-type: none"> <li>- Granted Taiwan Excellence Award for AFV-P series</li> <li>- Launched high performance programmable AC&amp;DC power supply, AFV-P series.</li> </ul>  	<p><b>2001</b></p> <ul style="list-style-type: none"> <li>- Manufacturing facility in Suzhou, China, established.</li> </ul>
<p><b>2015</b></p> <ul style="list-style-type: none"> <li>- Launched programmable high power DC power supply, ADG-P series.</li> <li>- Provided <b>2000kVA</b> programmable AC power source to GE Haier for centralized air conditioning system R&amp;D and verification applications.</li> </ul>	<p><b>1993</b></p> <ul style="list-style-type: none"> <li>- Manufacturing facility in Tianjin, China, established.</li> </ul>
	<p><b>1990</b></p> <ul style="list-style-type: none"> <li>- Launched the world's first energy-saving static line conditioner, APS series, the 1/4 of the size and weight of conventional ones.</li> <li>- Launched the first-generation of AC power source, AFC series.</li> </ul> 
	<p><b>1989</b></p> <ul style="list-style-type: none"> <li>- AC Power Corp. was established in Taipei, Taiwan.</li> </ul>

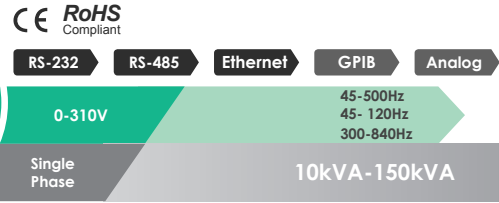
**AFV-P Series**



Programmable AC Power Source

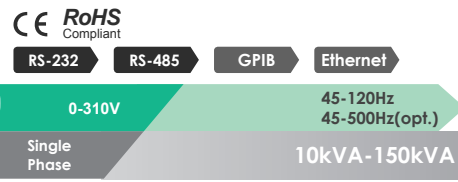


**AFV+ Series**



High Power Programmable AC Power Source

**AFV Series**



High Power Programmable AC Power Source

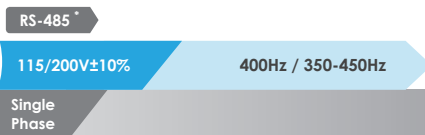
**AFC Series**



Frequency Converter / AC Power Source



**AMF Series**



400Hz Power Supply / Ground Power Unit \* Control only



**How to read the chart**

AFV-P Series

CE RoHS Compliant TAIWAN EXCELLENCE DC o/p

Ethernet USB RS-232 RS-485 GPIB Analog

0-310V

40-500Hz  
15-1000Hz

Single Phase

600VA/1250VA/2500VA/5000VA

O/P Voltage

O/P Power

O/P Freq.

O/P Power

O/P Phase

Standard interface

OPT. interface

P. 17

Page

AC

Single Phase

500VA

5kVA

100kVA

**Features:**

- Ideal for IEC-61000-4-11 pre-compliance test
- Total 1200 steps
- Power Line Disturbance Simulation (PLD)
- Complimentary Control Software



**Excellent Performance  
on THD & Regulation**  
New Touch Screen Control



Three  
Phase

10kVA-2,000kVA

P. 35



Three  
Phase

10kVA-2,000kVA

P. 43



RS-232 RS-485 GPIB Ethernet

L series: 0-300V  
M series: 0-150V

L series: 45-500Hz  
M series: 300-800Hz

Three  
Phase

L series: 20-120kVA  
M series: 20-75kVA



Programmable Wide Frequency AC Power Source

P. 65

Three  
Phase

5kVA-2,000kVA

P. 49



RS-232 RS-485 GPIB Ethernet USB Regenerative

0-300V  
0-350V(opt.)

45-65Hz  
40-70Hz(opt.)

CE RoHS  
Compliant

Three  
Phase

30kVA-2000kVA



Regenerative Grid Simulator

P. 59

Three  
Phase

6kVA-400kVA

P. 71



RS-485

115/200V ±10%

400Hz / 300-500Hz

Three  
Phase

30kVA-180kVA

400Hz Power Supply / Ground Power Unit

P. 67



BPS  
Series

RS-485

440V±5% (L-L)

47-63Hz, 50Hz, 60Hz

Three  
Phase

300kVA-2,000kVA

Shore Power Supply

P. 75

Three Phase

45kVA

200kVA

2,000kVA



Programmable

# DC

**ADG-L Series**

CE RoHS Compliant


RS-232   RS-485   Analog  
 GPIB   USB   Ethernet

0-115V to 0-1000V

5kW - 75kW

Programmable DC Power Supply

P.81



General

**ADC Series**

CE

0-30V to 0-600V

2kW - 8kW

Rack Mount DC Power Supply

P.111



Industry-Specific

**ADS Series**

RS-232   RS-485   GPIB

28V ±10%  
 270V ±10% (opt.)

Military/Aerospace DC Power Supply

4kW

8kW

12kW

## Power Conditioner

Power Conditioner

**APS Series**

CE

220/380V\*   47-63Hz   ± 2%   ±18% ±25% (opt.)

Single Phase

1kVA-100kVA

Solid State Power Conditioner \* Please consult us for other voltage levels.

# AVR

Single Phase

1kVA

10kVA

100kVA

**ADG<sup>+</sup> Series**

CE RoHS Compliant

RS-232   RS-485   USB

Ethernet   Analog   GPIB

0-40V to 0-2000V

30kW / 40kW / 50kW / 75kW / 100kW / 300kW

**Solar Array Simulation**  
IV Curve Function  
(Built-in EN50530 Formula)

High Power Programmable DC Power Supply **P.91**

**ADG-P Series**

CE RoHS Compliant   TAIWAN EXCELLENCE

RS-485

RS-232   GPIB   Analog   USB

0-40V to 0-2000V

30kW / 50kW / 75kW / 100kW

Programmable High Power DC Power Supply **P.103**



**How to read the chart**

**ADG<sup>+</sup> Series**

Standard interface: RS-485, RS-232, Ethernet, Analog, USB, GPIB

OPT. interface: GPIB

O/P Voltage: 0-40V to 0-2000V

O/P Power: 30kW / 40kW / 50kW / 75kW / 100kW / 300kW

50A-4500A

**P.115**

30kW

100kW

300kW



**How to read the chart**

**APH Series**

O/P Voltage: 220/380V\*

O/P Freq.: 50/60Hz

Regulation(v): ±2%, ±1%~±5% (opt.)

Regulation(v): -13%~+18%, -22%~+30% (opt.)

I/P Range(v): 10kVA-1000kVA

O/P Phase: Three Phase

O/P Power: 10kVA-1000kVA

Three Phase

10kVA-300kVA

**P.121**

**APH Series**

220/380V\*   47-63Hz   ±2%   -13%~+17%

±1%~±5% (opt.)   -22%~+30% (opt.)

Three Phase

10kVA-600kVA

Inductive Automatic Voltage Regulator   \* Please consult us for other voltage levels. **P. 127**

















Three Phase

45kVA

300kVA

1,000kVA

# Product Applications

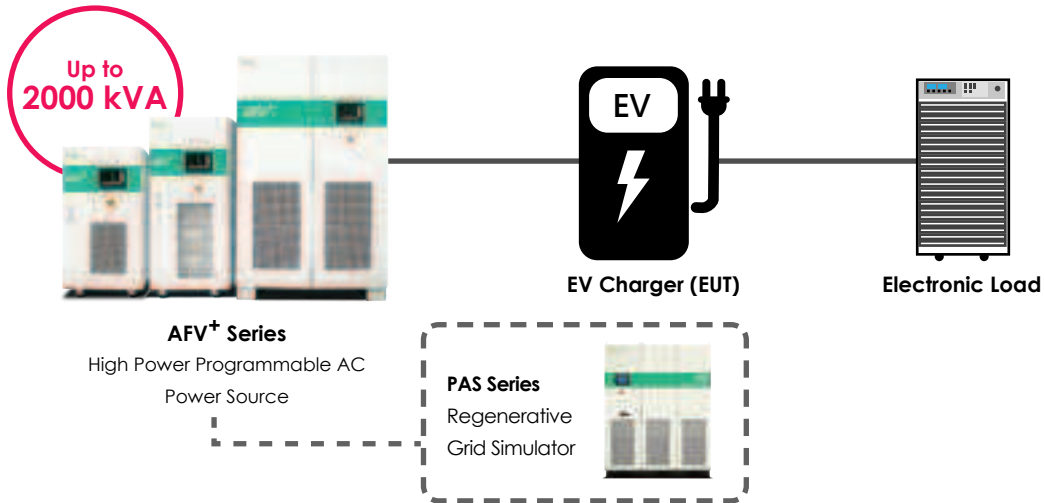
		PV Inverter	Electric Vehicles	Home Appliance	Laboratory/ Certification Bureau
AC Power Supply	AFV-P Series 	-----	✓	✓	✓
	AFV+ Series 	✓	✓	✓	-----
	AFV Series 	✓	✓	✓	✓
	AFC Series 	-----	✓	✓	✓
	PAS/PFV Series 	✓	✓	-----	✓
	PWF Series 	-----	-----	-----	✓
	AMV Series 	-----	-----	-----	-----
	AMF Series 	-----	-----	-----	-----
	BPS Series 	-----	-----	-----	-----
DC Power Supply	ADG-L Series 	✓	✓	✓	✓
	ADG+ Series 	✓	✓	✓	✓
	ADG-P Series 	-----	-----	✓	-----
	ADC Series 	-----	✓	-----	-----
	ADS Series 	-----	-----	-----	-----
Power Conditioner	APS Series 	-----	-----	✓	✓
	APH Series 	-----	-----	-----	-----

Industrial Power Supply	Renewable Energy	IT / SMT Production Line	Medical Industry	Aerospace & Defense	Transportation	Motor & Compressor	Shore Power & Shipbuilding	Communication Industry
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✓		✓		✓	✓	✓		✓
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✓		✓	✓	✓	✓			✓

# 1

## EV Charger Testing Applications

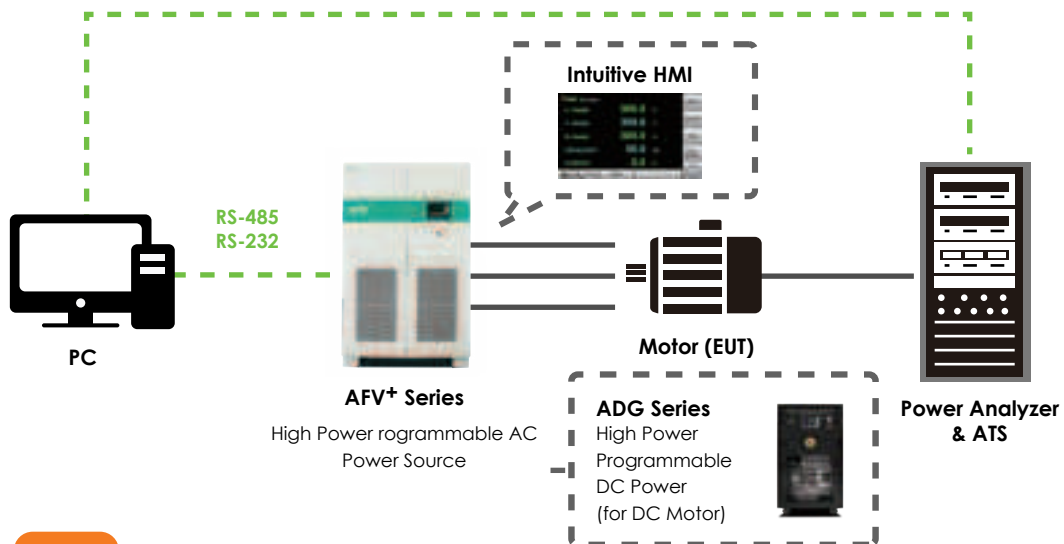


### NOTE

Before EV charger's ready for installation, it has to do a series of tests to ensure its reliability and safety. For example, input AC characteristic test, control signal test, performance test, safety features and etc. are required test items. Preen's AFV+ series can provide the variable power source or PAS series can source or sink power for testing bi-directional EV charger which is complied with IEC62196, IEC61851, IEC62955, SAE J1772 and other related standards.

# 2

## Motor Testing Applications



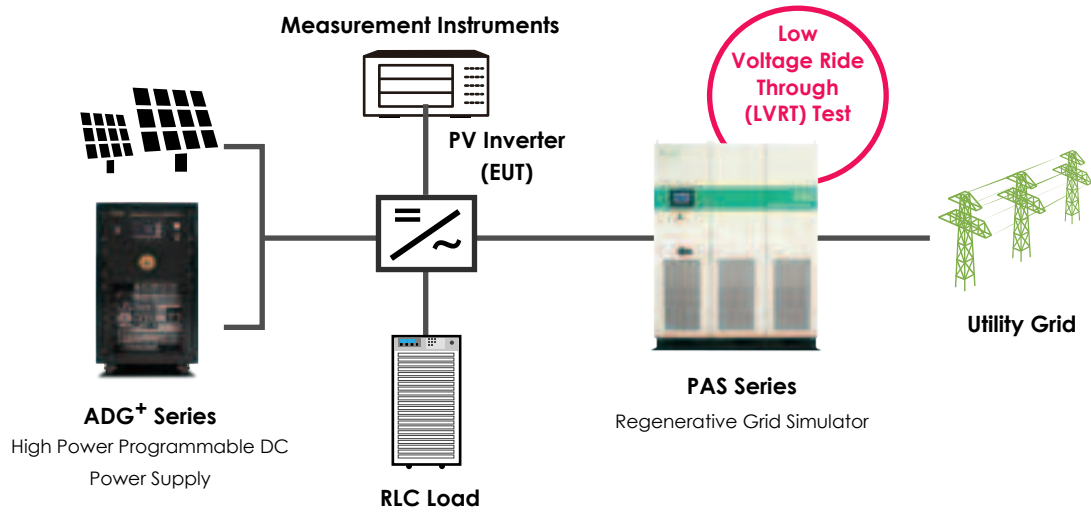
### NOTE

The series of test for compressors and motors include, locked rotor test, cooling capability, performance test, residual moisture content, start-up endurance and etc. during production and R&D development for different standards. Preen's AFV+ series can provide a stable and clean power source for powering up the testing motor under different conditions which is complied with IEC60034, GB755, GB5773 and other related standards.



### 3

## PV Inverter Test System

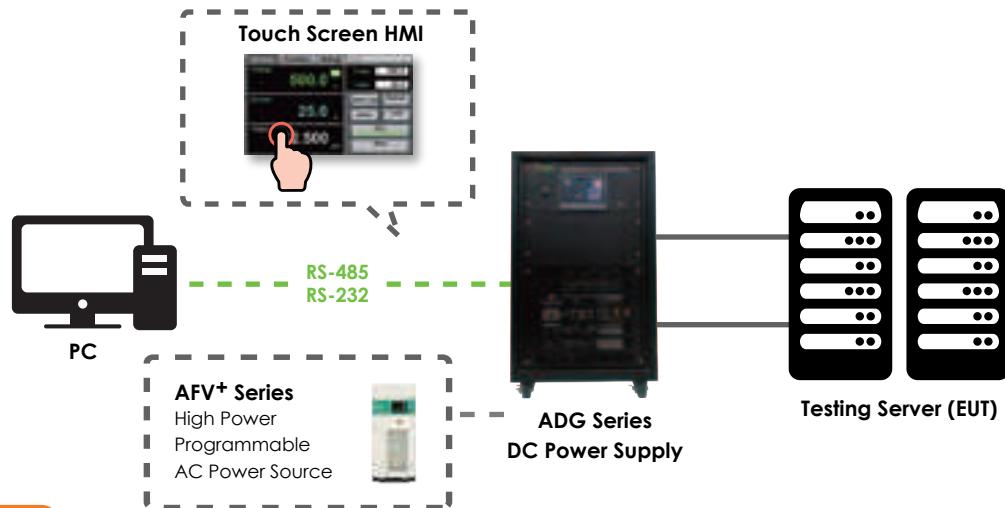


#### NOTE

With the rapid development of smart grid, solar power has become a major source for renewable energy. A PV system is a device that converts DC power from sunlight into AC power, and PV inverter is a key component of the system. Preen's PAS series is used to simulate various grid systems which is compiled with IEEE1547, UL 1741, EN50530 and other related standards or PV inverter regulations.

### 4

## Server Testing Applications

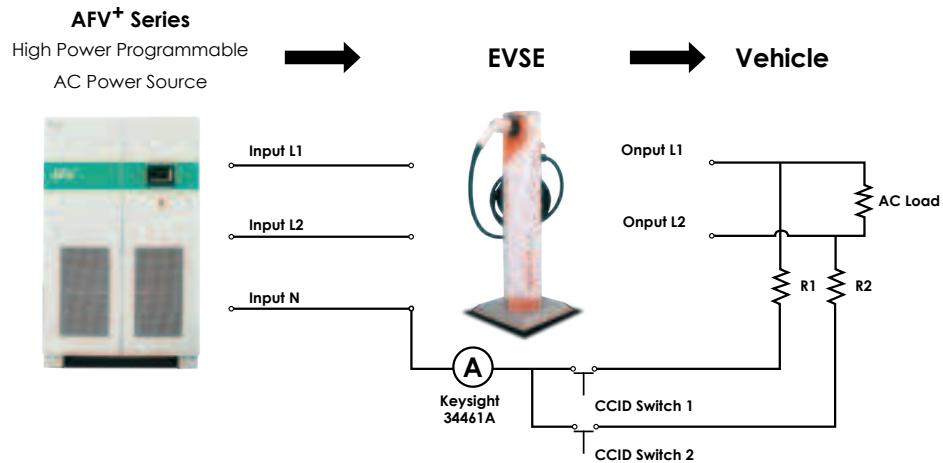


#### NOTE

During the manufacturing process, server needs to be tested under severe environment for durability in order to find the defects and improve its reliability. The EUT also need to do a series of tests like stability, integrity, or EMI compatibility test . The ADG series or AFV+ series, can provide high quality and stable DC or AC power source for powering up the server devices and simulate different variation tests which is compiled with IEC62368-1, GB4943.1 and other related standards.

5

# EV Charger CCID Leakage Current Testing Application

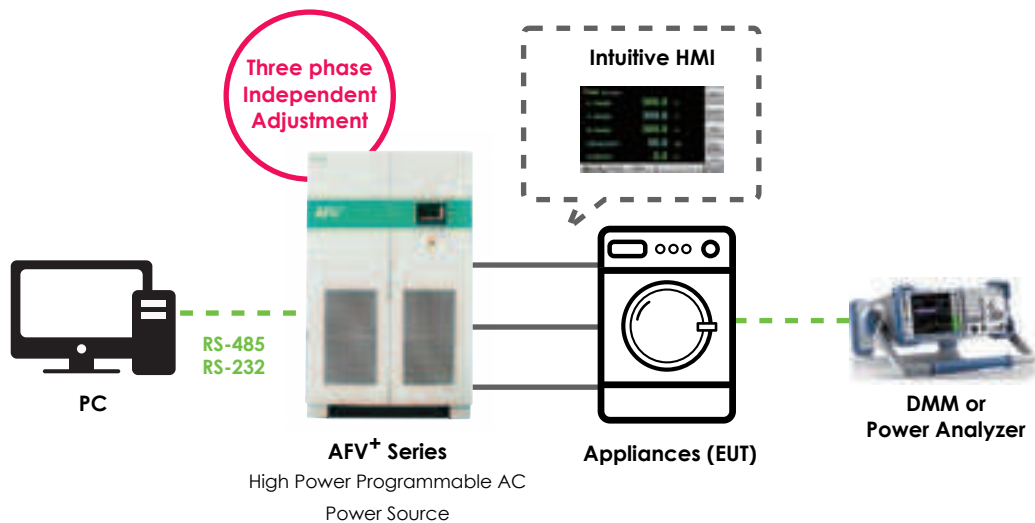


**NOTE**

This system mainly provides electric performance test and communication protocol test of AC charger, and optimizes and integrates the testing items of related standards. It can simulate the simultaneous output and communication operation of the charger to test whether the magnetic field generated by the high-capacity transmission will interfere with the communication. And it also can simulate the corresponding protection of the charger when the signal voltage of control pilot changes during the charging process.

6

# Home Appliances Testing Applications

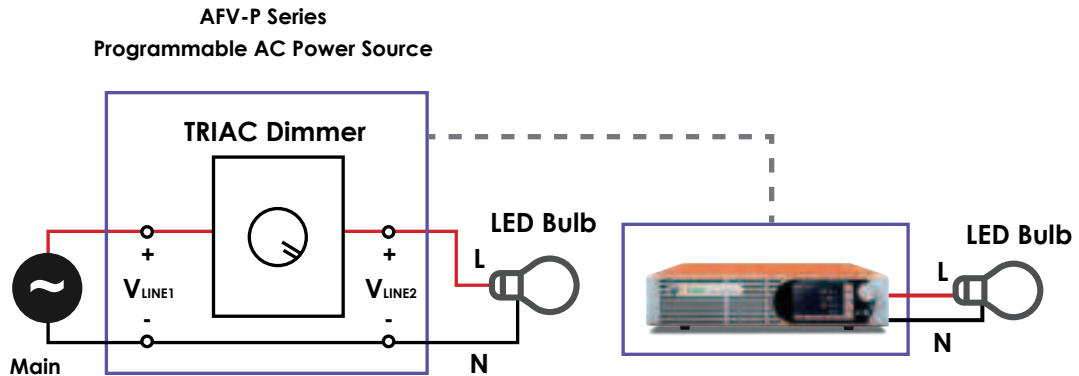


**NOTE**

During the home appliance manufacturing process, quality examination, burn-in or aging test, there are several different test items need to be accomplished. For example, products need to do the performance test under the real world grid conditions. The AFV+ series can simulate not only stable grid conditions but also fluctuated or unbalanced grid situations.

7

## LED TRIAC Dimmer Simulation

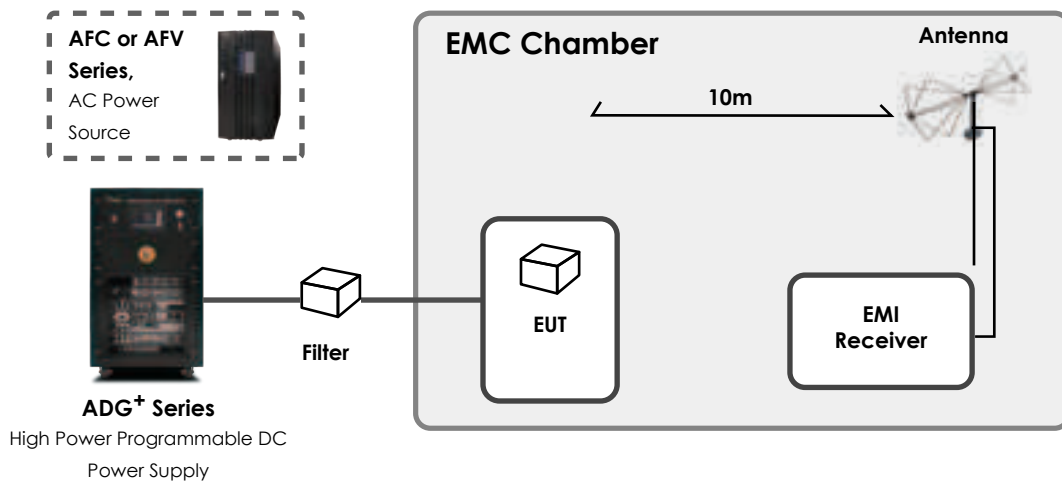


**NOTE**

AFV-P series can simulate both leading edge function (TRIAC) and trailing edge function (IGBT) which is complied with IEC60598-1, GB7000.1, CNS14335 and other related standards. It enables the R&D and quality assurance personnel to test and certify the characteristic of LED bulb, and improve the efficiency of production and testing. It is more accurate and convenient than the traditional dimming control.

8

## EMC Chamber Power



**NOTE**

Electromagnetic compatibility (EMC) is a comprehensive assessment of electronic products' emission (EMI) and immunity (EMS). It is one of the most important indicators of a product's quality. In the EMC test, an adjustable, reliable and low interference AC power source or DC power supply is essential to obtain precision measurement. Preen's AC source, AFC and AFV series, and DC power supply, ADG series, are ideal chamber power for a variety of EMC applications.

# Smart Inverter ATS



The new photovoltaic automatic test system launched by Preen lately can meet the electrical performance test of relevant grid-connected test standards such as IEEE1547.1, EN50530, NB/T32004, CNS15382 and CNS15599.

The Smart Inverter ATS consists of PAS series regenerative grid simulator (30kVA~2000kVA), ADG series high-power programmable DC power supply (4kW~1800kW with I-V curve simulation), RLC load, power analyzer, and system control software.

The Smart Inverter ATS of Preen is designed according to the specifications of various standards, and has built in the test items into the system. The tests include the abnormal voltage and frequency test, synchronization test, open phase test, reconnect test and harmonics test. Preen's PV Inverter ATS can test inverter's input voltage up to 2000Vdc, grid tied voltage up to 600V(L-L) and output power up to 2000kW. Moreover, all test data are saved in the system for further analysis and comparison.

## Applications

- PV Inverter
- Power Conditioning System
- V2G (Vehicle-to-grid)

## QR Code



Product Info.



Product Video

### Input Characteristic

- Input Voltage
- Input MPPT Voltage
- Input Current
- Input MPPT Voltage Current
- Input Power
- Input MPPT Power

### Protection and Timing Test

- OV/UV Protection
- OVP/UVF Trip Time
- OF/UF Protection
- OFP/UFU Trip Time
- Anti-islanding
- Anti-islanding Trip Time
- Re On-Grid Time

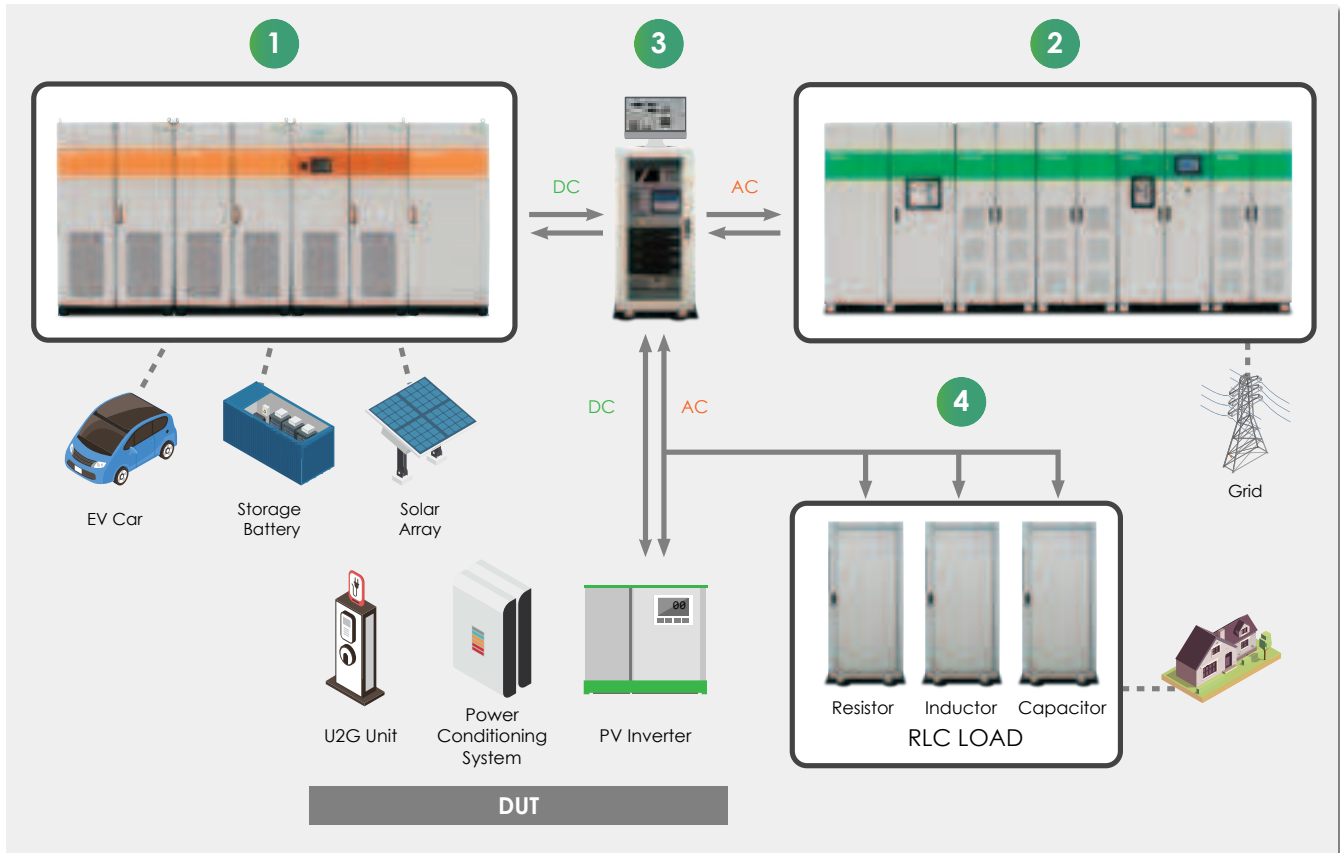
### Output Performances

- Output Voltage
- Output Current
- Output Power
- Output Power Factor
- Efficiency
- Low Voltage Ride Through
- High Voltage Ride Through
- DC Injection Current
- THD
- Current Harmonic Test

### Other Characteristic

- MPPT Efficiency
- MPPT Time
- MPPT Record
- Hipot Test
- Withstanding Voltage/Insulation Test
- Grounding Impedance Test

# Structure of Smart Inverter ATS



## Instruments

### 1 ADG<sup>+</sup> Series, High Power Programmable DC Power Supply (I-V Curve)

- Output Power : 30kW~1800kW
- Output Voltage : 0-2000V.
- Output Current : 0-2500A.
- Solar Array Simulation (Built-in EN50530 and I-V Curve Formula)
- Static or Dynamic MPPT Simulation
- I-V Curve Simulation
- Precise Voltage and Current Measurement

### 3 System Controller

- Industrial Computer
- Digital Oscilloscope
- Digital Power Analyzer

### 2 PAS Series, Regenerative Grid Simulator

- Output Power : 30kVA~2000kVA
- Output Voltage : 0-300V<sub>L-N</sub> (Option: 350V<sub>L-N</sub>)
- Output Frequency : 45-65Hz (Option : 40-70Hz)
- Simulate the Grid Voltage and Frequency Changes
- Four-quadrant AC Source for Regenerate and Recycle the Power to the Grid
- LVRT and HVRT Testing Simulation
- Harmonic Simulation Function (Option)

### 4 RLC Load

- Simulate Anti-islanding
- Testing Output Efficiency, Active Power and Reactive Power of the PV Inverter
- Testing Output Voltage, Current and Power of the PV Inverter



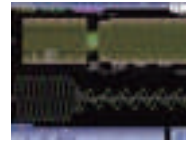


● **Three Phase Independent Output Voltage Setting**

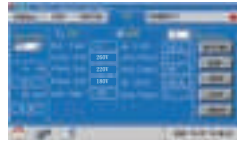
Independent setting for three phase high/low voltage ride through to simulate voltage surge and drop.



Low Voltage Ride Through Setting



LVRT Output Waveform



High Voltage Ride Through Setting



HVRT Output Waveform

● **Low Voltage Ride Through Test - IEEE Std 1547.1-2020**

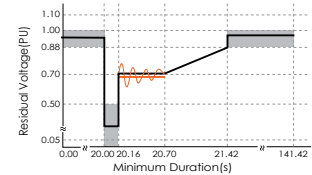
Low voltage ride through (LVRT) testing is necessary for testing the grid fault capability of power generation plants. It is one of the key test items to test the capability of electric generators, such as PV inverters, to stay connected in short periods of lower electric network voltage.



Setting for LVRT



LVRT Output Waveform



LVRT Test Standard IEEE Std 1547.1-2020

● **High Voltage Ride Through Test - IEEE Std 1547.1-2020**

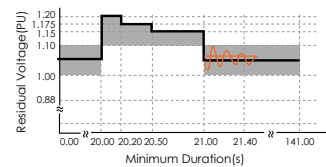
High voltage ride through (HVRT) testing is necessary for testing the grid fault capability of power generation plants. It is one of the key test items to test the capability of electric generators to stay connected in short periods of higher electric network voltage.



Setting for HVRT



HVRT Output Waveform



HVRT Test Standard IEEE Std 1547.1-2020

**Intuitive Remote Control Software**

● **Main Control System and Measurement Waveform Display**

With its intuitive and graphic display, the main control system can show the present AC power, DC power and EUT's testing status, and even continuously monitor and measure EUT's parameters and waveforms.



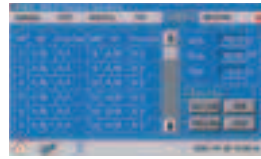
● **Solar Array Simulation Function with Multiple Graphic Display**

Solar array simulation function is able to show multiple graphic displays on software panel. It can easily realize SAS mode and meet EN50530 standards requirements for static or dynamic MPPT test through simple parameter setting.



## Harmonics Waveform Synthesis Function(Opt.)

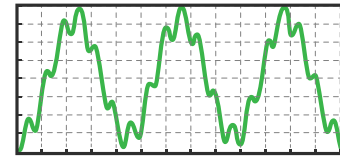
PAS series' harmonics waveform synthesis function allow user to program complex distorted harmonic waveform and generate up to 25 steps. It can simply set up voltage and adjust start phase of each step based on 50 or 60Hz fundamental frequency.



Setting for the harmonics waveform synthesis function



Display for the harmonics waveform synthesis function



Programmable harmonic waveform synthesis function

## Anti-islanding Testing

Islanding is resulted from abnormal frequencies and voltages and power quality issues when it is not under strict frequency control. Distributed generators must detect islanding and immediately disconnect from the circuit; referred to as anti-islanding. For this reason, solar inverters that are designed to supply power to the grid are generally required to have some sort of automatic anti-islanding circuitry.

With our Smart Inverter test system software, it can easily simulate the occurrence of resonance that lead to PAS grid simulator to disconnect with grid source to test whether the PV inverter is capable of promptly monitoring islanding situation and instantly cutting off from grid. The standard protection time is no less than 2s.

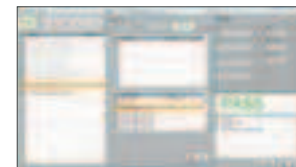
$$\left( Q_1 = \frac{P_{\text{grid}} + P_{\text{PV}}}{P} = 1.0 \pm 0.05 \right)$$



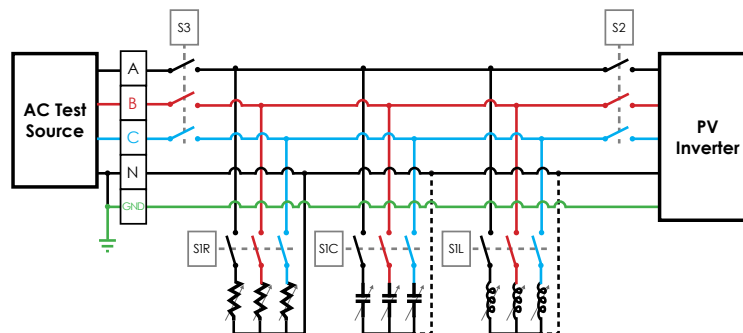
PV Inverter Control Test



RLC Load Control Test



Anti-islanding Test



Anti-islanding Test Diagram  
(IEEE 1547.1-2020)

## Main Test Functions

Smart Inverter test system can meet electrical performance test of relevant grid-connected test standards such as IEEE1547.1 / EN50530 / NB32004 / CNS15382.

### ■ Main Test Functions

1. Slow Over Voltage Test
2. Fast Over Voltage Test
3. Slow Under Voltage Test
4. Fast Under Voltage Test
5. Over Frequency Test
6. Under Frequency Test
7. Synchronization Test
8. DC Injection Test
9. Unintentional Islanding Test
10. Open Phase Test
11. Reconnect Test
12. Harmonics Test

# EVSE ATS

## Electric Vehicle Supply Equipment ATS



Preen's EVSE ATS is designed for verification of AC and DC EV chargers, which comply to regulation of SAE-J1772 and CNS15511, NB/T33001, NB/T33002, NB/T33008.1 and NB/T33008.2, GB/T 18487.1 and GB/T 27930; and Interoperability test specifications of electric vehicle conductive charging.

This system mainly provides electric performance test and communication protocol test for AC and DC charger, integrating the testing items of related standards to optimize testing efficiency. It can simulate the output and communication operation of the charger to test whether the magnetic field generated by the high-capacity transmission will interfere with the communication. And it also can simulate the corresponding protection of the charger when the signal of control pilot changes during the charging process.

### Applications

- EV Charger
- Onboard Charger
- DC/DC Converter
- Motor Drive

### Product Features

- Complied with relevant regulations: NB/T 33001, NB/T33002, NB/T33008.1, NB/T33008.2, GB/T 18487.1, GB/T 27930, SAE-J1772 and CNS15511.
- Ideal for high-power charger testing : equipped with Preen's high power AC sources and loads, featuring various models and power levels.
- Flexible system configuration: can be customized for customer's need.
- Suitable for various EV charger sockets.
- Simulate the corresponding protection of the charger when the signal of control pilot changes according to each working conditions.
- Capable to perform touch current insulation testing.
- Intuitive control software, easy to use.

### QR Code

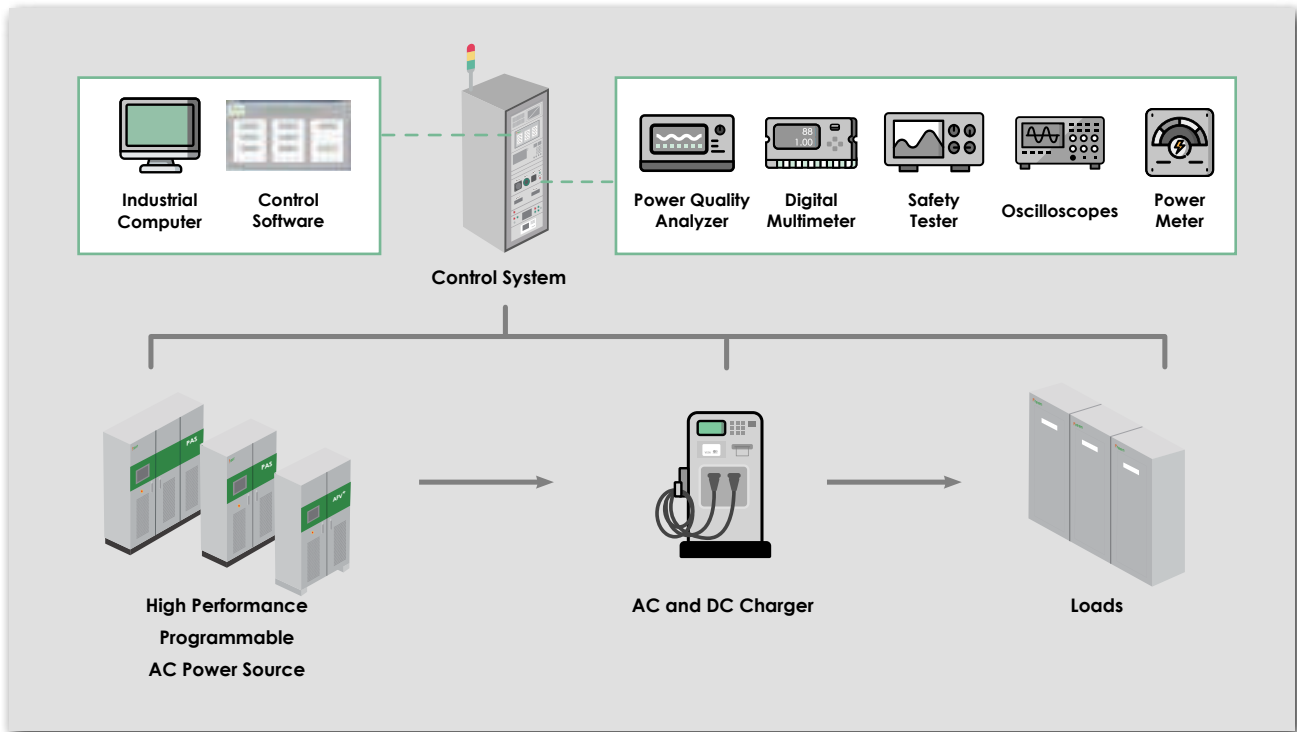


Product  
Info.



Product  
Video

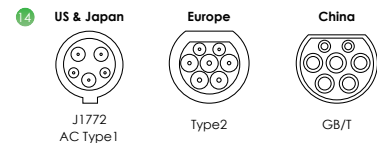
## Structure of EVSE ATS



## Instrument and Equipment Overview



- 1 AC Power Supply
- 2 Industrial Computer
- 3 Digital Storage Oscilloscopes
- 4 Display Screen (Control Software)
- 5 Tri Color Signal Light
- 6 High Power Load
- 7 Start/Stop Button
- 8 Bar Code Scanner
- 9 Signal Control Box
- 10 Digital Multimeter
- 11 Safety Tester
- 12 Voltage & Current Meter of Input/Output
- 13 Input Connector of Charger (Single-phase / Three-phase)
- 14 Charger Sockets for Different Countries



## Key Advantages

Preen's EVSE ATS is designed based on the type and regulations of EV charger in various countries. Not only meeting multiple testing standard of EV charger, EVSE ATS also provides flexibility in system design. It can be configured according to the customer's requirement or existing instruments, and automatically generates test results and reports. EVSE ATS is equipped with Preen's high-power AC sources and loads, featuring various models and power levels, providing a cost-effective and reliable testing solution.

## Flexible System Configuration

System structure uses flexible open platform, depending on customer's need, equipment, instruments, meter setting, test result recording and report generation.

## Self-developed Product

Self-developed system programming complies with related regulations such as power, communication, safety and touch current test.



## Compatible with Various Types of EV Charger

Applicable for EV charger types in various countries.

## Competitive Price

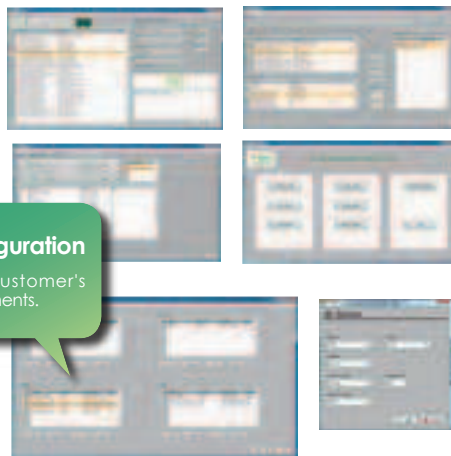
Self-developed control software, high-power AC source and load effectively reduce the system cost.

## Intuitive Software Platform

Preen's EVSE ATS testing software platform is designed as an open and flexible structure, the user can set different criteria to each testing item and make adjustments according to different instruments. It can also interpret PASS/FAIL automatically and generate test results in the form of reports. The user can set Security Level, Full System Access, Edit Setups and Recall Setups in system setting page.

### Flexible Software Configuration

Configured according to customer's requirement and existing instruments.



### ○ Friendly Environment :

Intuitive operation and various functions for testing condition.

### ○ Editable Testing Project :

Testing project can be organized according to user's need.

### ○ Security Level Setting :

Avoid mis-setting and facilitate internal management for corporation.

### ○ Report Editing and Automatic Generation :

Advanced settings for test item editing with flexibility to adjust test complexity.

### ○ Automated Generation of Reports and Editing :

Easily record test results and increase productivity.

## Preen's High-Power Power Supply

Preen's EVSE ATS can combine with AFV<sup>+</sup> series High Power Programmable Power Supply (10kVA~2000kVA) or PAS series Regenerative Grid Simulator (30kVA~2000kVA) for powering single-phase/three-phase input of charger. These two products can provide voltage / frequency / current testing for EV charger from various countries, and simulate overvoltage, undervoltage and related protection testing.



AFV<sup>+</sup>

- **Output Power :**  
10kVA~2000kVA
- **Output Voltage :**  
0~155VAC/0~310VAC
- **Output Frequency :**  
Up to 45~500Hz (optional)
- **Programmable Voltage and Frequency**



PAS

- **Output Power :**  
30kVA~2000kVA
- **Output Voltage :**  
0~300VAC/0~350VAC(opt.)
- **Output Frequency :**  
45~65Hz/40~70Hz(opt.)
- **Feature with Four-Quadrant Regenerative Function**



## Standard Testing Items

EVSE ATS is an automatic testing system aimed for AC and DC charger regulation, which comply to regulation of SAE-J1772 and CNS15511, China National Energy Administration standard NB/T 33001, NB/T 33002, NB/T33008.1 and NB/T33008.2, China National standard GB/T 18487.1 and GB/T 27930, and Interoperability test specifications of electric vehicle conductive charging. It helps to shorten the product testing process for product line, quality assurance and R&D.

### ■ Test Function - For Type 1 (SAE J1772 1-Phase)

1. Hi-pot Test Function ( for UL2594 )
2. GND Continuously Test ( for UL2594 )
3. Control Pilot Signal Test State A
4. Control Pilot Signal Test State B2
5. Control Pilot Signal Test State C
6. Current Capacity Test
7. Disconnect Switch S2 Test
8. Coupler Disconnection Test
9. Over Current Protection Test
10. CCID Test ( for UL2231 )

### ■ Test Function- For Type 2 (IEC 62196-2 3-Phase)

1. Hi-pot Test Function ( for UL2594 )
2. GND Continuously Test ( for UL2594 )
3. Control Pilot Signal Test State A
4. Control Pilot Signal Test State B2
5. Control Pilot Signal Test State C
6. Current Capacity Test
7. Disconnect Switch S2 Test
8. Coupler Disconnection Test
9. Over Current Protection Test
10. CCID Test ( for UL2231 )

## Advantages of Preen's EVSE ATS

Comparing to other EV charger testing systems on the market, Preen's testing system not only complies with international regulations, it also provides automation testing for insulation, voltage-withstand and leakage current, greatly improved the efficiency of product line and quality assurance process.

EV Charger Testing Items	Preen	Brand A	Brand B
Insulation Test	V	-	-
Ground Continuity Test	V	-	-
Hipot Test	V	-	-
Touch Current Test	V	-	-
Current Capacity Test	V	V	-
Disconnect Input / Output Switch Test	V	V	V
Coupler Disconnection Test	V	V	V
Input Characteristics Test	V	V	V
Output Characteristics Test	V	V	V
Control Pilot Test (State A to F)	V	V	V
Over Current Protection Test	V	V	V
Charging Circuit Interrupting Device (CCID) Test	V	V	V
Emergency Stop Test	V	V	V
Data Record and Export Data	V	V	V

V Yes - No



During development and production process, protection devices like fuse or circuit breaker that are specified to withstand specific current levels need to be verified by a series of related test to ensure the quality of a product. Preen's fuse test solution is designed to meet the requirements of fuse breaking or duration test, with the capability to deliver up to 2000A in fast response time and to generate precision measurement data for further analysis.

Preen's fuse test system comprises of high power programmable DC power supply, ADG series, which has fast current response time, precision measurement, and high current output. ADG series can deliver up to rated current in few milliseconds, which can fulfill the requirements in ISO-8820. With Preen's fuse test system software, user can easily set up the parameters and generate test report and waveform for analysis.

## Applications

- Fuse breaker test

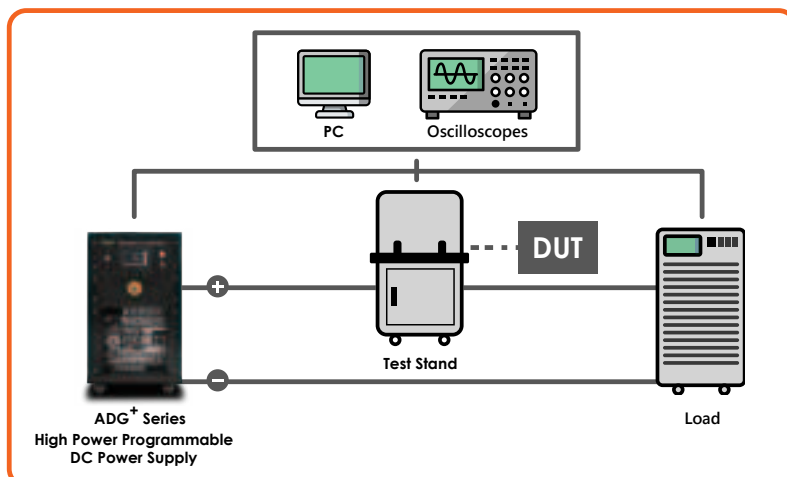
## Test Items

- Operation Time Test
- Current Step Test
- Breaking Capacity Test
- Transient Current Cycling Test

## Product Features

- Able to measure fuse breaking time and capture the waveform.
- Can be set up to 100 hours.
- Designed for production line and laboratory.
- Fast current response time meet the regulation requirements.

## Instruments



# AC Power Source Selection Guide

## Programmable Models

Series	AFV-P	AFV +	AFV	AFC	PWF	
					L model	M model
Output Phase	1Ø	1Ø / 3Ø	1Ø / 3Ø	1Ø / 3Ø	3Ø	3Ø
Output Power	0.6k-5kVA	10k-2000kVA	10k-2000kVA	3k-2000kVA	20k-120kVA	20k-75kVA
Output Voltage	0-310V	0-310V	0-310V	0-310V	0-300V	0-150V
Output Frequency	A : 15-1000Hz B : 40-500Hz	A : 45-500Hz B : 45- 120Hz C : 300-840Hz	45-120Hz 45-500Hz(opt.)	45-65Hz 400Hz (Fixed)	45-500Hz	300-800Hz
Total Harmonic Distortion (THD)	≤ 0.3-0.8%	≤ 0.5%	≤ 1%	≤ 1%	≤ 2%	
Load Regulation	≤ 0.07%	≤ 0.5%	≤ 1%	≤ 1%	≤ 1%	
Efficiency	≥ 77-80%	≥ 85-90%	≥ 85-90%	≥ 85-90%	≥ 85-90%	
DC Output	○	-	-	-	-	
Step & Gradual (Ramp)	○	○	○	-	○	
Transient	○	-	-	-	-	
Start & End Angle Setting	○	Start Angle Setting(opt.)	-	-	-	
Three Phase Independent Adjustment	-	○	△	-	○	
Phase Angle Adjustment	-	△	△	-	○	
Sync. Signal	○	-	-	-	-	
Soft Start Function	○	○	△	-	△	
Remote Sensing	○	○	-	-	-	
Interface	RS-232	○	○	○	○	
	RS-485	○	○	○	○	
	USB	○	-	-	-	
	Ethernet	○	○	○	△	
	GPIB	△	△	△	△	
	Analog	△	△	-	-	
Preen Program	○	○	○	-	-	
HMI	Touch Screen	Touch Screen	Touch Screen	Touch Screen	Touch Screen	
Other Features	Response time ≤ 300us	High Power Models Available	High Power Models Available	-	With Overload Capability	
	Inrush Current ≥ 4.5 time of max.output current ( RMS )					
	The Height is 2U(up to 2.5kVA) / 4U ( 5kVA ) Only	Remote Control Software				

## Industry-Specific Models

Series	PAS	Series	AMF	AMV	Series	BPS
Output Phase	3Ø	Output Phase	1Ø / 3Ø	3Ø	Output Phase	3Ø
Output Power	30k-2000kVA	Output Power	0.5k-400kVA	30k-180kVA	Output Power	300k-2000kVA
Output Voltage(L-N)	0-300V 0-350V(opt.)	Output Voltage	115V ±10%	115V/200V±10%	Output Voltage (L-L)	440V±5%
Output Frequency	45-65Hz 40-70Hz (opt.)	Output Frequency	350-450Hz 400Hz(Fixed)	300-500Hz (Stand-Alone) 400Hz (Fixed)	Output Frequency	47-63Hz / 50Hz / 60Hz
Total Harmonic Distortion (THD)	≤ 2%	Total Harmonic Distortion (THD)	≤ 2-3%	≤ 2%	Total Harmonic Distortion (THD)	≤ 3%
Load Regulation	≤ 1%	Load Regulation	≤ 1-1.5%	≤ 1% (Less than 30% unbalanced load)	Load Regulation	≤ 1-2.5%
Power Factor	0.99	Power Factor	-	0.94	Power Factor	0.85-0.95
Efficiency	≥ 92%	Efficiency	-	≥ 92%	Efficiency	≥ 85-95%
Step & Gradual (Ramp)	○	Protection Level	-	IP54	Protection Level	IP54
Regenerative Function	○	Trailer/ Stand-Alone	-	○	HMI	LED & Rotary Knob Operation
Phase Angle Adjustment	△	EF signal	-	○	Other Features	Overload Capability
Three Phase Independent Adjustment	○	Dual output	-	△		With Outdoor Container
Soft Start Function	△	AC + DC in One Unit	-	△		
Interface	RS-232	interface	RS-485	○		
	RS-485			○		
	USB			△		
	Ethernet			△		
	GPIB			△		
HMI	Touch Screen Operation	HMI				
Other Features	With High/Low Voltage Ride Through (HVRT/ LVRT) Simulation	Other Features	LED & Rotary Knob Operation	VFD		
			Trailer / Stand-Alone	Overload Capability		
			With Overload Capability	Rugged Design for Harsh Environment		
			-	Universal Design for Trailer and Stand-Alone Models		
-	Refer to MIL-STD-704F					
-	Up to 34 Error Code					

- Standard
- △ Optional
- None

# The Best Choice for Grid Abnormal Simulation

Not only provide simulation for standard voltage and frequency, Preen's AFV-P series can also simulate sags, surges, dropouts and spike of mains supply, covering various power conditions and verification items. Featured with DC output and outstanding output performance, AFV-P series has been widely used in motor, home appliance, military, aircraft and power module industries.

## Output Voltage Up to 1240V

Ideal for All Kinds  
of Application

## Output Frequency Up to 1000Hz

Suitable for Defense and  
Military industries.

## THD $\leq$ 0.3%

High Output  
Performance

- **Power Line Disturbance Simulation (PLD)** for Pre-compliance Tests of IEC-61000-4-11/14/28 etc.
- **Intuitive Local Operation** Providing Quick Hand-on Experience.
- **Multi-application** Widely Use in Home Appliances, Laboratories, Motors. It's Also Suitable for Renewable Energy, EV, and Lighting.
- **LED Dimming** Easily Set Up Leading Edge Dimming or Trailing Edge Dimming by TRIAC Dimmer Simulation.



# High Performance Programmable AC Power Source



Preen's AFV-P series is a programmable AC power source with DC output and precision measurement. This compact power source provides clean power with THD less than 0.3% at 40-100 Hz and it delivers output voltage of 0-310 V and frequency of 40-500 Hz (opt. 15-1000 Hz). It is ideal for commercial, defense and aerospace test applications from design verification, quality assurance, ATE to mass production.

AFV-P series comprises measurement features of rms voltage, rms current, true power, apparent power, power factor, crest factor, reactive power and etc. Its 5" touch screen with rotary knob allows quick adjustments and configurations of voltage, current and frequency. Total 1200 test steps in 50 built-in memories and transient generation functions allow simulations of voltage variations, surges, drops and frequency disturbances. Users can set up starting and ending phase angle from 0 - 359 degrees and they can also remotely control AFV-P series via standard interfaces. Free control software and LabVIEW driver are available for easy programming and remote control.

## Product Features

- Compact and high power density: 600VA to 2500VA is only 2U and 5000VA is 4U.
- Capable to simulate immunity regulations such as IEC-61000-4-11/14/28.
- THD is only under 0.3 % when output frequency is under 100Hz.
- Easy set up for voltage, frequency, current and other parameters via 5" touch panel and rotary knob.
- TRANSIENT generation provides users an easy setup for power line disturbance (PLD) simulation.
- Start/End phase angle: users can define the start and end phase angle from 0° to 359°.
- Current foldback feature: have output current maintain constant based on the load which output voltage varies.
- Fast response time: less than 300 μs from 0~90% output voltage.
- Free control software and LabView driver.
- Complied with IEC61000-3-2 Electromagnetic Compatibility Requirements which making the AFV-P series ideal for various applications.

## Output Power

**600VA~5kVA**

## Interfaces

Standard	<b>RS-232</b>	<b>RS-485</b>
	<b>Ethernet</b>	<b>USB</b>
Option	<b>GPIB</b>	<b>Analog</b>

## Applications

- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- Electric Vehicles
- Motor & Compressor
- IT / SMT Production Line
- Aerospace & Defense
- Transportation

## QR Code

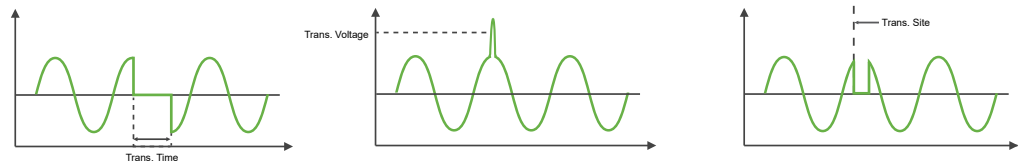


**Product Info.**



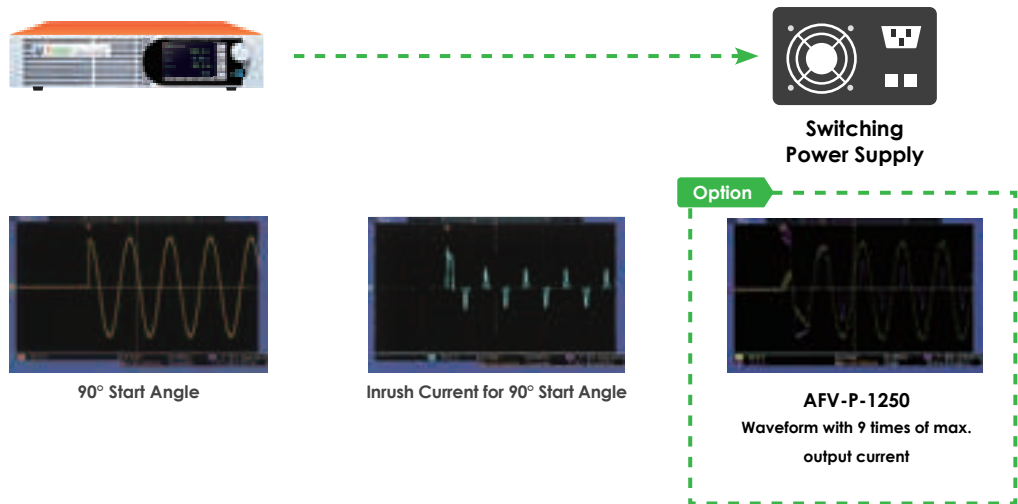
**Product Video**

## Transient Simulation



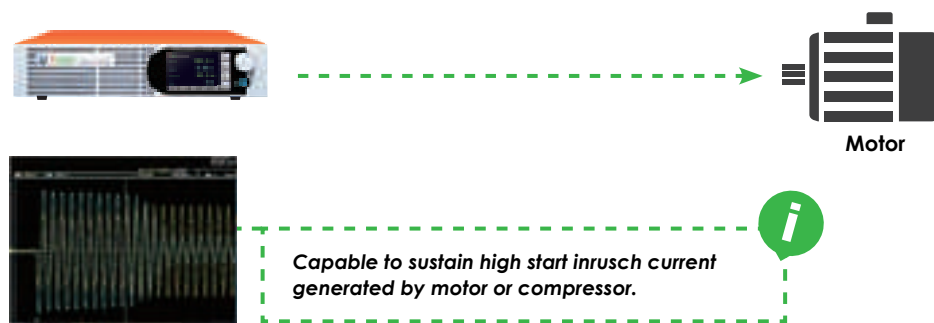
Through the Transient feature, user can have more control over the waveform by inserting disturbance at user-defined locations with user-defined drop/rise range. This is a useful feature to simulate different pre-compliance tests and various types of power line disturbance, such as surge, sag, spike and dropout, for immunity tests.

## High Inrush Current EUT & Start / End Angle Setting



For switching supply (rectified load), AFV-P series provides standard inrush current as 4.5 times of max. output current and the AFV-P-600 and AFV-P-1250 have optional 9 times of max. output current, which makes AFV-P series the lowest capacity in the market that can achieve the highest inrush current. Moreover, the AFV-P series allows users to set the start angle/end angle for the product output, which is suitable for testing switching power supplies.

## Motor Type Testing

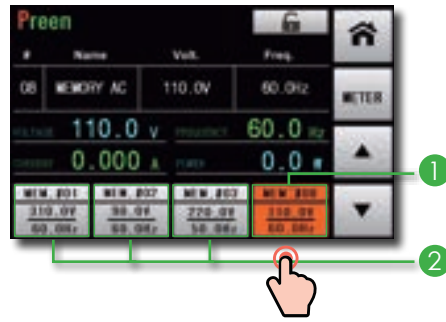


Video

AFV-P series can provide up to 4.5/opt. 9 times of peak current from its maximum rated current, which is ideal for inrush current tests, such as electric motor tests. Likewise, AFV-P series is capable to sustain high start inrush current generated by motors or compressors. The user doesn't have to buy high-capacity power supplies just in keeping with the high inrush current characteristic of the loads. Reduce the costs and save the space.



### Intuitive Touch Screen Control & 4 Groups of Hot keys



To create a complex sequence on the HMI is no longer a difficult task for AFV-P series. The 5 inches touch screen provides users a clear display and an easy set up. AFV-P series can display 4 shortcuts of Memory Sets, and the voltage and frequency setting of each Memory Sets can be clearly read. The user can quickly switch the output by selecting the shortcuts.

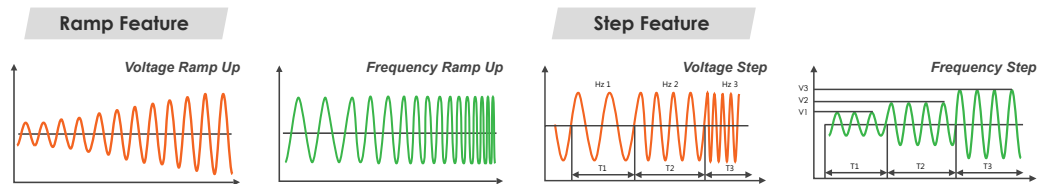
- 1 One user-assigned shortcut from 50 memory sets
- 2 Three fixed shortcuts from first three memory sets

### Multiple Communication Interfaces & Control Software



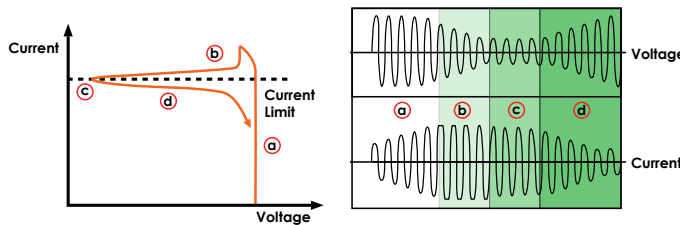
The AFV-P series is equipped with communication interfaces of USB, Ethernet, RS232, and RS485, so users no longer need to spend extra on remote interface card. Only GPIB and Analog are optional interfaces. AFV-P series also provides control software with comprehensive programming features and LabView driver, which help users to easily control the AC source without further needs of programming.

### Programmable Simulation Functions: Step & Ramp Features



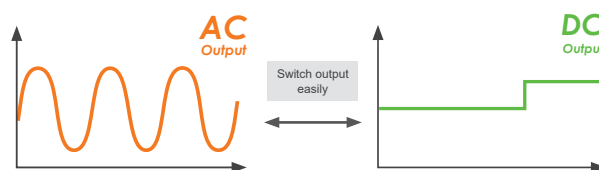
Ramp and Step feature allows users to define slew rate of voltage and frequency at each Step. Users can set the rise/fall time, time unit and voltage/frequency change between Steps to create a wide range of waveform. Additionally, Ramp feature can effectively reduce the inrush current by simulating soft start for motor or compressor startup.

### Over Current Foldback



When it comes to over current, AFV-P series offers more than just shutdown protection. Over current foldback enables AFV-P series to maintain the output current at the rated current and correspondingly decrease the output voltage as the load impedance increases. It is an extended protection or an alternative to provide constant current for EUT.

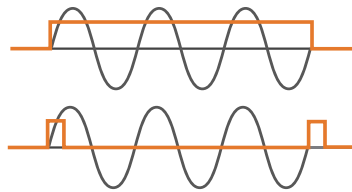
### AC Output & DC Output



AFV-P series not only provide AC output to simulate real world grid conditions, but can also generate DC output based on user's settings. It is an ideal cost-effective power testing solution for R&D and certification laboratories.



## Synchronized Signal



5V DC Synchronized Signal

AFV-P series provides two types of synchronized signal. It can either deliver a 5V DC signal continuously when the product output is on or deliver a 5V DC pulse signal every time there is a change on the product output. This feature makes AFV-P series an ideal AC source when applying with automatic test systems.

## Fast Response & High Stability



AFV-P series is a high performance AC power source with fast response time, low total harmonic distortion and tight voltage regulation. With its technically advanced features, users can easily simulate power line disturbance, such as sags, surges, dropouts and spikes.

## High-Voltage Output 620V/1240V (Opt.)



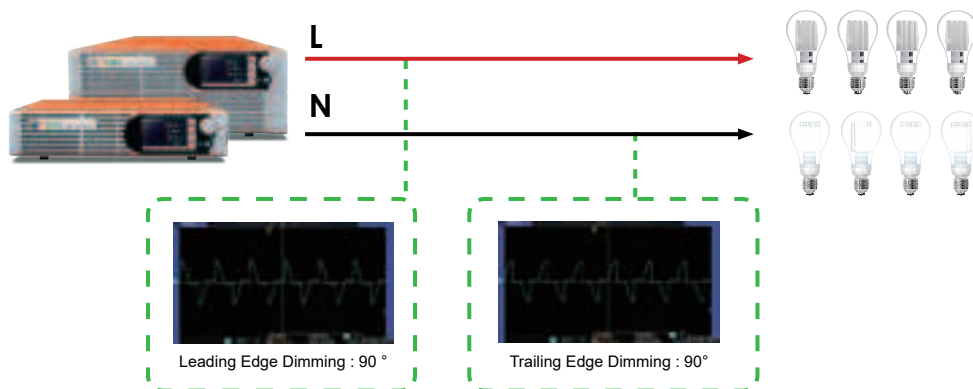
AFV-P-5000 :  
620V/60Hz /6.31A/3916.8W



AFV-1250 :  
1000V/60Hz/0.74A/741W

AFV-P series provides optional high-voltage output 620V or 1240V to meet the high voltage requirements on simulations of wide input voltage variations (15%~20%), over-voltage and other extreme conditions. For example, it can simulate US 277V with at least 15% and other wider range of over-voltage testing.

## LED TRIAC Dimmer (Opt.)



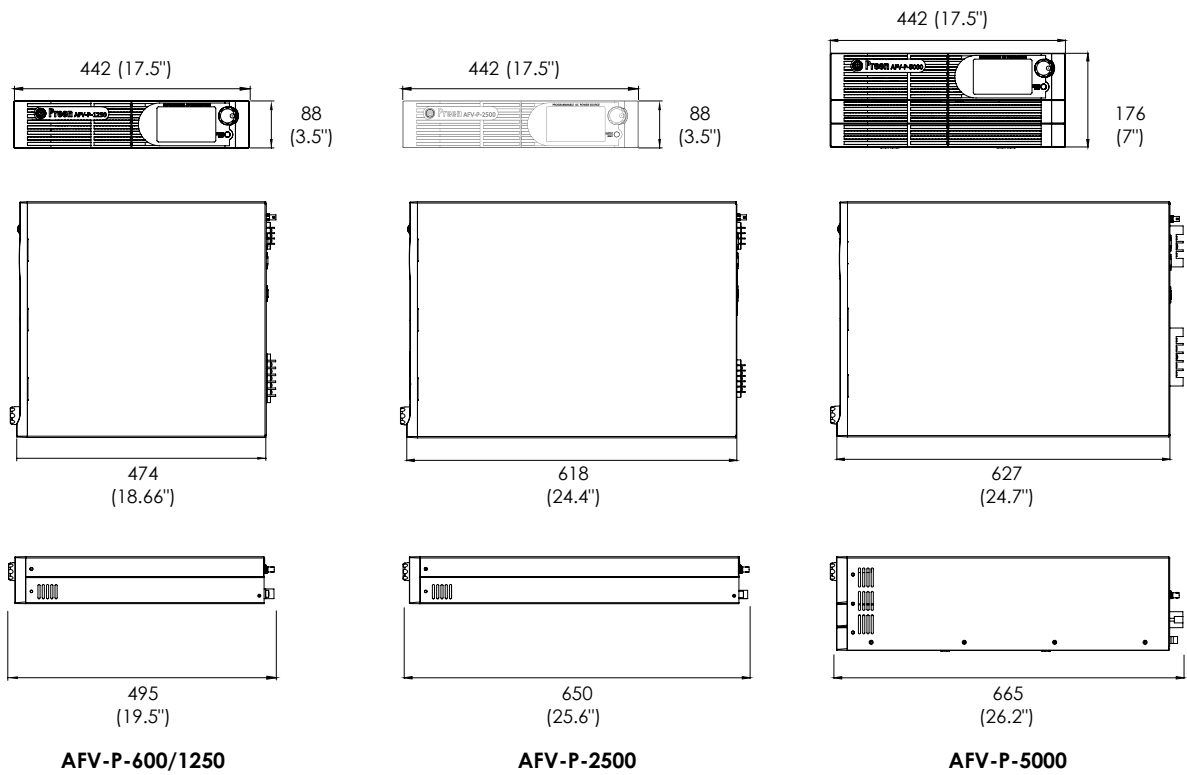
AFV-P series provides optional LED TRIAC Dimmer function, which can simulate output of TRIAC dimmer. The user can select whether to perform LEADING EDGE DIMMING or TRAILING EDGE DIMMING via HMI. Compared with traditional TRIAC dimming, the output waveform can be controlled more accurately and effectively.



Video

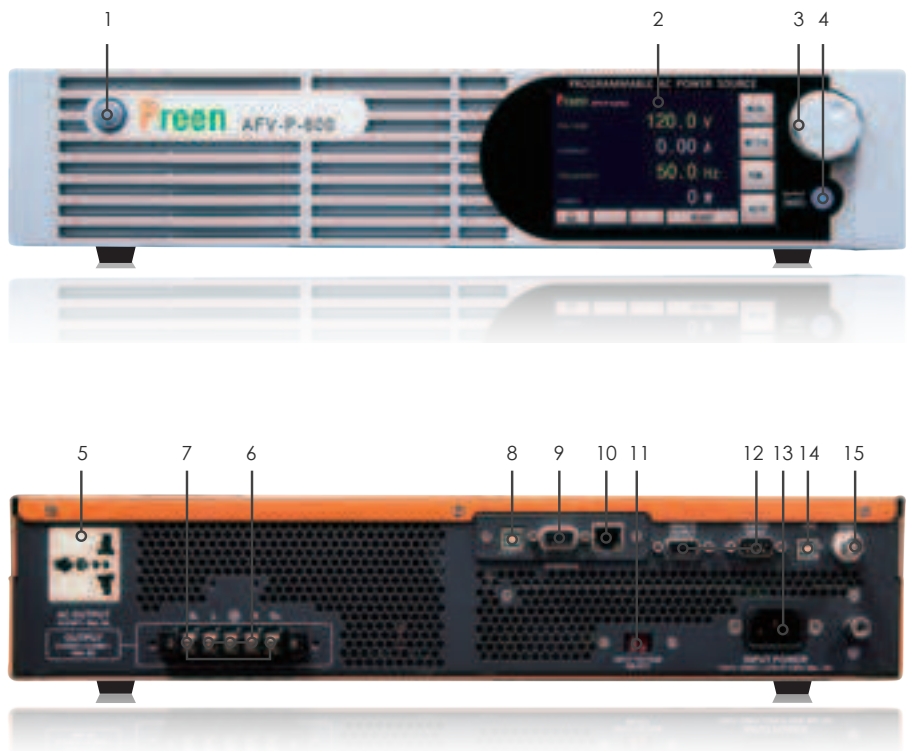
## DIMENSIONS

Unit : mm ( inch )



## PANEL DESCRIPTION

1. Power Switch
2. Touch Screen HMI
3. Rotary Knob
4. Output / Reset Button
5. AC Output Socket
6. Output Terminals
7. Remote Sense Terminal
8. USB Interface
9. RS-232 / RS-485
10. Ethernet Interface
11. Input Voltage Selector
12. PLC Remote In/Out
13. Input Socket \*
14. USB Interface (for firmware update)
15. Sync. Singal I/O



\* AFV-P-1250, AFV-P-2500, AFV-P-5000 have input terminals.

## SPECIFICATIONS

### AFV-P Series Single-Phase Output (600VA - 5kVA)

Model	AFV-P-600	AFV-P-1250	AFV-P-2500	AFV-P-5000	
<b>INPUT</b>					
Phase	1Ø / 2 Wire + G				
Voltage	98-132VAC / 196-264VAC		196-264VAC( opt. 175-235VAC )		
Frequency	47 - 63 Hz (opt. 400Hz)				
Max. Current	10A	20A	20A	40A	
<b>OUTPUT</b>					
Power	VA	600VA	1250VA	2500VA	5000VA
	W	500W	1000W	2000W	4000W
Phase	1Ø / 2 Wire + G				
Voltage Ranges	0 - 155Vrms / 0 - 310Vrms, user selectable				
Voltage Accuracy	± ( 0.5 % of setting + 0.1% F.S. )				
Voltage Resolution	0.1Vrms				
Frequency	A : 15-1000Hz , B : 40-500Hz				
Frequency Accuracy	±0.02%				
Frequency Resolution	0.1Hz, 1Hz				
Max. Current (RMS)	5A / 2.5A	10A / 5A	20A / 10A	40A / 20A	
Max. Current (Peak)	22.5A / 11.3A	45A / 22.5A	90A / 45A	180A / 90A	
Total Harmonic Distortion (THD)	≤ 0.3% at 40-100Hz, ≤ 0.5% at 101-500Hz, ≤ 0.8% at 501-1000Hz (Resistive Load)				
Line Regulation	± 0.1V				
Load Regulation	≤ 0.07% F.S. (Resistive Load)				
Response Time	≤ 300µs				
Crest Factor	≥ 3				
Inrush Current	≥ 4.5 times of max.output current ( R.M.S )				
<b>DC OUTPUT</b>					
Power	300W	600W	1250W	2500W	
Voltage Ranges	0 - 210V / 0 - 420V				
Max. Current	2.5A / 1.25A	5A / 2.5A	10A / 5A	20A / 10A	
Ripple & Noise (RMS)	≤ 0.15%				
<b>MEASUREMENT</b>					
Voltage Range	0 - 420Vrms				
Voltage Accuracy	±(0.2% of reading + 5 counts)				
Voltage Resolution	0.1V				
Frequency Range	15 - 1000Hz				
Frequency Accuracy	±0.1Hz at 40.0 - 500Hz, ±0.2Hz at 501 - 1000Hz				
Frequency Resolution	0.1Hz				
Current Range	Hi: 1 - 12A / Lo: 0.005 - 1.2A		Hi: 2 - 24A / Lo: 0.005 - 2.4A		
Current Accuracy	± ( 1% of reading + 5 counts ) at 40.0 - 500Hz, ± ( 1% of reading + 10 counts ) at 501 - 1000Hz <sup>2</sup>				
Current Resolution	Hi: 0.01A / Lo: 0.001A				
Peak Current Range	0 - 45A	0 - 90A		0 - 180A	
Peak Current Accuracy	± ( 1% of reading + 5 counts ) at 40.0 - 500Hz, ± ( 1% of reading + 10 counts ) at 501 - 1000Hz			± ( 1% F.S.+ 5 counts )	
Peak Current Resolution	0.1A				
Power Range	Hi: 100 - 1200W / Lo: 0 - 120W		Hi: 200 - 2400W/ Lo: 0 - 240W		
Power Accuracy	± ( 2% of reading + 10 counts ) at 40 - 500Hz, ± ( 2% of reading + 15 counts ) at 501 - 1000Hz				
Power Resolution	Hi: 1W / Lo: 0.1W		Hi: 1W		
<b>GENERAL</b>					
Efficiency	≥ 77% at max. power		≥ 80% at max. power		
Protection	OVP, OCP, LVP, OPP, OTP, RCP, Fan Fail and AMP Fail				
Remote Interface	Standard: RS232 / RS485 / Ethernet / USB / PLC Remote In&Out, Optional: GPIB / Analog Control				
Over Current Foldback	Output Current maintains constant based on the load while output voltage varies				
Output Sync Signal	ON, Event for Voltage or Frequency Change (Output signal 5V , BNC type)				
Memories	50 Memories & 1200 Steps (24 Steps/Memory)				
Operating Temperature	0°C - 40°C				
Dimensions(HxWxD)	88 x 442 x 495mm		88 x 442 x 650mm		
	3.5 x 17.4 x 19.5inch		3.5 x 17.4 x 25.6inch		
Weight	16kg	20kg	31.3kg	61.5kg	
	35.3lbs	44.1lbs	69lbs	135.6lbs	

\* 1 All specifications are subject to change without notice.

\* 2 AFV-P-2500 is ±(1% F.S. + 5 counts)

## ORDERING INFORMATION

### AFV-P Series Single-Phase Output (600VA - 5kVA)

Model Number	Description
AFV-P-600A	High Performance Programmable AC Power Source( 600VA/310V/15-1000Hz )
AFV-P-1250A	High Performance Programmable AC Power Source( 1.25kVA/310V/15-1000Hz )
AFV-P-2500A	High Performance Programmable AC Power Source( 2.5kVA/310V/15-1000Hz )
AFV-P-5000A	High Performance Programmable AC Power Source( 5kVA/310V/15-1000Hz )
AFV-P-600B	High Performance Programmable AC Power Source( 600VA/310V/40-500Hz )
AFV-P-1250B	High Performance Programmable AC Power Source( 1.25kVA/310V/40-500Hz )
AFV-P-2500B	High Performance Programmable AC Power Source( 2.5kVA/310V/40-500Hz )
AFV-P-5000B	High Performance Programmable AC Power Source( 5kVA/310V/40-500Hz )
AFV-P-T620A	620V Transformer Box( AFV-P-600 & AFV-P-1250 )
AFV-P-T620B	620V Transformer Box( AFV-P-2500 )
AFV-P-T620C	620V Transformer Box( AFV-P-5000 )
AFV-P-T1240A	1240V Transformer Box( AFV-P-600 & AFV-P-1250 )
AFV-P-T1240B	1240V Transformer Box( AFV-P-2500 )
AFV-P-T1240C	1240V Transformer Box( AFV-P-5000 )
AFV-P-001	RS-232/RS-485/USB/Ethernet Interface
AFV-P-002	GPIB Interface
AFV-P-003	Analog Control Interface
AFV-P-004	RS232 Cable (1.8m / Female to Male)
AFV-P-008	Input Power Cable 1.8M (for 600VA)
AFV-P-009	Input Power Cable 3M (for 1.25kVA/2.5kVA)
AFV-P-010	Input Power Cable 5M (for 5kVA)
AFV-P-011	Input 400Hz (at input 110V/220V $\pm$ 10% )
AFV-P-012	Output 320V (at input 110V/220V $\pm$ 10% )
AFV-P-013	LED TRIAC Dimmer Simulation
AFV-P-014	Output 9 Times of Inrush Current (AFV-P-600 & AFV-P-1250)



# The Ideal AC Source for High Power Testing Applications

**NEW** AFV<sup>+</sup> series 10kVA~2000kVA

## New Version of High Power Programmable AC Power Source

The AFV<sup>+</sup> series features low THD (total harmonics distortion), high reliability, multiple programming features, intuitive operations and leading power level. This latest high power programmable AC Power source of Preen can simulate different power line disturbances and record error logs. The new control software for the AFV<sup>+</sup> series also provides great convenience for remote control and monitoring .

**THD  $\leq$  0.5%**

Leading Performance on  
Harmonic Distortions

**Regulation  $\leq$  0.5%**

Precise and Stable  
Output Performance

**Power Line  
Disturbances**

Simulate Phase Unbalance,  
Phase Shifting and Phase Loss

- **Intuitive Touch Screen Control** New Version of Easy-to-use Local Operations
- **New Control Software** User-friendly Control with Comprehensive Functions
- **Three-Phase Independent Adjustment** Easy to Set Different Output Voltage, Simulate Voltage Imbalance and Phase Shift



# High Power Programmable AC Power Source

RoHS  
Compliant



The AFV<sup>+</sup> series is a high power programmable AC power source utilizing advanced PWM technology to deliver power with THD  $\leq 0.5\%$  and up to 2000kVA. The output frequency is 45~120Hz with accuracy of  $\pm 0.02\%$ , and user can select 45~500Hz or 300-840Hz option to expand the frequency. The AFV<sup>+</sup> series is ideal to simulate different region's voltage and frequency conditions, and can cover applications for home appliance, motor, medical equipment, lighting and EMC laboratory.

The AFV<sup>+</sup> series features STEP and RAMP programmable functions to easily simulate single or continuous output changes. Three phase independent adjustment, optional remote sensing and optional phase angle adjustment all provide convenient control to simulate different kinds of line disturbance. For remote control, the AFV<sup>+</sup> series has standard RS-232, RS-485 & Ethernet interface card and optional GPIB and Analog interfaces for easy setup and programming.

## Product Features

- Wide Output Power Range: 10kVA~2000kVA.
- Optional 0-400V (L-N) or 0-600V(L-N) output voltage.
- With standard remote sensing function, user can avoid voltage drop easing.
- CE & RoHS certified.
- The 7" touch screen shows parameters of voltage, current, frequency, real power, apparent power and sum of each phase's parameters.
- The soft start function can effectively reduce inrush current caused by motor startup.
- Via the Three Phase Independent Adjustment function, the AFV<sup>+</sup> series can deliver each phase voltage differently to multiple single-phase DUTs.
- User can simulate phase shift with the optional Phase Angle Adjustment function.

## Output Power

**10kVA~2000kVA**

## Interfaces

Standard	<b>RS-232</b>	<b>RS-485</b>
	<b>Ethernet</b>	
Option	<b>GPIB</b>	<b>Analog</b>

## Applications

- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- Electric Vehicles
- Motor & Compressor
- IT / SMT Production Line
- Renewable Energy
- Medical Industry

## QR Code

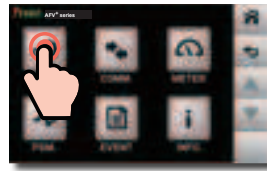


Product  
Info.



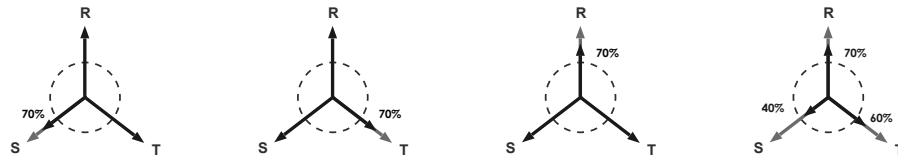
Product  
Video



## Intuitive 7" Touch Screen



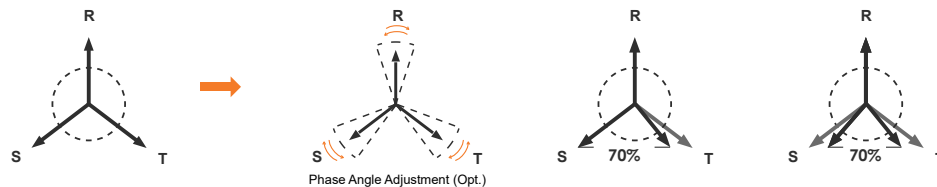
The AFV<sup>+</sup> series employs 7" touch screen to provide intuitive and easy-to-use control and display. Users can quickly access output settings and measurements, including voltage, current, frequency, real power, apparent power, PF and sum of each phase's parameters. Complex sequences and system configurations can also be easily done via the touch screen.

## Three Phase Independent Adjustment



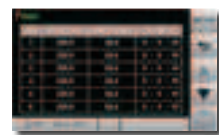
The Three Phase Independent Adjustment function of AFV<sup>+</sup> series can simulate advanced power line disturbance, such as three-phase voltage unbalanced or lost-phase, which can further meet up with testing standard of IEC61000-4-34 (GB/T 17626-34), by setting output voltage of each phase independently. User can simply press the screen icon to switch between balanced voltage setting  and independent voltage adjustment .

## Phase Angle Adjustment (Opt.)

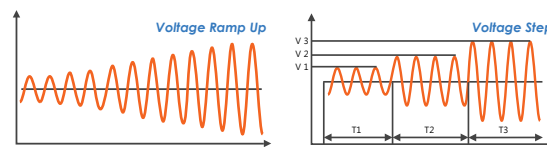


The AFV<sup>+</sup> series not only can set three-phase voltage independently, but also can set the phase angle between three phases via the optional Phase Angle Adjustment, for example, user can set phase angle from 120° to 70° to simulate phase shift for different power conditions.

## RAMP and STEP Programming Function



STEP Setting (24 sequences)



The AFV<sup>+</sup> series' RAMP feature has up to 12 sequences available with parameters of voltage, frequency and time, and the STEP feature has up to 24 sequences available with parameters of voltage, frequency and time. These features provide an easy method to simulate different kinds of power line disturbance.

## Overload Capability (Opt.)



An inductive DUT (Device Under Test), such as motor, compressor or water pump, generates great activation current when activating. As a result, users need to purchase a power supply with much higher capacity than the DUT itself. AFV<sup>+</sup> series has an optional overload capability that can endure/achieve 200% overload capability, easy to activate products of electric motor type that require high activation current.

## Remote Interfaces



For easy setup and programming, the AFV<sup>+</sup> series has standard RS-232/RS-485/Ethernet interface card. User also can select optional GPIB and Analog interfaces for different remote control requirements.



### Broader Frequency and Higher Voltage (Opt.)

1  
UP TO  
**840Hz**



2  
UP TO  
**400V<sub>(L-N)</sub> OR 600V<sub>(L-N)</sub>**

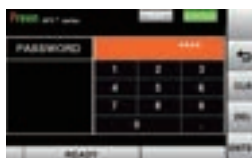
AFV+ series can output optional frequency up to 840Hz to meet the needs of defense and aircraft industries. It can also be used for double frequency test of transformer. Moreover, AFV+ series can output up to 400V(L-N)/690V(L-L) or 600V(L-N)/1039V(L-L) (optional) for motors that need higher input voltage.

### Remote Control Software: Preen Program



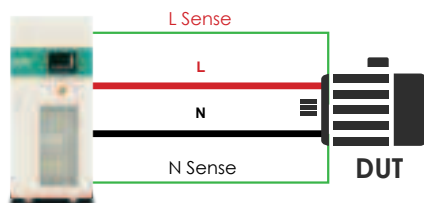
The AFV+ series offers complimentary remote control software, Preen Program. This graphical user interface provides easy settings and user-friendly configurations for users to fully control the unit. The Preen Program includes GENERAL mode and PROGRAMMABLE mode with STEP and RAMP features available. The preview waveform and report functions also greatly enhance convenience for review parameters and results before or after testing.

### Screen Lock Password Function



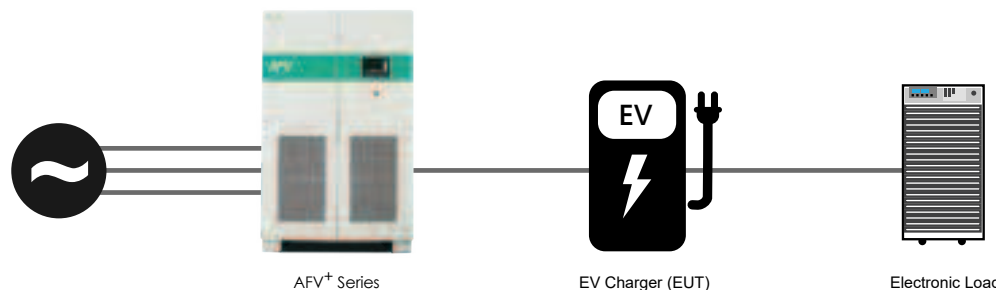
In order to prevent the operator from changing the set parameters by mistake, the new Screen Lock Password function is added on AFV+ series, so that the operator can only perform the output of the device, and only authorized personnel has the password to unlock the screen and edit parameters, which help to increase the security and effectiveness of testing.

### Remote Sensing



In the factory or laboratory, there is often a certain distance in the configuration of power and load. The Remote Sensing of AFV+ series is able to compensate the voltage drop caused by the cable length, so the user can avoid the inconvenience of adjusting the voltage.

### EV Charger Application



Before EV charger's ready for installation, it has to do a series of tests to ensure its reliability and safety. For example, input AC characteristic test, control signal test, performance test, safety features etc. are required test items. AFV+ series is the ideal power source to perform high quality and stable EV charger testing.

# SPECIFICATIONS

## AFV+ Series Single-Phase Output (10kVA - 150kVA)

Model	AFV-PLUS-31010	AFV-PLUS-31015	AFV-PLUS-31020	AFV-PLUS-31030	AFV-PLUS-31045	AFV-PLUS-31060	AFV-PLUS-31075	AFV-PLUS-31100	AFV-PLUS-31120	AFV-PLUS-31150	
<b>INPUT</b>											
Phase	3Ø / 3Wire + G										
Voltage <sup>1</sup>	380 VAC ±15% (option: 200 VAC, 208 VAC, 400 VAC, or 480 VAC)										
Frequency	47 - 63Hz										
Max. Current <sup>2</sup>	18.8A	28.1A	37.5A	56.3A	84.4A	112.5A	140.7A	198.6A	238.3A	297.9A	
Power Factor	≥0.9 ( Max. Power )										
<b>OUTPUT</b>											
Power ( VA )	10kVA	15kVA	20kVA	30kVA	45kVA	60kVA	75kVA	100kVA	120kVA	150kVA	
Phase	1Ø / 2 Wire + G										
Voltage Ranges	Low (V) 0V-155.0V ( L-N )										
	High (V) 0V-310.0V ( L-N )										
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+ 4 counts										
Frequency Range <sup>3</sup>	A : 45-500Hz ; B : 45-120Hz ; C : 300-840Hz										
Frequency Resolution	0.1Hz										
Frequency Accuracy	±0.02% F.S.										
Max. Current (RMS)	Low (A) 83.3A 125A 166.7A 250A 375A 500A 625A 833.3A 1000A 1250A										
	High (A) 41.7A 62.5A 83.3A 125A 187.5A 250A 312.5A 416.7A 500A 625A										
Line Regulation	< 0.5%										
Load Regulation	≤ 0.5% ( Resistive Load )										
Total Harmonic Distortion (THD) <sup>4</sup>	≤ 0.5% ( Resistive Load )										
Response Time	≤ 1ms										
Crest Factor	≥3										
<b>MEASUREMENT</b>											
Voltage Range	0V-310.0V										
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+ 4 counts										
Frequency Range	45.0-840.0Hz										
Frequency Resolution	0.01Hz										
Frequency Accuracy	±0.02% F.S.										
Current Range (RMS)	0 - 83.3A	0 - 125A	0 - 166.7A	0 - 250A	0 - 375A	0 - 500A	0 - 625A	0 - 833.3A	0 - 1000A	0 - 1250A	
Current Resolution (RMS)	0.1A										
Current Accuracy (RMS)	0.5% F.S.+4 counts										
Power Range	0 - 10kW	0 - 15kW	0 - 20kW	0 - 30kW	0 - 45kW	0 - 60kW	0 - 75kW	0 - 100kW	0 - 120kW	0 - 150kW	
Power Resolution	0.1kW										
Power Accuracy	1% F.S.+6 counts										
<b>GENERAL</b>											
Efficiency	≥90% at Max. Power							≥85% at Max. Power			
HMI	Touch Screen, 7" Color TFT LCD										
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) RAMP : 12 sets / 255 cycles. (Volt./Freq./Time)										
Soft Start Function	Setting : Rated Volt. / Rated Freq. / Start Volt. / Start Freq. / Delay Time / Ramp Time										
Protection	Input : N.F.B, Over Voltage, Under Voltage Output : Over Voltage, Over Current, Reverse Current, Over Temperature										
Remote Interface	Standard : RS-485 / RS-232/Ethernet Option : GPIB, Analog										
Operating Temperature	0°C~45°C										
Humidity	0~90% ( Non condensing )										
Altitude	< 1,500m										
Dimensions (H x W x D) <sup>5</sup>	1045 x 628 x 840 mm (Including wheels)	1440 x 628 x 840 mm (Including wheels)			1645 x 828 x 840 mm (Including wheels)			1900 x 1178x 1200 mm			
	41.1 x 24.7 x 33.1 inch (Including wheels)	56.7 x 24.7 x 33.1 inch (Including wheels)			64.8 x 32.6 x 33.1 inch (Including wheels)			74.8 x 46.4 x 47.2 inch			
Weight <sup>5</sup>	230kg	280kg	320kg	450kg	580kg	670kg	710kg	980kg	1135kg	1415kg	
	507lbs	617.4lbs	705.4lbs	992.3lbs	1278.9lbs	1477.4lbs	1565.2lbs	2160.5lbs	2502.2lbs	3119.5lbs	

\*1 Please contact us for other input voltage specifications. \*2 The max. current is based on rated input voltage of 380V. \*3 For type A: 45-500Hz, please contact us for output power characteristic curve.

\*4 When output frequency is at 45-65Hz and output voltage is 90V-140V(Low Range) or 180V-280V(High Range) and with resistive load.

\*5 Dimensions and weight are for input voltage 380V. Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

# SPECIFICATIONS

## AFV+ Series Three-Phase Output (10kVA - 120kVA)

Model	AFV-PLUS-33010	AFV-PLUS-33015	AFV-PLUS-33020	AFV-PLUS-33030	AFV-PLUS-33045	AFV-PLUS-33060	AFV-PLUS-33075	AFV-PLUS-33100	AFV-PLUS-33120	
<b>INPUT</b>										
Phase	3Ø / 3Wire + G									
Voltage <sup>1</sup>	380VAC ±15% (option: 200 VAC, 208 VAC, 240VAC, 400VAC, or 480 VAC)									
Frequency	47 - 63Hz									
Max. Current <sup>2</sup>	18.8A	28.1A	37.5A	56.3A	84.4A	112.5A	140.7A	198.6A	238.3A	
Power Factor	≥0.9 ( Max. Power )									
<b>OUTPUT</b>										
Power (VA)	10kVA	15kVA	20kVA	30kVA	45kVA	60kVA	75kVA	100kVA	120kVA	
Phase	3Ø / 4 Wire + G									
Voltage Ranges	Low(V)	0V-155.0V ( L-N )								
	High(V)	0V-310.0V ( L-N )								
Voltage Resolution	0.1V									
Voltage Accuracy	0.5% F.S.+4 counts									
Frequency Range <sup>3</sup>	A : 45-500Hz ; B : 45-120Hz ; C : 300-840Hz									
Frequency Resolution	0.1Hz									
Frequency Accuracy	±0.02% F.S.									
Max. Current (RMS)	Low(A)	27.8A	41.7A	55.6A	83.3A	125A	166.7A	208.3A	277.8A	333.3A
	High(A)	13.9A	20.8A	27.8A	41.7A	62.5A	83.3A	104.2A	138.9A	166.7A
Line Regulation	< 0.5%									
Load Regulation	≤ 0.5% ( Resistive Load )									
Total Harmonic Distortion (THD) <sup>4</sup>	≤ 0.5% ( Resistive Load )									
Response Time	≤ 1ms									
Crest Factor	≥3									
<b>MEASUREMENT</b>										
Voltage Range	0V-310.0V									
Voltage Resolution	0.1V									
Voltage Accuracy	0.5% F.S.+4 counts									
Frequency Range	45.0-840.0Hz									
Frequency Resolution	0.01Hz									
Frequency Accuracy	±0.02% F.S.									
Current Range(RMS)	0 - 27.8A	0 - 41.7A	0 - 55.6A	0 - 83.3A	0 - 125A	0 - 166.7A	0 - 208.3A	0 - 277.8A	0 - 333.3A	
Current Resolution(RMS)	0.1A									
Current Accuracy(RMS)	0.5% F.S.+4 counts									
Power Range	0 - 10kW	0 - 15kW	0 - 20kW	0 - 30kW	0 - 45kW	0 - 60kW	0 - 75kW	0 - 100kW	0 - 120kW	
Power Resolution	0.1kW									
Power Accuracy	1% F.S.+6 counts									
<b>GENERAL</b>										
Efficiency	≥90% at Max. Power							≥85% at Max. Power		
HMI	Touch Screen, 7" Color TFT LCD									
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) RAMP : 12 sets / 255 cycles. (Volt./Freq./Time)									
Soft Start Function	Setting : Rated Volt. / Rated Freq. / Start Volt. / Start Freq. / Delay Time / Ramp Time									
Three Phase Independent Adjustment	U-N/V-N/W-N, Adjustment 0-310V									
Protection	Input : N.F.B, Over Voltage, Under Voltage Output : Over Voltage, Over Current, Reverse Current, Over Temperature									
Remote Interface	Standard : RS-485 / RS-232/Ethernet Option : GPIB, Analog									
Operating Temperature	0°C~45°C									
Humidity	0~90% ( Non condensing )									
Altitude	< 1,500m									
Dimensions (H x W x D) <sup>5</sup>	1045 x 628 x 840 mm (Including wheels)	1440 x 628 x 840 mm (Including wheels)			1645 x 828 x 840 mm (Including wheels)			1900 x 1178x 1200 mm		
	41.1 x 24.7 x 33.1inch (Including wheels)	56.7 x 24.7 x 33.1 inch (Including wheels)			64.8 x 32.6 x 33.1 inch (Including wheels)			74.8 x 46.4 x 47.2 inch		
Weight <sup>5</sup>	280kg	305kg	360kg	400kg	560kg	670kg	960kg	1170kg	1450kg	
	617.4lbs	672.5lbs	793.8lbs	882.0lbs	1234.8lbs	1477.4lbs	2116.8lbs	2579.9lbs	3197.3lbs	

\*1 Please contact us for other input voltage specifications. \*2 The max. current is based on rated input voltage of 380V. \*3 For type A: 45-500Hz, please contact us for output power characteristic curve.

\*4 When output frequency is at 45-65Hz and output voltage is 90V-140V(Low Range) or 180V-280V(High Range) and with resistive load.

\*5 Dimensions and weight are for input voltage 380V. Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

# SPECIFICATIONS

## AFV+ Series Three-Phase Output (150kVA - 2000kVA)

Model	AFV-PLUS-33150	AFV-PLUS-33200	AFV-PLUS-33300	AFV-PLUS-33400	AFV-PLUS-33500	AFV-PLUS-33600	AFV-PLUS-33800	AFV-PLUS-331000	AFV-PLUS-331200	AFV-PLUS-331500	AFV-PLUS-332000
<b>INPUT</b>											
Phase	3Ø / 3Wire + G										
Voltage <sup>1</sup>	380VAC ±15% (option: 400VAC, 240VAC or 480VAC)										
Frequency	47 - 63Hz										
Max. Current <sup>2</sup>	297.9A	397.2A	629.1A	838.8A	1048.5A	1258.3A	1677.7A	2097.1A	2516.5A	3145.6A	4194.2A
Power Factor	≥0.9 (Max. Power)										
<b>OUTPUT</b>											
Power (VA)	150kVA	200kVA	300kVA	400kVA	500kVA	600kVA	800kVA	1000kVA	1200kVA	1500kVA	2000kVA
Phase	3Ø / 4 Wire + G										
Voltage Ranges	0V-155.0V (L-N)										
	0V-310.0V (L-N)										
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+4 counts										
Frequency Range <sup>3</sup>	A : 45-500Hz ; B : 45-120Hz ; C : 300-840Hz										
Frequency Resolution	0.1Hz										
Frequency Accuracy	±0.02% F.S.										
Max. Current (RMS)	416.7A	555.6A	833.3A	1111.1A	1388.9A	1666.7A	2222.2A	2777.8A	3333.3A	4166.7A	5555.6A
	208.3A	277.8A	416.7A	555.6A	694.4A	833.3A	1111.1A	1388.9A	1666.7A	2083.3A	2777.8A
Line Regulation	< 0.5%										
Load Regulation	≤ 0.5% ( Resistive Load )										
Total Harmonic Distortion (THD) <sup>4</sup>	≤ 0.5% ( Resistive Load )										
Response Time	≤ 1ms										
Crest Factor	≥3										
<b>MEASUREMENT</b>											
Voltage Range	0V-310.0V										
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+4 counts										
Frequency Range	45.0-840.0Hz										
Frequency Resolution	0.01Hz										
Frequency Accuracy	±0.02% F.S.										
Current Range (RMS)	0 - 416.7A	0 - 555.6A	0 - 833.3A	0 - 1111.1A	0 - 1388.9A	0 - 1666.7A	0 - 2222.2A	0 - 2777.8A	0 - 3333.3A	0 - 4166.7A	0 - 5555.6A
	0.1A										
Current Resolution (RMS)	0.1A										
Current Accuracy (RMS)	0.5% F.S.+4 counts										
Power Range	0 - 150kW	0 - 200kW	0 - 300kW	0 - 400kW	0 - 500kW	0 - 600kW	0 - 800kW	0 - 1000kW	0 - 1200kW	0 - 1500kW	0 - 2000kW
	0.1kW										
Power Resolution	0.1kW										
Power Accuracy	1% F.S.+6 counts										
<b>GENERAL</b>											
Efficiency	≥85% at Max. Power										
HMI	Touch Screen, 7" Color TFT LCD										
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) RAMP : 12 sets / 255 cycles. (Volt./Freq./Time)										
Soft Start Function	Setting : Rated Volt. / Rated Freq. / Start Volt. / Start Freq. / Delay Time / Ramp Time										
Three Phase Independent Adjustment	U-N/V-N/W-N, Adjustment 0-310V										
Protection	Input : N.F.B, Over Voltage, Under Voltage Output : Over Voltage, Over Current, Reverse Current, Over Temperature										
Remote Interface	Standard : RS-485 / RS-232/Ethernet Option : GPIB, Analog										
Operating Temperature	0°C~45°C										
Humidity	0~90% ( Non condensing )										
Altitude	< 1,500m										
Dimensions (H x W x D) <sup>5</sup>	1900 x 1178x 1200 mm		2050x 3881x 1539mm		2050 x 4716 x 1520 mm		2050 x 6003 x 1520 mm		2200 x 10827 x1590 mm		2200 x 12990 x1590 mm
	74.8 x 46.4 x 47.2inch		80.7 x 152.8 x 60.6inch		80.7 x 185.7 x 59.8inch		80.7 x 236.3 x 59.8inch		86.6 x 426.3 x 62.6inch		86.6 x 511.4 x 62.6 inch
Weight <sup>5</sup>	1835kg	2415kg	3620kg	4670kg	5820kg	7720kg	9240kg	11080kg	16800kg	18720kg	19950kg
	4045.4lbs	5324.1lbs	7980.7lbs	10295.5lbs	12830.9lbs	17019.6lbs	20370.7lbs	24427.2lbs	37037.6lbs	41270.5lbs	43982.2lbs

\*1 Please contact us for other input voltage specifications. \*2 The max. current is based on rated input voltage of 380V. \*3 For type A: 45-500Hz, please contact us for output power characteristic curve.

\*4 When output frequency is at 45-65Hz and output voltage is 90V-140V(Low Range) or 180V-280V(High Range) and with resistive load.

\*5 Dimensions and weight are for input voltage 380V. Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## ORDERING INFORMATION

### AFV + Series Single-Phase Output (10kVA - 150kVA)

Model Number	Description
AFV-PLUS-31010	High Power Programmable AC Power Source (10kVA/310V)
AFV-PLUS-31015	High Power Programmable AC Power Source (15kVA/310V)
AFV-PLUS-31020	High Power Programmable AC Power Source (20kVA/310V)
AFV-PLUS-31030	High Power Programmable AC Power Source (30kVA/310V)
AFV-PLUS-31045	High Power Programmable AC Power Source (45kVA/310V)
AFV-PLUS-31060	High Power Programmable AC Power Source (60kVA/310V)
AFV-PLUS-31075	High Power Programmable AC Power Source (75kVA/310V)
AFV-PLUS-31100	High Power Programmable AC Power Source (100kVA/310V)
AFV-PLUS-31120	High Power Programmable AC Power Source (120kVA/310V)
AFV-PLUS-31150	High Power Programmable AC Power Source (150kVA/310V)
AFV-PLUS-001	Type A: Output Frequency 45-500Hz
AFV-PLUS-002	Type B: Output Frequency 45-120Hz
AFV-PLUS-003	Type C : Output Frequency 300-840Hz <sup>*1</sup>
AFV-PLUS-004	Start Angle 0-359°
AFV-PLUS-005	Overload Capability 200% 2 sec, 150% 5 sec, 125% 15 sec
AFV-PLUS-006	Fast Voltage Response Option (with Time Setting Resolution 0.01S) <sup>*2</sup>
AFV-PLUS-007	Analog Control Interface
AFV-PLUS-008	GPIB Interface
AFV-PLUS-009	Ethernet Interface
AFV-PLUS-012	Input Voltage 200V
AFV-PLUS-013	Input Voltage 208V
AFV-PLUS-014	Input Voltage 240V
AFV-PLUS-015	Input Voltage 400V
AFV-PLUS-016	Input Voltage 480V
AFV-PLUS-017	Output Voltage 0-400V (L-N)
AFV-PLUS-018	Output Voltage 0-600V (L-N)

\*1 THD ≤ 2%. \*2 THD and Load Regulation ≤ 1%

### AFV + Series Three-Phase Output (10kVA - 2000kVA)

Model Number	Description
AFV-PLUS-33010	High Power Programmable AC Power Source (10kVA/310V)
AFV-PLUS-33015	High Power Programmable AC Power Source (15kVA/310V)
AFV-PLUS-33020	High Power Programmable AC Power Source (20kVA/310V)
AFV-PLUS-33030	High Power Programmable AC Power Source (30kVA/310V)
AFV-PLUS-33045	High Power Programmable AC Power Source (45kVA/310V)
AFV-PLUS-33060	High Power Programmable AC Power Source (60kVA/310V)
AFV-PLUS-33075	High Power Programmable AC Power Source (75kVA/310V)
AFV-PLUS-33100	High Power Programmable AC Power Source (100kVA/310V)
AFV-PLUS-33120	High Power Programmable AC Power Source (120kVA/310V)
AFV-PLUS-33150	High Power Programmable AC Power Source (150kVA/310V)
AFV-PLUS-33200	High Power Programmable AC Power Source (200kVA/310V)
AFV-PLUS-33300	High Power Programmable AC Power Source (300kVA/310V)
AFV-PLUS-33400	High Power Programmable AC Power Source (400kVA/310V)
AFV-PLUS-33500	High Power Programmable AC Power Source (500kVA/310V)
AFV-PLUS-33600	High Power Programmable AC Power Source (600kVA/310V)
AFV-PLUS-33800	High Power Programmable AC Power Source (800kVA/310V)
AFV-PLUS-331000	High Power Programmable AC Power Source (1000kVA/310V)
AFV-PLUS-331200	High Power Programmable AC Power Source (1200kVA/310V)
AFV-PLUS-331500	High Power Programmable AC Power Source (1500kVA/310V)
AFV-PLUS-332000	High Power Programmable AC Power Source (2000kVA/310V)
AFV-PLUS-001	Type A: Output Frequency 45-500Hz
AFV-PLUS-002	Type B: Output Frequency 45-120Hz
AFV-PLUS-003	Type C : Output Frequency 300-840Hz <sup>*1</sup>
AFV-PLUS-004	Start Angle 0-359°
AFV-PLUS-005	Overload Capability 200% 2 sec, 150% 5 sec, 125% 15 sec
AFV-PLUS-006	Fast Voltage Response Option (with Time Setting Resolution 0.01S) <sup>*2</sup>
AFV-PLUS-007	Analog Control Interface
AFV-PLUS-008	GPIB Interface
AFV-PLUS-009	Ethernet Interface
AFV-PLUS-010	Three Phase Angle Adjustment
AFV-PLUS-012	Input Voltage 200V
AFV-PLUS-013	Input Voltage 208V
AFV-PLUS-014	Input Voltage 240V
AFV-PLUS-015	Input Voltage 400V
AFV-PLUS-016	Input Voltage 480V
AFV-PLUS-017	Output Voltage 0-400V (L-N)
AFV-PLUS-018	Output Voltage 0-600V(L-N)

\*1 THD ≤ 2%. \*2 THD and Load Regulation ≤ 1%

# High Power Programmable AC Power Source

RoHS  
Compliant



NEW Version



Preen's AFV series is a programmable AC power source that can be remotely controlled and integrated with other systems for automatic testing. AFV series provides precise output voltage and frequency which could reach various types of industrial requirements. For the industrial users, such as home appliances, electrical and electronic, medical equipment and lighting, they are able to quickly and accurately simulate standard or abnormal power status via programmable function.

AFV series has built-in standard programmable features, such as STEP and RAMP features, which are ideal for laboratories, certification and R&D institution's compliance test. The user-friendly touch screen supports users to operate AFV series intuitively and easily, and the users can remote control the unit via the standard RS-232, RS485 or Ethernet (Optional for Analog, GPIB) interface. The AC source is coupled with output voltage range of 0~310V and output frequency of standard 45~120Hz or optional 45~500Hz. Moreover, the AFV series provides complete product protections, such as OVP, UVP, OCP, OPP, OTP and short circuit protection.

## Product Features

- CE & RoHS certificated.
- Modularized inverter which is compact, smaller, high power density and easy to maintain.
- 7" touch screen which can display the phase voltage, current, frequency, active/apparent power, power factor and test information.
- Ability to simulate abnormal power status: STEP and RAMP modes allow users to set sequences of start/end voltage, frequency and running time with ease.
- Comprehensive protections include output undervoltage/overvoltage, overcurrent, overload, input undervoltage / overvoltage, overheat and other more than twenty fault conditions.
- Three-phase voltage independently adjustable function: each phase voltage can be adjusted independently; therefore AFV can power more than one single-phase loads.
- Phase angle adjustment function: can adjust the phase angle between each phase (for three phase system).

## Output Power

10kVA~2000kVA

## Interfaces

Standard	RS-232	RS-485	Ethernet
Option	GPIB	Analog	

## Applications

- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- Motor & Compressor
- IT / SMT Production Line
- Renewable Energy
- Medical Industry

## QR Code



Product  
Info.



Product  
Video

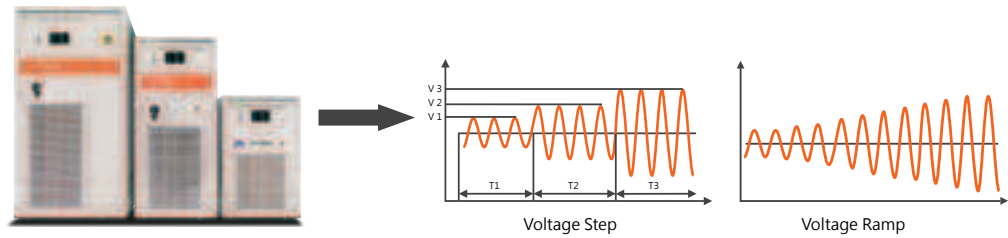


### User-friendly Touch Screen and Remote Control



AFV series is equipped with a 7" touch screen. The intuitive and easy-to-use touch screen allows users to set test sequences immediately and precisely. Through the control interfaces (RS-232 / RS-485 / Ethernet / GPIB / Analog), users can set the desired output parameters and monitor the output value remotely.

### STEP / RAMP Mode



For AFV STEP mode, users can set voltage or frequency steps easily with 24 built-in memory groups and 255 cycles. Because of the widely used in motor or home appliance industry, the output voltage, output frequency, and running time of each step are designed to be easily set in the memory groups. With AFV RAMP mode, 12 built-in memory groups and 255 cycles allows users set voltage or frequency remotely or through the touch screen. Users can set up output voltage, output frequency, the number of start/end groups.

### Soft Start Function ( Opt. )



Variable Voltage Constant Frequency (VVCf)



Variable Voltage Variable Frequency (VVVF)

Soft start function can effectively reduce the starting current of motor load or inductive load. The users have more flexibility on selection of power capacity and more efficiency on space usage. They can purchase more cost-effective products.

### Wide Variety of Applications



With its high reliability, capability of complex power line simulation and high output power, the AFV series has been widely applied for applications on home appliance, electric vehicle charger, motor, electronics and medical equipment. It is a AC power source suitable from R&D verification to mass production testing.



# SPECIFICATIONS

## AFV Series Single-Phase Output (10kVA - 120kVA)

Model	AFV-31010	AFV-31015	AFV-31030	AFV-31045	AFV-31060	AFV-31080	AFV-31100	AFV-31120	
<b>INPUT</b>									
Phase	3Ø / 3 Wire + G								
Voltage	380VAC ±15% (option:208VAC,220VAC)		380VAC ±15% (option: 480VAC)						
Frequency	50Hz ± 3Hz or 60Hz ± 3Hz								
Max. Current <sup>1</sup>	23A	34A	67A	100A	133A	198A	248A	297A	
Power Factor	≥ 0.9 ( Max. Power )						≥ 0.85 ( Max. Power )		
<b>OUTPUT</b>									
Power ( VA )	10kVA	15kVA	30kVA	45kVA	60kVA	80kVA	100kVA	120kVA	
Phase	1Ø / 2 Wire + G								
Voltage Ranges	Low(V) 0V-155.0V ( L-N )								
	High(V) 0V-310.0V ( L-N )								
Voltage Resolution	0.1V								
Voltage Accuracy	0.5% F.S.+ 4 counts								
Frequency Range <sup>2</sup>	Standard : 45 ~ 120Hz Option : 45 ~ 500Hz								
Frequency Resolution	0.1Hz								
Frequency Accuracy	± 0.02 % F.S.								
Max. Current (RMS)	Low(A)	83.3A	125A	250A	375A	500A	666.7A	833.3A	1000A
	High(A)	41.7A	62.5A	125A	187.5A	250A	333.3A	416.7A	500A
Line Regulation	≤ 1%								
Load Regulation	≤ 1% ( Resistive Load )								
Total Harmonic Distortion (THD) <sup>3</sup>	≤ 1% ( Resistive Load )								
Response Time	≤ 2ms								
Crest Factor	≥ 3								
<b>MEASUREMENT</b>									
Voltage Range	0V-310.0V								
Voltage Resolution	0.1V								
Voltage Accuracy	0.5% F.S.+ 4 counts								
Frequency Range	45.0-500.0Hz								
Frequency Resolution	0.1Hz								
Frequency Accuracy	± 0.02 % F.S.								
Current Range (RMS)	0 - 83.3A	0 - 125A	0 - 250A	0 - 375A	0 - 500A	0 - 666.7A	0 - 833.3A	0 - 1000A	
Current Resolution (RMS)	0.1A								
Current Accuracy (RMS)	0.5% F.S.+4 counts								
Power Range	0 - 10kW	0 - 15kW	0 - 30kW	0 - 45kW	0 - 60kW	0 - 80kW	0 - 100kW	0 - 120kW	
Power Resolution	0.1kW								
Power Accuracy	1% F.S.+6 counts								
<b>GENERAL</b>									
Efficiency	≥90% at Max. Power						≥85% at Max. Power		
HMI	Touch Screen , 7" Color TFT LCD								
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) RAMP : 12 sets / 255 cycles. (Volt./Freq./Time)								
Protection	Input : N.F.B, Over Voltage, Under Voltage / Output : Over Voltage, Over Current, Reverse Current, Over Temperature								
Remote Interface	Standard : RS-232(SCPI)&RS-485(MODBUS) /Ethernet(SCPI) Option : GPIB, Analog Control								
Operational Temperature	0°C~45°C								
Humidity	0~90% ( Non condensing )								
Altitude	< 1,500m								
Dimensions (H x W x D) <sup>4</sup>	1045 x 600 x 800 mm (including wheels)	1440 x 600 x 800 mm (including wheels)		1645 x 800 x 800 mm (including wheels)		1800 x 1050 x 970 mm	1900 x 1150 x 1220 mm		
	41.1 x 23.6 x 31.5 inch (including wheels)	56.7 x 23.6 x 31.5 inch (including wheels)		64.8 x 31.5 x 31.5 inch (including wheels)		70.9 x 41.3 x 38.2 inch	74.8 x 45.3 x 48.0 inch		
Weight <sup>4</sup>	225kg	270kg	440kg	560kg	650kg	750kg	940kg	1100kg	
	496.1lbs	595.4lbs	970.2lbs	1234.8lbs	1433.3lbs	1653.8lbs	2072.7lbs	2425.5lbs	

<sup>1</sup> The max. current is based on rated input voltage of 380V. <sup>2</sup> For 45-500Hz option, please contact us for output power characteristic curve.

<sup>3</sup> When the output voltage is at Low : 90 - 140V or High 180 - 280V with load power factor of 1.

<sup>4</sup> Dimensions and weight are for input voltage 220/380V. Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## SPECIFICATIONS

### AFV Series Three-Phase Output (10kVA - 120kVA)

Model	AFV-33010	AFV-33015	AFV-33030	AFV-33045	AFV-33060	AFV-33080	AFV-33100	AFV-33120		
<b>INPUT</b>										
Phase	3Ø / 3 Wire + G									
Voltage	380VAC ±15% (option: 208VAC, 220VAC)		380VAC ±15% (option: 480VAC)							
Frequency	50Hz±3Hz or 60Hz±3Hz									
Max. Current <sup>1</sup>	23A	34A	67A	100A	133A	198A	248A	297A		
Power Factor	≥ 0.9 ( Max. Power )					≥0.85 ( Max. Power )				
<b>OUTPUT</b>										
Power (VA)	10kVA	15kVA	30kVA	45kVA	60kVA	80kVA	100kVA	120kVA		
Phase	3Ø / 4 Wire + G									
Voltage Ranges	Low(V)		0V-155.0V ( L-N )							
	High(V)		0V-310.0V ( L-N )							
Voltage Resolution	0.1V									
Voltage Accuracy	0.5% F.S.+4 counts									
Frequency Range <sup>2</sup>	Standard : 45~120Hz Option : 45-500Hz									
Frequency Resolution	0.1Hz									
Frequency Accuracy	± 0.02% F.S.									
Max. Current (RMS)	Low(A)		27.8A	41.7A	83.3A	125A	166.7A	222.2A	277.8A	333.3A
	High(A)		13.9A	20.8A	41.7A	62.5A	83.3A	111.1A	138.9A	166.7A
Line Regulation	≤ 1%									
Load Regulation	≤ 1% ( Resistive Load )									
Total Harmonic Distortion(THD) <sup>3</sup>	≤ 1% ( Resistive Load )									
Response Time	≤ 2ms									
Crest Factor	≥3									
<b>MEASUREMENT</b>										
Voltage Range	0V-310.0V									
Voltage Resolution	0.1V									
Voltage Accuracy	0.5% F.S.+4 counts									
Frequency Range	45.0-500.0Hz									
Frequency Resolution	0.1Hz									
Frequency Accuracy	± 0.02% F.S.									
Current Range(RMS)	0 - 27.8A	0 - 41.7A	0 - 83.3A	0 - 125A	0 - 166.7A	0 - 222.2A	0 - 277.8A	0 - 333.3A		
Current Resolution(RMS)	0.1A									
Current Accuracy(RMS)	0.5% F.S.+4 counts									
Power Range	0 - 10kW	0 - 15kW	0 - 30kW	0 - 45kW	0 - 60kW	0 - 80kW	0 - 100kW	0 - 120kW		
Power Resolution	0.1kW									
Power Accuracy	1% F.S.+6 counts									
<b>GENERAL</b>										
Efficiency	≥90% at Max. Power					≥0.85 at Max. Power				
HMI	Touch Screen , 7" Color TFT LCD									
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) RAMP : 12 sets / 255 cycles. (Volt./Freq./Time)									
Protection	Input : N.F.B, Over Voltage, Under Voltage / Output : Over Voltage, Over Current, Reverse Current, Over Temperature									
Remote Interface	Standard : RS-232(SCPI)&RS-485(MODBUS) /Ethernet(SCPI) Option : GPIB, Analog Control									
Operational Temperature	0°C~45°C									
Humidity	0~90% ( Non condensing )									
Altitude	< 1,500m									
Dimensions (H x W x D) <sup>4</sup>	1045 x 600 x 800 mm (including wheel)	1440 x 600 x 800 mm (including wheel)		1645 x 800 x 800 mm (including wheel)		1800 x 1050 x 970 mm		1900 x 1150 x 1220 mm		
	41.1 x 23.6 x 31.5 inch (including wheel)	56.7 x 23.6 x 31.5 inch (including wheel)		64.8 x 31.5 x 31.5 inch (including wheel)		"70.9 x 41.3 x 38.2 inch"		74.8 x 45.3 x 48.0 inch		
Weight <sup>4</sup>	255kg	295kg	390kg	540kg	650kg	1000kg	1170kg	1450kg		
	562.3lbs	650.5lbs	860lbs	1190.7lbs	1433.3lbs	2205lbs	2579.85lbs	3197.3lbs		

<sup>1</sup> The max. current is based on rated input voltage of 380V. <sup>2</sup> For 45-500Hz option, please contact us for output power characteristic curve.

<sup>3</sup> When the output voltage is at Low : 90 - 140V or High 180 - 280V with load power factor of 1.

<sup>4</sup> Dimensions and weight are for input voltage 380V. Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## SPECIFICATIONS

### AFV Series Three-Phase Output (160kVA - 1600kVA)

Model	AFV-33160	AFV-33240	AFV-33300	AFV-33400	AFV-33500	AFV-33640	AFV-33800	AFV-331000	AFV-331200	AFV-331600
<b>INPUT</b>										
Phase	3Ø / 4 Wire + G (option: 3Ø / 3 Wire + G)									
Voltage*1	220/380Vac ±15% (option : 277/480Vac, 240Vac or 400Vac)									
Frequency	50Hz±3Hz or 60Hz±3Hz									
Max. Current*2	336A	504A	629.1A	838.8A	1048.5A	1343A	1677.7A	2097.1A	2516.5A	3356A
Power Factor	≥ 0.85 ( Max. Power )									
<b>OUTPUT</b>										
Power (VA)	160kVA	240kVA	300kVA	400kVA	500kVA	640kVA	800kVA	1000kVA	1200kVA	1600kVA
Phase	3Ø / 4 Wire + G									
Voltage Ranges	Low(V) 0V-150.0V ( L-N )									
	High(V) 0V-300.0V ( L-N )									
Voltage Resolution	0.1V									
Voltage Accuracy	0.5% F.S.+4 counts									
Frequency Range*3	Standard : 45~65Hz Option : 45-500Hz									
Frequency Resolution	0.1Hz									
Frequency Accuracy	± 0.02 % F.S.									
Max. Current (RMS)	444.4A	666.7A	833.3A	1111.1A	1388.9A	1777.8A	2222.2A	2777.8A	3333.3A	4444.4A
	222.2A	333.3A	416.7A	555.6A	694.4A	888.9A	1111.1A	1388.9A	1666.7A	2222.2A
Line Regulation	≤ 1%									
Load Regulation	≤ 1% ( Resistive Load )									
Total Harmonic Distortion(THD)*4	≤ 2% ( Resistive Load )									
Response Time	≤ 2ms									
<b>MEASUREMENT</b>										
Voltage Range	0V-300.0V									
Voltage Resolution	0.1V									
Voltage Accuracy	0.5% F.S.+4 counts									
Frequency Range	45.0-500.0Hz									
Frequency Resolution	0.1Hz									
Frequency Accuracy	± 0.02 % F.S.									
Current Range (RMS)	0 - 444.4A	0 - 666.7A	0 - 833.3A	0 - 1111.1A	0 - 1388.9A	0 - 1777.8A	0 - 2222.2A	0 - 2777.8A	0 - 3333.3A	0 - 4444.4A
Current Resolution (RMS)	0.1A									
Current Accuracy (RMS)	0.5% F.S.+4 counts									
Power Range	0-160kW	0-240kW	0 - 300kW	0 - 400kW	0 - 500kW	0 - 640kW	0 - 800kW	0 - 1000kW	0 - 1200kW	0 - 1600kW
Power Resolution	0.1kW									
Power Accuracy	1% F.S.+6 counts									
<b>GENERAL</b>										
Efficiency	≥ 0.85 at Max. Power									
HMI	Touch Screen , 7" Color TFT LCD									
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) GRADUAL : 12 sets / 255 cycles. (Volt./Freq./Time)									
Protection	Input : N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Reverse Current, Over Temperature.									
Remote Interface	Standard : RS-485/RS-232 Option : GPIB, Ethernet									
Operational Temperature	0°C~45°C									
Humidity	0~90% ( Non condensing )									
Altitude	< 1,500m									
Dimensions (H x W x D)*5	1900 x 1150 x 1240 mm/ 74.8 x 45.3 x 48.8 inch		2050 x 3880 x 1539 mm/ 80.7 x 152.8 x 60.6 inch			2050 x 4716 x 1520 mm / 80.7 x 185.7 x 59.8 inch		2050 x 6003 x 1520 mm/ 80.7 x 236.3 x 59.8 inch	2200 x 10827 x 1590 mm / 86.6 x 426.3 x 62.6 inch	
Weight*5	1850kg	2800kg	3450kg	4450kg	5550kg	7800kg	8800kg	10550kg	16000kg	17600kg
	4079.3lbs	6174lbs	7607.3lbs	9812.3lbs	12237.8lbs	17199lbs	19404lbs	23262.8lbs	35280lbs	38808lbs

\*1 200V and 400V input options are 3Ø / 3 Wire + G. Please contact us for other input voltage specifications. \*2 The max. current is based on rated input voltage of 220/380V.

\*3 For 45~500Hz option, please contact us for output power characteristic curve. \*4 When output frequency is at 45-65Hz and output voltage is 90V-140V(Low Range) or 180V-280V(High Range) and with resistive load.

\*5 Dimensions and weight are for input voltage 220/380V(3Ø/4W+G). Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## ORDERING INFORMATION

### AFV Series Single-Phase Output (10kVA - 150kVA)

Model Number	Description
AFV-31010	High Power Programmable AC Power Source (10kVA/310V/45-120Hz)
AFV-31015	High Power Programmable AC Power Source (15kVA/310V/45-120Hz)
AFV-31030	High Power Programmable AC Power Source (30kVA/310V/45-120Hz)
AFV-31045	High Power Programmable AC Power Source (45kVA/310V/45-120Hz)
AFV-31060	High Power Programmable AC Power Source (60kVA/310V/45-120Hz)
AFV-31080	High Power Programmable AC Power Source (80kVA/310V/45-120Hz)
AFV-31100	High Power Programmable AC Power Source (100kVA/310V/45-120Hz)
AFV-31120	High Power Programmable AC Power Source (120kVA/310V/45-120Hz)
AFV-001	Output Frequency 45Hz-500Hz
AFV-002	Soft Start Mode
AFV-005	GPIB Interface
AFV-007	Overload Capability 200% 2 sec, 150% 5 sec, 125% 15 sec

### AFV Series Three-Phase Output (10kVA - 2000kVA)

Model Number	Description
AFV-33010	High Power Programmable AC Power Source (10kVA/310V/45-120Hz)
AFV-33015	High Power Programmable AC Power Source (15kVA/310V/45-120Hz)
AFV-33030	High Power Programmable AC Power Source (30kVA/310V/45-120Hz)
AFV-33045	High Power Programmable AC Power Source (45kVA/310V/45-120Hz)
AFV-33060	High Power Programmable AC Power Source (60kVA/310V/45-120Hz)
AFV-33080	High Power Programmable AC Power Source (80kVA/310V/45-120Hz)
AFV-33100	High Power Programmable AC Power Source (100kVA/310V/45-120Hz)
AFV-33120	High Power Programmable AC Power Source (120kVA/310V/45-120Hz)
AFV-33160	High Power Programmable AC Power Source (160kVA/310V/45-120Hz)
AFV-33240	High Power Programmable AC Power Source (240kVA/310V/45-120Hz)
AFV-33300	High Power Programmable AC Power Source (300kVA/310V/45-120Hz)
AFV-33400	High Power Programmable AC Power Source (400kVA/310V/45-120Hz)
AFV-33500	High Power Programmable AC Power Source (500kVA/310V/45-120Hz)
AFV-33640	High Power Programmable AC Power Source (640kVA/310V/45-120Hz)
AFV-33800	High Power Programmable AC Power Source (800kVA/310V/45-120Hz)
AFV-331000	High Power Programmable AC Power Source (1000kVA/310V/45-120Hz)
AFV-331200	High Power Programmable AC Power Source (1200kVA/310V/45-120Hz)
AFV-331600	High Power Programmable AC Power Source (1600kVA/310V/45-120Hz)
AFV-001	Output Frequency 45Hz-500Hz
AFV-002	Soft Start Mode
AFV-003	Three Phase Independent Adjustment
AFV-004	Three Phase Angle Adjustment
AFV-005	GPIB Interface
AFV-007	Overload Capability 200% 2 sec, 150% 5 sec, 125% 15 sec

# All You Need for Voltage and Frequency Adjustment is Here

## Economical AC Power Sources from Low to High Power

Providing clean sine wave AC power, the AFC series allows users to simulate all sorts of utility grid voltage and frequency for export product testing or operation of imported equipment. With a brand new appearance design, the new AFC series has not only improved electronic performance but also upgraded its user interface for a more intuitive control. The AFC series now provides measurements of voltage, current, frequency and power factor. The built-in hot key function allows quick memory recall and easy voltage and frequency setting.

**High Power  
in the Enclosure**

3kVA-2000kVA

**6 Output  
Hot Key**

Easy Set up and Recall

**RS-232 & RS-485  
Remote Interfaces**

- Equipped With 7" Intuitive Large Touch Screen
- Emergency Stop Button for Better Protection
- Enhanced Measurement Display and Intuitive User Interface



# AC Power Source/ Frequency Converter

RoHS  
Compliant



Providing clean sine wave AC power, the AFC series allows users to simulate all sorts of utility grid voltage and frequency for export product testing or operation of imported equipment. With a brand new appearance design, the new AFC series has not only improved electronic performance but also upgraded its user interface with 7" touch screen and RS-232 and RS-485 for a more intuitive control. The AFC series now provides measurements of voltage, current, frequency and power factor. The built-in hot key function allows quick memory recall and easy voltage and frequency setting.

AFC series can simulate standard or abnormal voltage and frequency status. The maximum output power is up to 2000kVA in one unit instead of parallel. The output voltage range of 0-310V Output frequency is switchable: 45-65Hz continuously adjustable, 400Hz fixed. PWM high-frequency switching technology designed to provide pure sine wave output, with single-phase and three-phase output models. Unlike other power supplies in the market, AFC series is suitable for the Certified Bureau, the production and R&D of various industries including home appliances, electrical electronics, medical equipment and lighting.

## Product Features

- Single-phase output models are available among 3-120kVA, and three-phase output models are available from 5kVA to 2000kVA.
- CE & RoHS certified, with excellent performance in the safety ,electromagnetic compatibility.
- High input power factor, high efficiency of up to 92% at full load.
- The 7" LCD touch screen display includes output voltage, current, frequency, active/apparent power, power factor, test information.
- Modularized inverter which is compact, smaller, high power density and easy to maintain.
- Comprehensive protections which include overvoltage, overcurrent, overload, input under-voltage, overheat; the corresponding fault code will be shown with the buzzer alarm, when protection is activated.
- Emergency stop button for quick output shutdown.



## Output Power

**3kVA~2000kVA**

## Interfaces

Standard RS-232 RS-485

## Applications

- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- Electric Vehicles
- Motor & Compressor
- IT / SMT Production Line
- Renewable Energy
- Medical Industry
- Shore Power & Shipbuilding

## QR Code



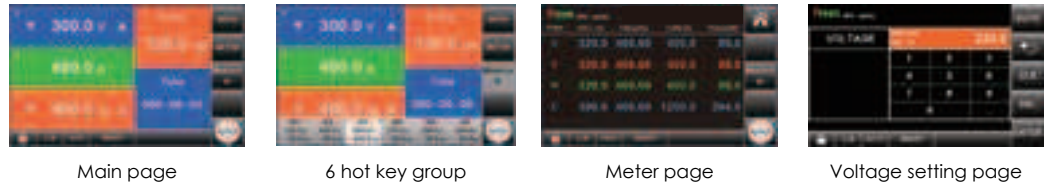
Product  
Info.



Product  
Video



## Friendly UI and Hot Key Group



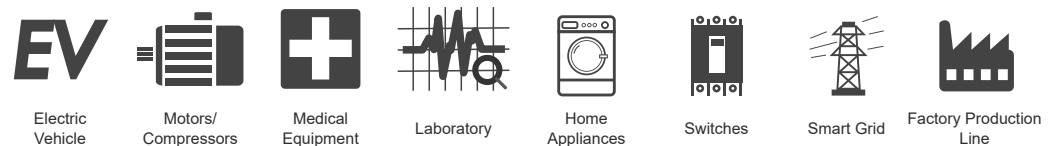
The new AFC series has updated with an enlarged touch screen that can make fine tune adjustment for parameters and changing values. With RS-232,RS-485 interface, AFC is able to be controlled remotely. The colorful display allows user to quickly recognize all the parameters including voltage, current and PF with 6 groups of hot key that can promptly switching at a glance.

## Remote Control Interface with Multiple Protections



AFC series comes with 7" intuitive touch screen that can quickly setup and output through RS-232 and RS-485 interface. The complete protection can monitor UVP/OVP, OCP, OTP and promptly react to stop the output and display warnings and error code. It can also be done with manual emergency stop button to secure users safety.

## Ideal Power Source for Various Industries



The AFC series AC power source is highly reliable and easy to operate, and it has been widely applied in production line, quality assurance and design verification. The multiple levels of frequency and wide range of output voltage is ideal for applications requiring voltage and frequency conversations. The unit can also be applied as isolation between DUT and the grid to reduce the interference from each side. These features make the AFC series ideal for home appliance, EMC chamber, motor and electronic industries.



## Patent Module Design & CE Certified

The AFC series uses AC Power Corp.'s patent power module to greatly enhance its reliability and performance for high power model. It is CE certified and fulfill EMC and LVD requirements to ensure low interference to the DUT and the environment.



# SPECIFICATIONS

## New Generation AFC Series Single-Phase Output (10kVA - 60kVA)

Model	AFC-31010	AFC-31015	AFC-31030	AFC-31045	AFC-31060	
<b>INPUT</b>						
Phase	3Ø / 3 Wire + G					
Voltage	380VAC ±15% (option: 220V, 208VAC)		380VAC ±15% (option: 480VAC)			
Frequency	47 - 63Hz					
Max. Current*1	23A	34A	67A	100A	133A	
Power Factor	≥ 0.9 ( Max. Power )					
<b>OUTPUT</b>						
Power (VA)	10kVA	15kVA	30kVA	45kVA	60kVA	
Phase	1Ø / 2 Wire + G					
Voltage Ranges	Low(V) 0V-155.0V ( L-N )					
	High(V) 0V-310.0V ( L-N )					
Voltage Resolution	0.1V					
Voltage Accuracy	0.5% F.S.+4counts					
Frequency Range *2	Standard : 45-65Hz Option : 45~65Hz, 100Hz / 120Hz / 200Hz / 240Hz / 400Hz					
Frequency Resolution	0.1Hz					
Frequency Accuracy	±0.05% F.S.					
Max. Current	Low(A)	83.3A	125A	250A	375A	500A
	High(A)	41.7A	62.5A	125A	187.5A	250A
Line Regulation	< 1%					
Load Regulation	≤ 1% (Resistive Load)					
Total Harmonic Distortion*3	≤ 1% (Resistive Load)					
Response Time	≤ 2ms					
<b>MEASUREMENT</b>						
Voltage Range	0V-310.0V					
Voltage Resolution	0.1V					
Voltage Accuracy	0.5% F.S.+4counts					
Frequency Range	45.0-500.0Hz					
Frequency Resolution	0.1Hz					
Frequency Accuracy	±0.05% F.S.					
Current Range(RMS)	0 - 83.3A	0 - 125A	0 - 250A	0 - 375A	0 - 500A	
Current Resolution(RMS)	0.1A					
Current Accuracy(RMS)	0.5% F.S.+4counts					
Power Range	0 - 10kW	0 - 15kW	0 - 30kW	0 - 45kW	0 - 60kW	
Power Resolution	0.1kW					
Power Accuracy	1% F.S.+6counts					
<b>GENERAL</b>						
Efficiency	≥ 90% at Max. Power					
HMI	Touch Screen , 7" Color TFT LCD					
Memories	6 sets ( M1/M2/M3/M4/M5/M6)					
Protection	Input : N.F.B, Over Voltage, Under Voltage Output : Over Voltage, Over Current, Reverse Current, Over Temperature					
Remote Interface	Standard : RS-232(SCPI) &RS-485(MODBUS)					
Operational Temperature	0°C ~45°C					
Humidity	0~90% ( Non condensing )					
Altitude	< 1,500m					
Dimensions (H x W x D) *4	1045 x 600 x 800 mm (including wheels)	1440 x 600 x 800 mm (including wheels)		1645 x 800 x 800 mm (including wheels)		
	41.1 x 23.6 x 31.5 inch (including wheels)	56.7 x 23.6 x 31.5 inch (including wheels)		64.8 x 31.5 x 31.5 inch (including wheels)		
Weight *4	225kg	270kg	440kg	560kg	650kg	
	496.1lbs	595.4lbs	970.2lbs	1234.8lbs	1433.3lbs	

\*1 The max. current is based on rated input voltage of 380V.

\*2 For frequency option, please contact us for output power characteristic curve.

\*3 When the output voltage is at Low : 90 - 140V or High 180 - 280V with load power factor of 1.

\*4 Dimensions and weight are for input voltage 220/380V. Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## SPECIFICATIONS

### New Generation AFC Series Three-Phase Output (10kVA - 80kVA)

Model	AFC-33010	AFC-33015	AFC-33030	AFC-33045	AFC-33060	AFC-33080		
<b>INPUT</b>								
Phase	3Ø / 3 Wire + G							
Voltage	380Vac ±15% (option: 220Vac, 208Vac)			380Vac ±15% (option: 480Vac)				
Frequency	47 - 63Hz							
Max. Current*1	23A	34A	67A	100A	133A	198A		
Power Factor	≥0.9 Max. Power					≥0.85 Max. Power		
<b>OUTPUT</b>								
Power (VA)	10kVA	15kVA	30kVA	45kVA	60kVA	80kVA		
Phase	3Ø / 4 Wire + G							
Voltage Ranges	Low(V)		0V-155.0V ( L-N )					
	High(V)		0V-310.0V ( L-N )					
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+4counts							
Frequency Range *2	Standard : 45-65Hz Option : 45-65Hz, 100Hz/120Hz/200Hz/240Hz/400Hz							
Frequency Resolution	0.1Hz							
Frequency Accuracy	±0.05% F.S.							
Max. Current	Low(A)		27.8A	41.7A	83.3A	125A	166.7A	222.2A
	High(A)		13.9A	20.8A	41.7A	62.5A	83.3A	111.1A
Line Regulation	≤ 1%							
Load Regulation	≤ 1% (Resistive Load)							
Total Harmonic Distortion*3	≤ 1% (Resistive Load)							
Response Time	≤ 2ms							
<b>MEASUREMENT</b>								
Voltage Range	0V-310.0V							
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+4counts							
Frequency Range	45.0-500.0Hz							
Frequency Resolution	0.1Hz							
Frequency Accuracy	±0.05% F.S.							
Current Range(RMS)	0 - 27.8A	0 - 41.7A	0 - 83.3A	0 - 125A	0 - 166.7A	0 - 222.2A		
Current Resolution(RMS)	0.1A							
Current Accuracy(RMS)	0.5% F.S.+4counts							
Power Range	0 - 10kW	0 - 15kW	0 - 30kW	0 - 45kW	0 - 60kW	0 - 80kW		
Power Resolution	0.1kW							
Power Accuracy	1% F.S.+6counts							
<b>GENERAL</b>								
Efficiency	≥90% at Max. Power					≥85 % at Max. Power		
HMI	Touch Screen , 7" Color TFT LCD							
Memories	6 sets ( M1/M2/M3/M4/M5/M6)							
Protection	Input : N.F.B, Over Voltage, Under Voltage Output : Over Voltage, Over Current, Reverse Current, Over Temperature							
Remote Interface	Standard : RS-232(SCPI) &RS-485(MODBUS)							
Operational Temperature	0°C ~45°C							
Humidity	0~90% ( Non condensing )							
Altitude	< 1,500m							
Dimensions (H x W x D) *4	1045 x 600 x 800 mm (including wheels)	1440 x 600 x 800 mm (including wheels)	1645 x 800 x 800 mm (including wheels)	1800 x 1050 x 970 mm				
	41.1 x 23.6 x 31.5 inch (including wheels)	56.7 x 23.6 x 31.5 inch (including wheels)	64.8 x 31.5 x 31.5 inch (including wheels)	70.9x41.3x38.2 inch				
Weight *4	255kg	295kg	390kg	540kg	650kg	1000kg		
	562.3lbs	650.5lbs	860lbs	1190.7lbs	1433.3lbs	2205lbs		

\*1 The max. current is based on rated input voltage of 380V. \*2 For frequency option, please contact us for output power characteristic curve.

\*3 When the output voltage is at Low : 90 - 140V or High 180 - 280V with load power factor of 1. \*4 Dimensions and weight are for input voltage 380V. Please contact us for dimensions and weight for other input voltage.

\*All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## SPECIFICATIONS

### AFC Series Single-Phase Output (3kVA - 30kVA)

Model	AFC-11003-E	AFC-11005-E	AFC-11010-E	AFC-11015-E	AFC-11030-E
<b>INPUT</b>					
Phase	1Ø / 2 Wire + G				
Voltage <sup>1</sup>	220V±15% (option: 100Vac or 120Vac)				
Frequency	50Hz ± 3Hz or 60Hz ± 3Hz				
Max. Current <sup>2</sup>	21A	35A	69A	105A	210A
Power Factor	≥0.8 ( Max. Power )		≥0.9 ( Max. Power )		
<b>OUTPUT</b>					
Power (VA)	3kVA	5kVA	10kVA	15kVA	30kVA
Phase	1Ø / 2 Wire + G				
Voltage Ranges	Low(V)				
	High(V)				
Voltage Resolution	0.1V				
Voltage Accuracy	0.2% F.S. + 4 counts				
Frequency Range <sup>3</sup>	Standard : 45~65Hz Option : 400Hz				
Frequency Resolution	0.1Hz				
Frequency Accuracy	±0.1% F.S				
Max. Current (RMS)	Low(A)				
	High(A)				
Line Regulation	≤ 1%				
Load Regulation	≤ 1% ( Resistive Load )				
Total Harmonic Distortion(THD)	≤ 2% ( Resistive Load )				
Response Time	≤ 2ms				
<b>MEASUREMENT</b>					
Voltage Range	0V-600.0V				
Voltage Resolution	0.1V				
Voltage Accuracy	0.2% F.S. + 4 counts				
Frequency Range	0~999.9Hz				
Frequency Resolution	0.1Hz				
Frequency Accuracy	±0.1% F.S				
Current Range(RMS)	0-700A				
Current Resolution(RMS)	0.01A( < 100A) / 0.1A( ≥ 100A)				
Current Accuracy(RMS)	0.2% F.S.+4 counts				
Power Range	-	0-75kW			
Power Resolution	-	0.01kW( < 10kW) / 0.1kW( ≥ 10kW)			
Power Accuracy	-	0.3% F.S.+4 counts			
<b>GENERAL</b>					
Efficiency	≥ 80% at Max. Power		≥ 90% at Max. Power		
HMI	Digital LED Display				
Protection	Input : N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Over Temperature				
Remote Interface	-				
Operational Temperature	0°C ~45°C				
Humidity	0~90% ( Non condensing )				
Altitude	< 1,500m				
Dimensions (H x W x D) <sup>4</sup>	720 x 430 x 520 mm (Including wheel) / 28.4 x 16.9 x 20.5 inch (Including wheel)		1045 x 600 x 850 mm (Including wheel) / 41.1 x 23.6 x 33.5 inch (Including wheel)		1440 x 600 x 850 mm (Including wheel) / 56.7 x 23.6 x 33.5 inch (Including wheel)
Weight <sup>4</sup>	73kg	89kg	210kg	240kg	330kg
	161lbs	196.2lbs	463.1lbs	529.2lbs	727.7lbs

<sup>1</sup> Please contact us for other input voltage specifications. <sup>2</sup> The max. current is based on rated input voltage of 220V.

<sup>3</sup> For type A: 45-500Hz, please contact us for output power characteristic curve.

<sup>4</sup> Dimensions and weight are for input voltage 220V. Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

# SPECIFICATIONS

## AFC Series Single-Phase Output (10kVA - 120kVA)

Model	AFC-31010-E	AFC-31015-E	AFC-31030-E	AFC-31045-E	AFC-31060-E	AFC-31080-E	AFC-31100-E	AFC-31120-E
<b>INPUT</b>								
Phase	3 Ø / 4 Wire + G							
Voltage <sup>1</sup>	220/380Vac ±15% (option: 120/208Vac, 277/480Vac, 200Vac or 400Vac)							
Frequency	50Hz ± 3Hz or 60Hz ± 3Hz							
Max. Current <sup>2</sup>	23A	32A	65A	97A	129A	198	247A	296A
Power Factor	≥ 0.9 (Max. Power)					≥ 0.85 (Max. Power)		
<b>OUTPUT</b>								
Power (VA)	10kVA	15kVA	30kVA	45kVA	60kVA	80kVA	100kVA	120kVA
Phase	1Ø / 2 Wire + G							
Voltage Ranges	Low(V)							
	High(V)							
Voltage Resolution	0.1V							
Voltage Accuracy	0.2% F.S.+4 counts							
Frequency Range <sup>3</sup>	Standard : 45~65Hz Option : 400Hz							
Frequency Resolution	0.1Hz							
Frequency Accuracy	±0.1% F.S							
Max. Current (RMS)	Low(A)							
	High(A)							
Line Regulation	≤ 1%							
Load Regulation	≤ 1% ( Resistive Load )							
Total HarmonicDistortion(THD)	≤ 2% ( Resistive Load )							
Response Time	≤ 2ms							
<b>MEASUREMENT</b>								
Voltage Range	0V-600.0V							
Voltage Resolution	0.1V							
Voltage Accuracy	0.2% F.S.+4 counts							
Frequency Range	0-999.9Hz							
Frequency Resolution	0.1Hz							
Frequency Accuracy	±0.1% F.S.							
Current Range(RMS)	0-9999A							
Current Resolution(RMS)	0.01A( < 100A) / 0.1A( ≥ 100A)							
Current Accuracy(RMS)	0.2% F.S.+4 counts							
Power Range	0-75kW					-		
Power Resolution	0.01kW( < 10kW) / 0.1kW( ≥ 10kW)					-		
Power Accuracy	0.3% F.S.+4 counts					-		
<b>GENERAL</b>								
Efficiency	≥ 90% at Max. Power					≥ 85% at Max. Power		
HMI	Digital LED Display							
Protection <sup>4</sup>	Input : N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Over Temperature							
Remote Interface	-							
Operational Temperature	0°C~45°C							
Humidity	0~90% ( Non condensing )							
Altitude	< 1,500m							
Dimensions (H x W x D) <sup>4</sup>	1045 x 600 x 850 mm (Including wheel) / 41.1 x 23.6 x 33.5 inch (Including wheel)	1440 x 600 x 850 mm (Including wheel) / 56.7 x 23.6 x 33.5 inch (Including wheel)	1645 x 800 x 860 mm (Including wheel) / 64.8 x 31.5 x 33.9 inch (Including wheel)	1800 x 1050 x 970 mm / 70.9 x 41.3 x 38.2 inch	1900 x 1150 x 1240 mm/ 74.8 x 45.3 x 48.8 inch			
Weight <sup>4</sup>	230kg	280kg	450kg	580kg	670kg	830kg	940kg	1100kg
	507.2lbs	617.4lbs	992.3lbs	1278.9lbs	1477.4lbs	1830.2lbs	2072.7lbs	2425.5lbs

<sup>1</sup> Please contact us for other input voltage specifications. <sup>2</sup> The max. current is based on rated input voltage of 220V.

<sup>3</sup> For type A: 45-500Hz, please contact us for output power characteristic curve.

<sup>4</sup> Dimensions and weight are for input voltage 220V. Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## SPECIFICATIONS

### AFC Series Three-Phase Output (5kVA - 120kVA)

Model	AFC-33005-E	AFC-33010-E	AFC-33015-E	AFC-33030-E	AFC-33045-E	AFC-33060-E	AFC-33080-E	AFC-33100-E	AFC-33120-E	
<b>INPUT</b>										
Phase	3Ø / 4 Wire + G (option: 3Ø / 3 Wire + G)									
Voltage <sup>1</sup>	220/380Vac ±15% (option: 120/208Vac, 277/480Vac, 240Vac, 200Vac or 400Vac)									
Frequency	50Hz ± 3Hz or 60Hz ± 3Hz									
Max. Current <sup>2</sup>	11A	23A	32A	65A	97A	129A	198A	247A	296A	
Power Factor	≥0.9 (Max. Power)						≥0.85 (Max. Power)			
<b>OUTPUT</b>										
Power (VA)	5kVA	10kVA	15kVA	30kVA	45kVA	60kVA	80kVA	100kVA	120kVA	
Phase	3Ø / 4 Wire + G									
Voltage Ranges	Low(V) 5-150V ( L-N )									
	High(V) 10-300V ( L-N )									
Voltage Resolution	0.1V									
Voltage Accuracy	0.2% F.S.+4 counts									
Frequency Range <sup>3</sup>	Standard :45~65Hz Option : 400Hz									
Frequency Resolution	0.1Hz									
Frequency Accuracy	±0.1% F.S.									
Max. Current (RMS)	Low(A)	13.9A	27.8A	41.7A	83.3A	125A	166.7A	222.2A	277.8A	333.3A
	High(A)	6.9A	13.9A	20.8A	41.7A	62.5A	83.3A	111.1A	138.9A	166.7A
Line Regulation	≤ 1%									
Load Regulation	≤ 1% ( Resistive Load )									
Total Harmonic Distortion(THD)	≤ 2% ( Resistive Load )									
Response Time	≤ 2ms									
<b>MEASUREMENT</b>										
Voltage Range	0V-600.0V									
Voltage Resolution	0.1V									
Voltage Accuracy	0.2% F.S.+4 counts									
Frequency Range	0~999.9Hz									
Frequency Resolution	0.1Hz									
Frequency Accuracy	±0.1% F.S.									
Current Range(RMS)	0-9999A									
Current Resolution(RMS)	0.01A( < 100A) / 0.1A( ≥ 100A)									
Current Accuracy(RMS)	0.2% F.S.+4 counts									
Power Range	0-75kW						-			
Power Resolution	0.01kW( < 10kW) / 0.1kW( ≥ 10kW)						-			
Power Accuracy	0.3% F.S.+4 counts						-			
<b>GENERAL</b>										
Efficiency	≥ 90% at Max. Power						≥ 85% at Max. Power			
HMI	Digital LED Display									
Protection <sup>4</sup>	Input : N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Over Temperature									
Remote Interface	-									
Operational Temperature	0°C~45°C									
Humidity	0~90% ( Non condensing )									
Altitude	< 1,500m									
Dimensions (H x W x D) <sup>4</sup>	1045 x 600 x 850 mm (Including wheel) / 41.1 x 23.6 x 33.5 inch (Including wheel)	1440 x 600 x 850 mm (Including wheel) / 56.7 x 23.6 x 33.5 inch (Including wheel)			1645 x 800 x 860 mm (Including wheel) / 64.8 x 31.5 x 33.9 inch (Including wheel)		1800 x 1050 x 970 mm / 70.9 x 41.3 x 38.2 inch		1900 x 1150 x 1240 mm / 74.8 x 45.3 x 48.8 inch	
Weight <sup>4</sup>	200kg	280kg	305kg	400kg	560kg	670kg	1000kg	1120kg	1240kg	
	441lbs	617.4lbs	672.53lbs	882lbs	1234.8lbs	1477.35lbs	2205lbs	2469.6lbs	2734.2lbs	

<sup>1</sup> 200V and 400V input options are 3Ø / 3 Wire + G. Please contact us for other input voltage specifications. <sup>2</sup> The max. current is based on rated input voltage of 380V.

<sup>3</sup> For type A: 45-500Hz, please contact us for output power characteristic curve. <sup>4</sup> Dimensions and weight are for input voltage 220/380V( 3Ø/4W+G ). Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.

## SPECIFICATIONS

### AFC Series Three-Phase Output (160kVA - 640kVA)

Model	AFC-33160-E	AFC-33200-E	AFC-33240-E	AFC-33300-E	AFC-33400-E	AFC-33500-E	AFC-33640-E
<b>INPUT</b>							
Phase	3Ø / 4 Wire + G (option: 3Ø / 3 Wire + G)						
Voltage <sup>1</sup>	220/380Vac ±15% (option: 120/208Vac, 277/480Vac, 240Vac, 200Vac or 400Vac)						
Frequency	50Hz ± 3Hz or 60Hz ± 3Hz						
Max. Current <sup>2</sup>	395A	493A	593A	769A	1025A	1282A	1579A
Power Factor	≥0.85 ( Max. Power )						
<b>OUTPUT</b>							
Power (VA)	160kVA	200kVA	240kVA	300kVA	400kVA	500kVA	640kVA
Phase	3Ø / 4 Wire + G						
Voltage Ranges	Low(V)						
	High(V)						
Voltage Resolution	0.1V						
Voltage Accuracy	0.2% F.S.+ 4counts						
Frequency Range <sup>3</sup>	Standard : 45~65Hz Option : 400Hz						
Frequency Resolution	0.1Hz						
Frequency Accuracy	±0.1% F.S.						
Max. Current (RMS)	Low(A)						
	High(A)						
Line Regulation	≤ 1%						
Load Regulation	≤ 1% ( Resistive Load )						
Total Harmonic Distortion(THD)	≤ 2% ( Resistive Load )						
Response Time	≤ 2ms						
<b>MEASUREMENT</b>							
Voltage Range	0V-600.0V						
Voltage Resolution	0.1V						
Voltage Accuracy	0.2% F.S.+4 counts						
Frequency Range	0~999.9Hz						
Frequency Resolution	0.1Hz						
Frequency Accuracy	±0.1% F.S.						
Current Range(RMS)	0-9999A						
Current Resolution(RMS)	0.01A( < 100A) / 0.1A( ≥ 100A)						
Current Accuracy(RMS)	0.2% F.S.+4 counts						
Power Range	-						
Power Resolution	-						
Power Accuracy	-						
<b>GENERAL</b>							
Efficiency	≥ 85% at Max. Power						
HMI	Digital LED Display						
Protection	Input : N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Over Temperature						
Remote Interface	-						
Operational Temperature	0°C~45°C						
Humidity	0~90% ( Non condensing )						
Altitude	< 1,500m						
Dimensions (H x W x D) <sup>4</sup>	1900 x 1150 x 1240 mm / 74.8 x 45.3 x 48.8 inch			2050 x 3880 x 1539 mm / 80.7 x 152.8 x 60.6 inch			2050 x 4716 x 1520 mm / 80.7 x 185.7 x 59.8 inch
Weight <sup>4</sup>	1850kg	2300kg	2800kg	3450kg	4450kg	5550kg	7800kg
	4079.3lbs	5071.5lbs	6174lbs	7607.25lbs	9812.25lbs	12237.8lbs	17199lbs

<sup>1</sup> 200V and 400V input options are 3Ø / 3 Wire + G. Please contact us for other input voltage specifications. <sup>2</sup> The max. current is based on rated input voltage of 380V.

<sup>3</sup> For type A: 45~500Hz, please contact us for output power characteristic curve.

<sup>4</sup> Dimensions and weight are for input voltage 220/380V( 3Ø/4W+G ). Please contact us for dimensions and weight for other input voltage.

\* All specifications are subject to change without notice. The specifications are tested at ambient temperature of 25°C ± 5°C.



## ORDERING INFORMATION

### New Generation AFC Series

Model Number	Description
<b>AFC Series Single-Phase Output (10kVA - 60kVA)</b>	
AFC-31010	High Power Programmable AC Power Source (10kVA/310V/45-65Hz)
AFC-31015	High Power Programmable AC Power Source (15kVA/310V/45-65Hz)
AFC-31030	High Power Programmable AC Power Source (30kVA/310V/45-65Hz)
AFC-31045	High Power Programmable AC Power Source (45kVA/310V/45-65Hz)
AFC-31060	High Power Programmable AC Power Source (60kVA/310V/45-65Hz)
<b>AFC Three-Phase Output (10kVA - 80kVA)</b>	
AFC-33010	High Power Programmable AC Power Source (10kVA/310V/45-65Hz)
AFC-33015	High Power Programmable AC Power Source (15kVA/310V/45-65Hz)
AFC-33030	High Power Programmable AC Power Source (30kVA/310V/45-65Hz)
AFC-33045	High Power Programmable AC Power Source (45kVA/310V/45-65Hz)
AFC-33060	High Power Programmable AC Power Source (60kVA/310V/45-65Hz)
AFC-33080	High Power Programmable AC Power Source (80kVA/310V/45-65Hz)
<b>Options</b>	
AFC-001	45~65Hz, 100Hz/120Hz/200Hz/240Hz/400Hz
AFC-006	Overload Capability 200% 2 sec, 150% 5 sec, 125% 15 sec
AFC-007	Input Voltage 208VAC
AFC-008	Input Voltage 480VAC
AFC-009	Input Voltage 220VAC
AFC-010	Input Voltage 400VAC

### AFC Series

Model Number	Description
<b>AFC Series Single-Phase Output (3kVA - 150kVA)</b>	
AFC-11003-E	AC Power Source (3kVA/300V/45-65Hz)
AFC-11005-E	AC Power Source (5kVA/300V/45-65Hz)
AFC-11010-E	High Power Programmable AC Power Source (10kVA/300V/45-65Hz)
AFC-11015-E	High Power Programmable AC Power Source (15kVA/300V/45-65Hz)
AFC-11030-E	High Power Programmable AC Power Source (30kVA/300V/45-65Hz)
AFC-31010-E	High Power Programmable AC Power Source (10kVA/300V/45-65Hz)
AFC-31015-E	High Power Programmable AC Power Source (15kVA/300V/45-65Hz)
AFC-31030-E	High Power Programmable AC Power Source (30kVA/300V/45-65Hz)
AFC-31045-E	High Power Programmable AC Power Source (45kVA/300V/45-65Hz)
AFC-31060-E	High Power Programmable AC Power Source (60kVA/300V/45-65Hz)
AFC-31080-E	High Power Programmable AC Power Source (80kVA/300V/45-65Hz)
AFC-31100-E	High Power Programmable AC Power Source (100kVA/300V/45-65Hz)
AFC-31120-E	High Power Programmable AC Power Source (120kVA/300V/45-65Hz)
<b>AFC Three-Phase Output (3kVA - 640kVA)</b>	
AFC-33005-E	High Power Programmable AC Power Source (5kVA/300V/45-65Hz)
AFC-33010-E	High Power Programmable AC Power Source (10kVA/300V/45-65Hz)
AFC-33015-E	High Power Programmable AC Power Source (15kVA/300V/45-65Hz)
AFC-33030-E	High Power Programmable AC Power Source (30kVA/300V/45-65Hz)
AFC-33045-E	High Power Programmable AC Power Source (45kVA/300V/45-65Hz)
AFC-33060-E	High Power Programmable AC Power Source (60kVA/300V/45-65Hz)
AFC-33080-E	High Power Programmable AC Power Source (80kVA/300V/45-65Hz)
AFC-33100-E	High Power Programmable AC Power Source (100kVA/300V/45-65Hz)
AFC-33120-E	High Power Programmable AC Power Source (120kVA/300V/45-65Hz)
AFC-33160-E	High Power Programmable AC Power Source (160kVA/300V/45-65Hz)
AFC-33200-E	High Power Programmable AC Power Source (200kVA/300V/45-65Hz)
AFC-33240-E	High Power Programmable AC Power Source (240kVA/300V/45-65Hz)
AFC-33300-E	High Power Programmable AC Power Source (300kVA/300V/45-65Hz)
AFC-33400-E	High Power Programmable AC Power Source (400kVA/300V/45-65Hz)
AFC-33500-E	High Power Programmable AC Power Source (500kVA/300V/45-65Hz)
AFC-33640-E	High Power Programmable AC Power Source (640kVA/300V/45-65Hz)
<b>Options</b>	
AFC-001-E	Type A: Output Frequency 45-500Hz
AFC-002-E	Type B: Output Frequency 350~450Hz, 400Hz
AFC-003-E	Type C : Output Frequency 50/60Hz
AFC-004-E	0~5V Analog Control (Control only)
AFC-005-E	4~20mA Analog Control (Control only)
AFC-006-E	Overload Capability 200% 2 sec, 150% 5 sec, 125% 15 sec

# Regenerative Grid Simulator

RoHS Compliant 



PAS series is developed for renewable energy related applications. It can simulate the various grid conditions and related test standards. Especially for the voltage and frequency transient simulation test feature, which is very suitable for production, quality verification, research and development. It is also built with Low Voltage Ride Through (LVRT) and High Voltage Ride Through (HVRT) test function and gradual mode programmable capability.

PFV Series is a new generation of programmable AC power supply, with four quadrant energy feedback function. This unit not only provides power to the EUT, but also sinks the power back to the grid system which is very useful for grid-tied devices testing applications. The maximum output power for PAS series is up to 2000kVA, and the PFV series is up to 400kVA. The output voltage range is 0~300V(L-N) and the standard output frequency is 45~65Hz continuously adjustable (optional 40~70Hz).

## Product Features

- PAS has built-in low voltage ride through (LVRT) & high voltage ride through (HVRT) mode which can be easily used for simulating the abnormality test according to different test standards.
- PAS/PFV equip with energy feedback feature that feeds energy back into the grid system for saving energy and sinking the power from grid-tied devices.
- PAS series is suitable for standard verification. For example: UL1741, IEEE 1547, BDEW and CEI0-16, etc.
- Three phase independent voltage adjustment is suitable for three phase unbalance testing or multiple single phase test units. It also equips with phase angle adjustment.
- With input PFC, PAS's input PF is up to 0.99.
- Optional harmonics waveform synthesis function.

## Output Power

**30kVA~2000kVA**

## Interfaces

Standard  

Option  



## Applications

- Laboratory/Certification Bureau
- Electric Vehicles
- Renewable Energy
- Motor & Compressor

## QR Code



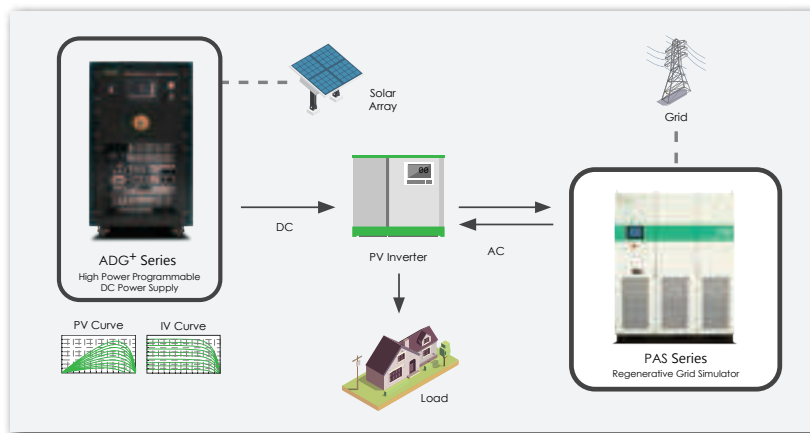
Product Info.



Product Video

## Regenerative Function

### PV Inverter Testing Application

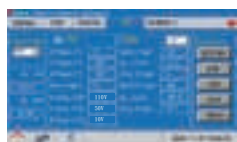


PAS series is a four-quadrant AC power source. Even in 2000kVA output power, it is capable to both sink and source over 90% efficiency from the DUT. It is suitable for PV Inverter test, EV charger test or other grid-tied devices test. Build in with Low Voltage Ride Through (LVRT) and High Voltage Ride Through (HVRT) test graph and it is very suitable for IEEE-1547 or BDEW related standards compliance test.

## HVRT and LVRT Function NEW

### Three Phase Independent Output Voltage Setting

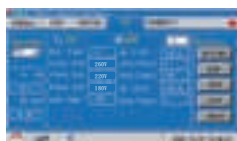
Independent setting for three phase high/low voltage ride through to simulate voltage drop and surge.



Low Voltage Ride Through Setting



LVRT Output Waveform

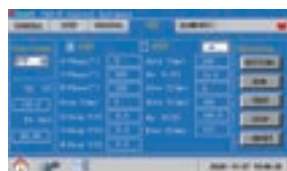


High Voltage Ride Through Setting

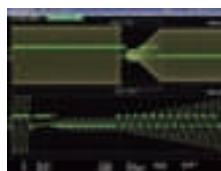


HVRT Output Waveform

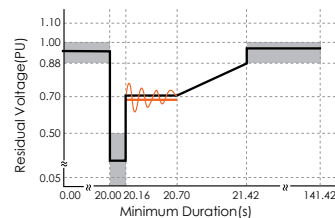
### Low Voltage Ride Through Test - IEEE Std 1547.1-2020



Setting for LVRT



LVRT Output Waveform

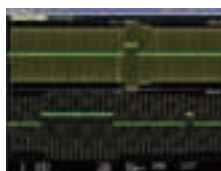


LVRT Test Standard IEEE Std 1547.1-2020

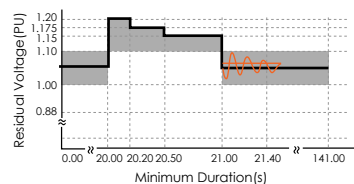
### High Voltage Ride Through Test - IEEE Std 1547.1-2020



Setting for HVRT



HVRT Output Waveform



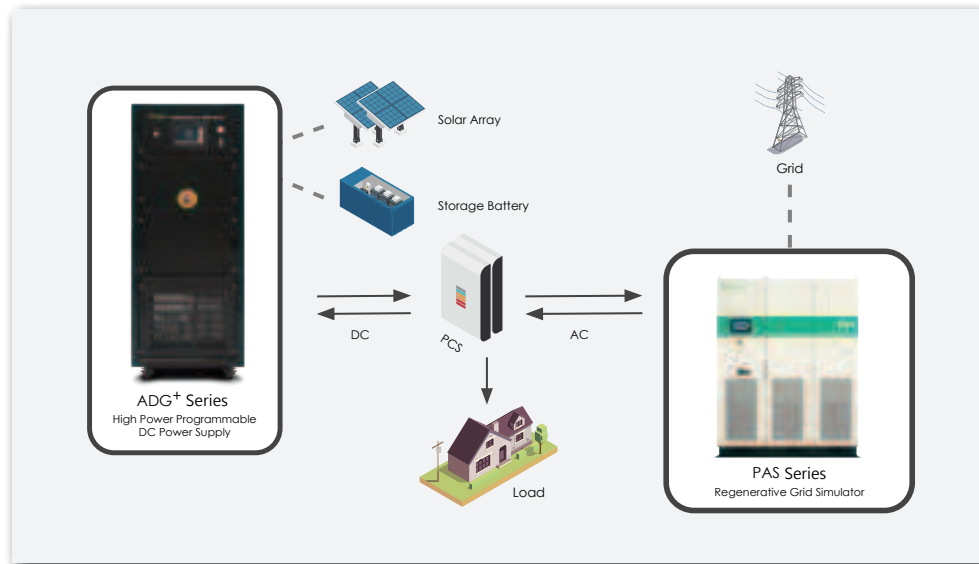
HVRT Test Standard IEEE Std 1547.1-2020

PAS built-in HVRT/LVRT function can simulate the situation when the abnormality is ruled out from the main AC grid. Simulations such as voltage drop, voltage restore or rising time and remaining time can all be programmed.

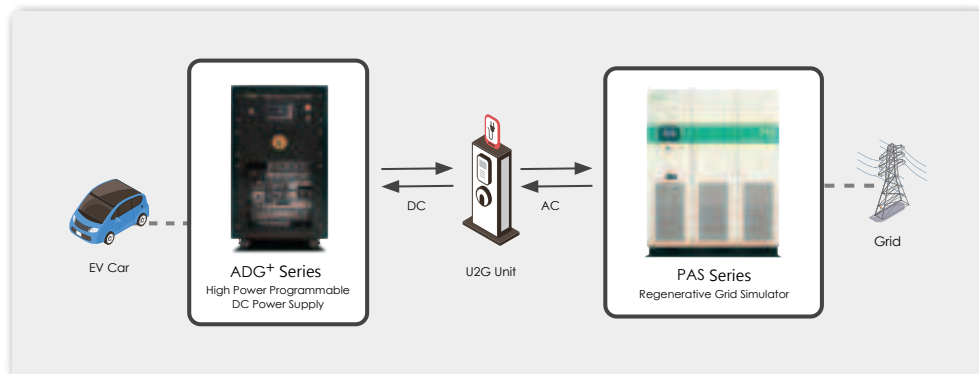
**Ideal For Grid Simulation Applications**

The PAS series is a grid simulator particularly designed and developed for renewable energy related applications. It has been widely applied for the testing applications of smart inverters, battery charging/ discharging, Power Conditioning System (PCS) and Vehicle-to-grid (V2G). The PAS series not only provides power to the EUT, but also sinks the power back to the grid system, which is suitable for grid testing application.

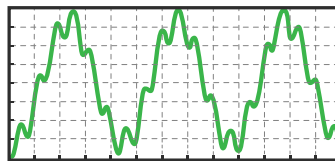
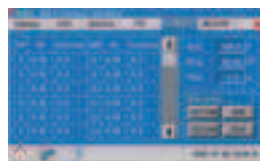
**■ Power Conditioning System (PCS) Testing Application**



**■ Vehicle-to-grid (V2G) Testing Application**



**Harmonics Waveform Synthesis Function (Opt.)**



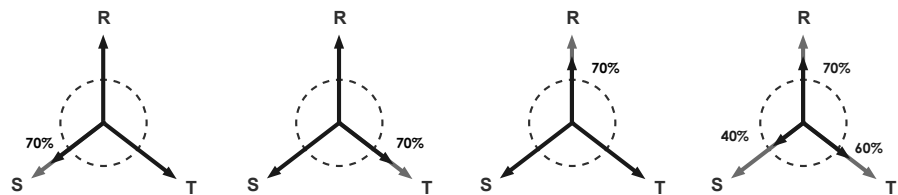
PAS series' harmonics waveform synthesis function can allow user to program multiplex distorted harmonic waveform of up to 25 steps. It can simply set up voltage and adjust start phase of each step base on fundamental frequency 50Hz or 60Hz.

### Regenerative 2000kW Power Supply



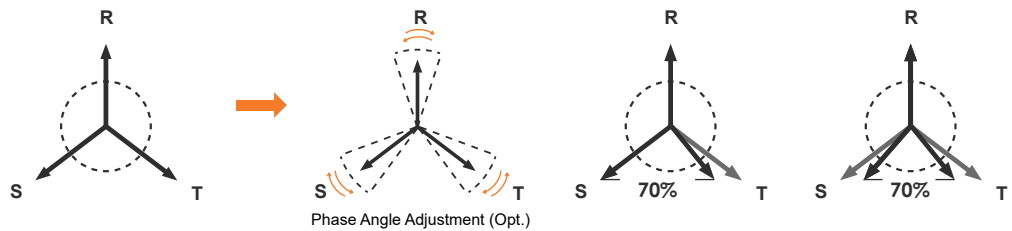
Preen has successfully installed the 2000kW, smart inverter ATS in Taiwan's leading testing center for solar, renewable energy and PV inverter testing application.

### Three Phase Independent Adjustment



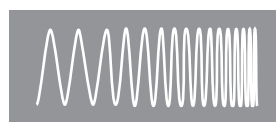
The Three Phase Independent Adjustment function of PAS series can simulate advanced power line disturbance such as three-phase voltage imbalance or lost-phase, which can further meet up with standard of IEC61000-4-34 and GB/T 17626-34. To set output voltage of each phase independently, user can simply press the screen icon to switch between imbalance or unbalanced voltage setting for three phase independent voltage adjustment.

### Phase Angle Adjustment (Opt.)

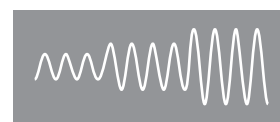


The PAS series is able to set the phase angle between three phases via the optional phase angle adjustment, for example, user can set phase angle from 120° to 70°, to simulate phase shift for different power conditions.

### GRADUAL and STEP Function



Frequency Gradual Function



Voltage Step Function

PAS / PFV series have multiple programmable functions to precisely and effectively simulate various power line disturbances such as voltage or frequency ramp up or ramp down, transient and step changes.

# SPECIFICATIONS

## PFV Series & PAS-F Series Three-Phase Output (30kVA - 1000kVA)

Model	PFV-33030	PFV-33045	PFV-33060	PFV-33075	PFV-33100	PFV-33120	PFV-33150	PFV-33200	PFV-33300	PFV-33400	-	-	-	
	PAS-F-33030	PAS-F-33045	PAS-F-33060	PAS-F-33075	PAS-F-33100	PAS-F-33120	PAS-F-33150	PAS-F-33200	PAS-F-33300	PAS-F-33400	PAS-F-33600	PAS-F-33800	PAS-F-331000	
<b>INPUT</b>														
Phase	3Ø / 3 Wire + G													
Voltage <sup>*1</sup>	380V±15%													
Frequency	47-63Hz													
Max. Current <sup>*2</sup>	58.7A	88.1A	117.4A	146.8A	195.7A	234.9A	293.6A	391.4A	587.1A	782.8A	1174.3A	1565.7A	1957.1A	
Power Factor	≥0.99(Max. Power)													
<b>OUTPUT</b>														
Power (VA)	30kVA	45kVA	60kVA	75kVA	100kVA	120kVA	150kVA	200kVA	300kVA	400kVA	600kVA	800kVA	1000kVA	
Phase	3Ø / 4 Wire + G													
Voltage Ranges PFV Series	Low(V)		0V-150.0V(L-N)											
	High(V)		0V-300.0V(L-N)											
Voltage Ranges PAS-F Series	0V-300.0V(L-N)													
Voltage Resolution	0.1V													
Voltage Accuracy	0.15% F.S.+4 counts													
Frequency Range	Standard : 45-65Hz Option : 40-70Hz													
Frequency Resolution	0.1Hz													
Frequency Accuracy	±0.1% F.S													
Max. Current (RMS) PFV Series	83.3A	125A	166.7A	208.3A	277.8A	333.3A	416.7A	555.6A	833.3A	1111.1A	-	-	-	
	High(A)		41.6A	62.5A	83.3A	104.1A	138.9A	166.6A	208.3A	277.8A	416.7A	555.6A	-	-
Max.Current(RMS) PAS-F Series	41.6A	62.5A	83.3A	104.1A	138.9A	166.6A	208.3A	277.8A	416.7A	555.6A	833.3A	1111.1A	1388.8A	
Line Regulation	≤ 1%													
Load Regulation	≤ 1% (Resistive Load)													
Total Harmonic distortion(THD)	≤ 2% (Resistive Load)													
Response Time	≤ 2ms													
Crest Factor	≥ 3													
<b>MEASUREMENT</b>														
Voltage Range	0V-300.0V													
Voltage Resolution	0.1V													
Voltage Accuracy	0.1%F.S.+2counts													
Frequency Range	Standard : 45 ~ 65Hz Option : 40-70Hz													
Frequency Resolution	0.01Hz													
Frequency Accuracy	±0.01% F.S													
Current Range(RMS)	0-9999A													
Current Resolution(RMS)	0.1A													
Current Accuracy(RMS)	0.1% F.S.+2 counts													
Power Range	0-1000kW													
Power Resolution	0.1kW													
Power Accuracy	0.2% F.S.+2 counts													
<b>GENERAL</b>														
Regenerative Function	YES													
Low Voltage Ride Through(LVRT) High Voltage Ride Through(HVRT)	PAS Series : YES , PFV Series : NO													
Three-phase independent adjustment	YES													
Phase Angle Setting	YES													
Efficiency	≥ 92% at Max. Power													
HMI	Touch Screen, 7" Color TFT LCD													
Protection	Input : Input N.F.B, Over Voltage, Under Voltage Output : Over Voltage, Over Current, Reverse Current, Over Temperature													
Remote Interface	Standard : RS-485, RS-232 Option : GPIB, Ethernet, USB													
Operating Temperature	0°C ~ 45°C													
Humidity	0~90% ( Non condensing )													
Altitude	< 1,500m													
Dimensions (H x W x D) <sup>*3</sup>	2000 x 1200 x 800 mm /78.74x 47.24 x 31.49 inch		2200 x 1200 x 800 mm /86.61x 47.24 x 31.49 inch		2200 x 1600 x 800 mm / 86.61 x 62.99 x 31.49 inch				2050 x 3530 x 1520mm / 80.71 x 138.97 x 59.84 inch			2050 x 5635x 1520mm / 80.71 x 221.85 x 59.84 inch		
Weight	860kg	1000kg	1150kg	1315kg	1415kg	1495kg	1585kg	1895kg	2685kg	3485kg	5270kg	6640kg	8530kg	
	1892lbs	2200lbs	2530lbs	2893lbs	3113lbs	3289lbs	3487lbs	4169lbs	5907lbs	7667lbs	11594lbs	14608lbs	18766lbs	

\*1 Please contact for other voltage specification. \*2 The rated input voltage is 380V. \*3 Including wheels.  
\* All specifications are subject to change without notice.



**ORDERING INFORMATION :****PAS-F Series Three-Phase Output (30kVA - 1000kVA)**

Model Number	Description
PAS-F 33030	Regenerative Grid Simulator (30kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33045	Regenerative Grid Simulator (45kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33060	Regenerative Grid Simulator (60kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33075	Regenerative Grid Simulator (75kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33100	Regenerative Grid Simulator (100kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33120	Regenerative Grid Simulator (120kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33150	Regenerative Grid Simulator (150kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33200	Regenerative Grid Simulator (200kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33300	Regenerative Grid Simulator (300kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33400	Regenerative Grid Simulator (400kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33600	Regenerative Grid Simulator (600kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33800	Regenerative Grid Simulator (800kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 331000	Regenerative Grid Simulator (1000kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 001	Soft Start Function
PAS-F 002	GPIB Interface
PAS-F 003	Ethernet Interface
PAS-F 004	USB Interface
PAS-F 005	Output Frequency 40-70Hz
PAS-F 006	Output Voltage 0-350V(L-N)

**PFV Series Three-Phase Output (30kVA - 400kVA)**

Model Number	Description
PFV-33030	High Power Programmable AC Power Source (30kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33045	High Power Programmable AC Power Source (45kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33060	High Power Programmable AC Power Source (60kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33075	High Power Programmable AC Power Source (75kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33100	High Power Programmable AC Power Source (100kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33120	High Power Programmable AC Power Source (120kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33150	High Power Programmable AC Power Source (150kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33200	High Power Programmable AC Power Source (200kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33300	High Power Programmable AC Power Source (300kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33400	High Power Programmable AC Power Source (400kVA/300V/45-65Hz, Including Regenerative Function)
PFV-001	Soft Start Function
PFV-002	GPIB Interface
PFV-003	Ethernet Interface
PFV-004	USB Interface

# Programmable Wide Frequency AC Power Source



The PWF series is a programmable AC power source with wide range of adjustable frequency, developed for aerospace or military's 400Hz and 800Hz test applications, such as laboratory use, compliance test, and quality assurance.

The PWF series consists of L series and M series, which have different output frequency range. L series provides 45~500Hz and 0~300V output, and M series provides 300~800Hz and 0-150V output. Users can select communication interfaces of RS-485, RS-232, and optional GPIB, Ethernet. The PWF series has installed programming sequence functions of STEP and GRADUAL modes and optional three phase independent adjustment, phase angle adjustment, and disturbance function.

## Product Features

- Wide range output frequency up to 800Hz for aerospace and military applications.
- Three phase independent adjustment to set voltage of each phase .
- Phase angle adjustment to set angle between each phase.
- Programming Sequence Function: STEP and GRADUAL modes allow users to easily set sequences of start/ end voltage, frequency and run time for testing purposes.
- Optional soft start function to reduce inrush current from motor type EUT.
- Touch screen display for easy operation.
- Comprehensive protection includes over voltage, over current, over load, input under voltage and over temperature with over 20 corresponding error codes and event log for easier trouble shooting.
- Standard RS-232 and RS-485 interfaces and optional GPIB and Ethernet interface available.
- Latest patented power module with high power density and swappable design for better reliability and serviceability.
- Disturbance function to better simulate grid abnormality.

## Output Power

**20kVA~120kVA**

## Interfaces

Standard	<b>RS-232</b>	<b>RS-485</b>
Option	<b>GPIB</b>	<b>Ethernet</b>

## Applications

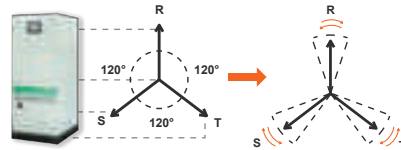
- Aerospace & Defense
- Laboratory/Certification Bureau
- Motor & Compressor
- Electronic Component
- Magnetic Resonance Testing

## Overload Capability



The PWF series AC source has 200%, 150% and 125% overload capability. This is suitable for powering inductive load, such as motor or compressor, which has high inrush current during startup. With the overload capability, user can select an AC source to start up a DUT with high inrush current, and do not need to scale up power supply to cover the peak current of inrush current.

## Phase Angle Adjustment



User can set up the angle of each phase via the touch panel. This function could easily simulate the three phase angle unbalance situation.

## SPECIFICATIONS

### PWF Series Three-Phase Output (20kVA - 120kVA)

Model	PWF-L-33020	PWF-L-33030	PWF-L-33045	PWF-L-33060	PWF-L-33075	PWF-L-33090	PWF-L-33120
	PWF-M-33020	PWF-M-33030	PWF-M-33045	PWF-M-33060	PWF-M-33075	-	-
<b>INPUT</b>							
Phase & Voltage <sup>*1</sup>	3Ø / 4 Wire + G & 220V/380V±15%						
Frequency	47 - 63Hz						
Max. Current <sup>*2</sup>	37.9A	56.9A	85.3A	113.8A	142.2A	170.7A	227.6A
Power Factor	≥0.94 ( Max. Power )						
<b>OUTPUT</b>							
Power (VA)	20kVA	30kVA	45kVA	60kVA	75kVA	100kVA	120kVA
Phase	3Ø / 4 Wire + G						
Voltage Ranges	PWF-M Series		0V-150.0V ( L-N )				
	PWF-L Series		0V-300.0V ( L-N )				
Voltage Resolution	0.1V						
Voltage Accuracy	0.5% F.S.+4 counts						
Frequency	PWF-M Series		300-800Hz				
Range	PWF-L Series		45-500Hz				
Frequency Resolution	0.1Hz						
Frequency Accuracy	±0.02% F.S.						
Max. Current (RMS)	44.4A	66.7A	100A	133.3A	166.7A	-	-
	27.7A	41.6A	62.5A	83.3A	104.1A	125A	166.6A
Line Regulation	≤ 0.5%						
Load Regulation	≤ 1% ( Resistive Load )						
Total Harmonic Distortion(THD)	≤ 2% ( Resistive Load )						
Response Time	≤ 1ms						
<b>MEASUREMENT</b>							
Voltage	Range : 0V-300.0V Resolution : 0.1V Accuracy :0.5% F.S.+ 4 counts						
Frequency	Range : 45.0-800.0Hz Resolution : ≤ 100Hz : 0.01Hz / > 100Hz : 0.1Hz Accuracy : ±0.02% F.S						
Current	Range (RMS) : 0 ~ 9999A Resolution (RMS) : 0.1A Accuracy(RMS) : 0.5% F.S.+4 counts						
Power	Range : 0 - 120kW Resolution : 0.1kW Accuracy : 1% F.S.+ 6 counts						
<b>GENERAL</b>							
Efficiency	≥ 85-90 % at Max. Power						
HMI	Touch Screen, 7" Color TFT LCD						
Overload Capacity	125% / 30 min · 150% / 10 min · 200% / 1 min						
Program Mode	STEP : 24 sets / 255 cycles, It can set Voltage / Frequency / Time. GRADUAL : 12 sets / 255 cycles, It can set Voltage / Frequency / Time. TRANS : 24 sets / 255 cycles, It can set Voltage / Frequency / Time.						
Protection	Input : Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Over Temperature						
Remote Interface	Standard : RS-485 / RS-232 Option : GPIB, Ethernet						
Environment	Operational Temperature: 0°C ~45°C Humidity: 0~90% ( Non condensing )						
Altitude	<1,500m						
Dimensions (H x W x D)	1715 x 685 x 795 mm			1765 x 835 x 1040 mm			
	67.51 x 26.96 x 31.29 inch			69.5 x 32.87 x 40.94 inch			

\*1 Please contact us for other voltage specification.

\*2 The rated input voltage is 380V.

\* all specifications are subject to change without notice.

## 400Hz Power Supply / Ground Power Unit



AMV series is a new generation of ground power unit which designed for aviation and military industry. It is compact size and light weight which is suitable for airport, test flight station, aircraft maintenance station, hangar, product assembly line and other places. It provides a stable 400Hz power (800Hz available), with good environmental proof design and outdoor capability.

The output voltage of AMV series are 115 / 200V or 115 / 200V  $\pm$  10% which is easy for voltage adjustment. AMV series comes with two kinds of output frequency, 400Hz fixed or 300-500Hz adjustable.

Robust overload capacity can handle the inrush current of military or aviation equipment. Enclosure protection level is up to IP54 and it has stand-alone or trailer model available for different applications.

### Product Features

- VFD operation interface: intuitive, easy to use and high protection level and phase angle adjustment.
- Overload Capacity : 125% for 600 secs, 150% for 30 secs, 200% for 10 secs, and extended overload is optional.
- EF signal chain function.
- Enclosure protection rating is up to IP54; all parts are treated with salt corrosion-resisting, damp-resisting and mold-resisting coat; the working temperature can be up to -40°C ~ 55°C.
- Complied with MIL-STD-704.
- Optional dual outputs for multiple load applications.
- Emergency stop button to stop the output quickly.
- Comprehensive protections which include output undervoltage /overvoltage, overcurrent, overload, input undervoltage/overvoltage, overheat and other more than twenty fault conditions.
- Modularized inverter which is compact, smaller, high power density and easy to maintain.

### Output Power

**30kVA~180kVA**

### Interfaces

Standard **RS-485**

### Applications

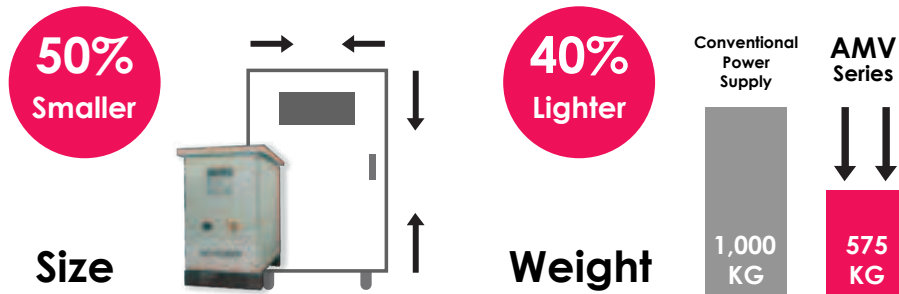
- Aerospace & Defense
- Repair Station
- Hangar
- Avionic Laboratory

### QR Code



Product  
Info.

### Compact & Lighter



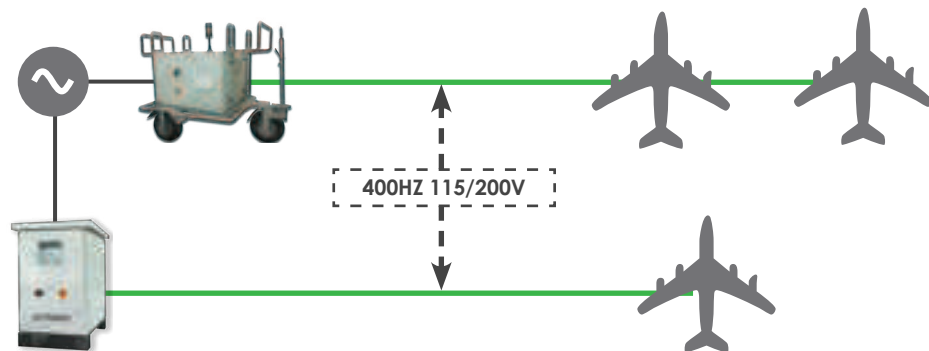
Preen's latest ground power unit, the AMV series, has been greatly improved on size and weight. Compared to the previous version ground power unit, the AMV series can be up to 50% smaller and 40% lighter. This leading power density makes it easier on installation and relocation, providing a great flexibility.

### High Overload Capability & Ruggedized Design



With the protection level up to IP 54, the AMV series is a ground power unit designed for outdoor usage. The overall design and main components have been ruggedized for harsh environments. For inductive type of DUT, such as motor or compressor, the AMV series has standard overload capability of 125%, 150% and 200%, and it is extensible up to 300%, which makes it suitable for DUT with high startup inrush current and can further reduce the cost on scaling up the power unit.

### Ground Power Applications



The AMV series has been widely installed at hangars, airports, aircraft repair stations and factories to deliver stable 400Hz or up to 800Hz power to aircraft or components. User can also select dual outputs to power up multiple units with one AMV series. The AMV series can be installed on a trailer for easy relocation and to provide user with great convenience.

# SPECIFICATIONS

## AMV Series Three-Phase Output (30kVA - 180kVA)

Model	AMV-33030	AMV-33045	AMV-33060	AMV-33090	AMV-33120	AMV-33150	AMV-33180
<b>INPUT</b>							
Phase	3Ø / 3 Wire + G						
Voltage <sup>*1</sup>	380V±15%						
Frequency	50 Hz ± 3Hz · 60Hz ± 3Hz						
Max. Current <sup>*2</sup>	66.2A	99.3A	132.4A	198.6A	264.8A	331.0A	397.2A
Power Factor	≥ 0.94 ( Max. Power )						
<b>OUTPUT</b>							
Power	30kVA	45kVA	60kVA	90kVA	120kVA	150kVA	180kVA
Phase	3Ø / 4 Wire + G						
Voltage Ranges	115 / 200V ±10%						
Voltage Resolution	0.1V						
Voltage Accuracy	0.5% F.S.+4 counts						
Frequency Range	AMV-T : 400Hz (Trailer ) & AMV-F : 300-500 Hz ( Stand-Alone )						
Frequency Resolution	0.1Hz						
Frequency Accuracy	±0.02% F.S.						
Max. Current (RMS)	87A	130.4A	173.9A	260.9A	347.8A	434.8A	521.7A
Power Factor	0.7 lagging to 0.95 leading						
Line Regulation	≤ 1%						
Load Regulation	< 1% ( Resistive Load )						
Total Harmonic Distortion(THD)	≤ 2% ( Resistive Load )						
Response Time	≤ 2ms						
Phase Angle	For Balanced Load: 120°±1° ; For 30% Unbalanced Load: 120°±1.5° ; For 100% Unbalanced Load: 120°±2°						
<b>MEASUREMENT</b>							
Voltage Range	0V-300.0V						
Voltage Resolution	0.1V						
Voltage Accuracy	0.5% F.S.+4 counts						
Frequency Range	300.0-500.0Hz						
Frequency Resolution	0.1 Hz						
Frequency Accuracy	±0.1% F.S.						
Current Range(RMS)	0-9999A						
Current Resolution(RMS)	0.1A						
Current Accuracy(RMS)	0.5% F.S.+4 counts						
<b>GENERAL</b>							
Efficiency	≥ 92% at Max. Power						
HMI	VFD HMI						
Overload Capacity	Standard : 125%( 600s ) / 150% (30s) / 200% (10s) Option : 150%( 60s ) / 200% (30s) / 250% (10s) / 300% (1s)						
Protection	Class D Lighting Protection, Input LVP, Input Phase Loss, OVP, LVP, OCP, OPP, Short Circuit, OTP, OFP						
Remote Interface	RS-485						
Operational Temperature	-40°C ~ +55°C						
Storage Temperature	-45°C ~ +65°C						
Humidity	0~90% ( Non condensing )						
IP Level	IP54						
EF Signal	Standard						
<b>STAND-ALONE</b>							
Dimensions (H x W x D)	1205 x 780 x 1045 mm			1555 x 780 x 1095 mm		1600 x 820 x 1195 mm	
	47.44 x 30.7 x 41.14 inch			61.22 x 30.7 x 43.11 inch		62.99 x 32.28 x 47.04 inch	
Weight	330kg	410kg	493kg	575kg	780kg	850kg	980kg
	727.5lbs	903.9lbs	1086.9lbs	1267.7lbs	1719.6lbs	1873.9lbs	2160.5lbs
<b>TRAILER</b>							
Dimensions (H x W x D)	1460 x 2013 x 1358 mm			1460 x 2945 x 1430 mm		1510 x 3045 x 1530 mm	
	57.48 x 79.25 x 53.46 inch			57.48 x 115.94 x 56.29 inch		59.44 x 119.88 x 60.23 inch	
Weight	480kg	560kg	643kg	725kg	850kg	1020kg	1170kg
	1058.2lbs	1234.6lbs	1417.6lbs	1598.4lbs	1873.9lbs	2248.7lbs	2579.4lbs

\*1 Please contact for other voltage specification.

\*2 The rated input voltage is 380V.

\* all specifications are subject to change without notice.



## ORDERING INFORMATION

### AMV-T Series Three-Phase Output (30kVA - 180kVA)

Model Number	Description
AMV-T-33030	Ground Power Unit(30kVA/115V/400Hz)-Trailer
AMV-T-33045	Ground Power Unit(45kVA/115V/400Hz)-Trailer
AMV-T-33060	Ground Power Unit(60kVA/115V/400Hz)-Trailer
AMV-T-33090	Ground Power Unit(90kVA/115V/400Hz)-Trailer
AMV-T-33120	Ground Power Unit(120kVA/115V/400Hz)-Trailer
AMV-T-33150	Ground Power Unit(150kVA/115V/400Hz)-Trailer
AMV-T-33180	Ground Power Unit(180kVA/115V/400Hz)-Trailer

### AMV-F Series Three-Phase Output (30kVA - 180kVA)

Model Number	Description
AMV-F-33030	Ground Power Unit(30kVA/115V/400Hz)-Stand-Alone
AMV-F-33045	Ground Power Unit(45kVA/115V/400Hz)-Stand-Alone
AMV-F-33060	Ground Power Unit(60kVA/115V/400Hz)-Stand-Alone
AMV-F-33090	Ground Power Unit(90kVA/115V/400Hz)-Stand-Alone
AMV-F-33120	Ground Power Unit(120kVA/115V/400Hz)-Stand-Alone
AMV-F-33150	Ground Power Unit(150kVA/115V/400Hz)-Stand-Alone
AMV-F-33180	Ground Power Unit(180kVA/115V/400Hz)-Stand-Alone

## 400Hz Power Supply / Ground Power Unit



The AMF series power supply is designed for 400Hz aerospace and military applications, including laboratory use, ground power for hangar and repair station, airport and factory. Stable 400Hz power input helps users on inspections, aging tests, and supplying power to aircraft.

Output voltage of the AMF series is 115/200V with an adjustable range of 10%. Users can switch between output frequency 400Hz fixed and 350~450Hz adjustable. With overload drive capability and reverse energy protection, the AMF series is ideal for motor, aerospace and military types of application

### Product Features

- Output voltage 115/200V with an adjustable range of 10% and two types of output frequency 400Hz fixed and 350~450Hz djustable.
- Optional overload function: 120% for 60 mins, 150% for 60 secs, and 200% for 15 secs.
- Follows standards of MIL-STD-704 F.
- 4 LED displays shows measurements of voltage, current, frequency and power.
- Compact size for easier maintenance and high power density.
- Comprehensive protection with corresponding error codes.
- Able to operate under unbalanced load conditions.
- Able to handle reverse energy generated by motor type EUT.

### Output Power

**500VA~400kVA**

### Interfaces

Option **RS-485**

### Applications

- Aerospace & Defense
- Component Verification
- Repair Stations
- Hangars

### QR Code



**Product  
Info.**

## SPECIFICATIONS

### AMF Series Single-Phase Output (500VA - 100kVA)

Model	AMF-500W	AMF-11001	AMF-11003	AMF-11005	AMF-11010	AMF-11020	AMF-31030	AMF-31045	AMF-31060	AMF-31100	
<b>INPUT</b>											
Phase	1 Ø / 2 Wire +G						3Ø / 4 Wire ( Y ) +G ( Option : 3Ø / 3 Wire ( Δ ) +G )				
Voltage <sup>*1</sup>	220V±15%						220V/380V±15% ( Option : 220V±15% )				
Frequency	50Hz ± 3Hz or 60Hz ± 3Hz										
Max. Current <sup>*2</sup>	7.4A	14.9A	21.7A	36.2A	72.3A	145A	72A	109A	145A	241A	
Power Factor	≥0.8 ( Max. Power )			≥0.85 ( Max. Power )							
<b>OUTPUT</b>											
Power	VA	500VA	1kVA	3kVA	5kVA	10kVA	20kVA	30kVA	45kVA	60kVA	100kVA
Phase	1 Ø / 2 Wire + G										
Voltage Ranges	Standard : 115V±10% Option : 220V±10% or 230V±10%										
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+4 counts										
Frequency Range	400Hz fixed and 350Hz ~ 450Hz variable ( contact us for other frequency range )										
Frequency Resolution	0.1Hz										
Frequency Accuracy	±0.5% F.S.										
Max. Current (RMS) at 115V	4.3A	8.7A	26.1A	43.5A	87A	173.9A	260.9A	391.3A	521.7A	869.6A	
Max. Current (RMS) at 220V (Opt.)	2.3A	4.5A	13.6A	22.7A	45.5A	90.9A	136.4A	204.5A	272.7A	454.5A	
Max. Current (RMS) at 230V (Opt.)	2.2A	4.3A	13.0A	21.7A	43.5A	87.0A	130.4A	195.7A	260.9A	434.8A	
Line Regulation	≤ 0.5%			< 1%				< 1.5%			
Load Regulation <sup>*3</sup>	≤ 0.5%			≤ 1%				≤ 1.5%			
Total Harmonic Distortion (THD) <sup>*3</sup>	≤ 0.5%			≤ 2%				≤ 3%			
Response Time	≤ 2ms										
<b>MEASUREMENT</b>											
Voltage Range	0V-300.0V										
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+4 counts										
Frequency Range	0~999.9Hz										
Frequency Resolution	0.1Hz										
Frequency Accuracy	±0.5% F.S.										
Current Range (RMS)	0-999A										
Current Resolution (RMS)	0.001A / 0.01A	4 Digits Meter / Resolution : 0.1A					4.5 Digits Meter / Resolution : 0.1A				
Current Accuracy (RMS)	0.2% F.S.+4 counts										
<b>GENERAL</b>											
Efficiency	≥ 45% at Max. Power			≥ 87% at Max. Power							
HMI	Digital LED Meters										
Overload Capacity	-	120%/1 hour, 150%/1 minute, 200%/15 seconds <sup>*4</sup>									
Protection	Input / Ouput Circuit Breakers and Protection Circuitry for OVP, OCP, OPP, OTP and Short Circuit										
Operional Temperature	-20°C ~ 45°C										
Humidity	0~90% ( Non condensing )										
Altitude	< 1,500m										
Dimensions (H x W x D)	200 x 430 x 520 mm	720 x 430 x 520 mm			990 x 430 x 750 mm	1240 x 600 x 970 mm		1600 x 800 x 1090 mm		1800 x 970 mm	
	7.87 x 16.92 x 20.47 inch	28.34 x 16.92 x 20.47 inch			38.97 x 16.92 x 29.52 inch	48.81 x 23.62 x 38.18 inch		62.99 x 31.49 x 42.91 inch		70.86 x 41.33 x 38.18 inch	
Weight	44kg	60kg	73kg	89kg	150kg	280kg	333kg	418kg	571kg	898kg	
	97lbs	132.3lbs	160.9lbs	196.2lbs	330.7lbs	617.3lbs	734.1lbs	921.5lbs	1258.8lbs	1979.8lbs	

\*1 Please contact us for other voltage specification.

\*2 The rated input voltage is 220V or 220V/380V.

\*3 Resistive load.

\* all specifications are subject to change without notice.

\*4 The unit needs a interval of at least 3 times of overload time for the next overload operation. For example, for every 1-hour of 120% overload operation, the unit needs at least 3 hours (1 hour\*3) of interval for the next overload operation.

## SPECIFICATIONS

### AMF Series Three-Phase Output (6kVA - 75kVA)

Model	AMF-33006	AMF-33010	AMF-33015	AMF-33020	AMF-33030	AMF-33045	AMF-33060	AMF-33075
<b>INPUT</b>								
Phase	3Ø / 4 Wire (Y)+G (Option : 3Ø / 3 Wire (Δ) +G)							
Voltage <sup>*1</sup>	220V/380V±15% ( Option : 220V±15% )							
Frequency	50Hz ± 3Hz or 60Hz ± 3Hz							
Max. Current <sup>*2</sup>	14.5A	24.1A	36.2A	48.2A	72.3A	108.5A	144.6A	180.8A
Power Factor	≥ 0.85 ( Max. Power )							
<b>OUTPUT</b>								
Power	6kVA	10kVA	15kVA	20kVA	30kVA	45kVA	60kVA	75kVA
Phase	3Ø / 4 Wire + G							
Voltage Ranges	115V/200V±10%							
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+4 counts							
Frequency Range	400Hz fixed and 350Hz ~ 450Hz variable (contact us for other frequency range)							
Frequency Resolution	0.1Hz							
Frequency Accuracy	±0.5% F.S.							
Max. Current (RMS)	17.4A	29A	43.5A	58A	87A	130.4A	173.9A	217.4A
Line Regulation	≤ 0.5%						≤ 1%	
Load Regulation	≤ 1%						≤ 1.5%	
Total Harmonic Distortion (THD)	≤ 2%						≤ 3%	
Response Time	≤ 2ms							
<b>MEASUREMENT</b>								
Voltage Range	0V-300.0V							
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+4 counts							
Frequency Range	0~999.9Hz							
Frequency Resolution	0.1Hz							
Frequency Accuracy	±0.5% F.S.							
Current Range(RMS)	0-999A							
Current Resolution(RMS)	4 Digits Meter / Resolution : 0.1A						4.5 Digits Meter / Resolution : 0.1A	
Current Accuracy(RMS)	0.2% F.S.+4 counts							
<b>GENERAL</b>								
Efficiency	≥ 87% at Max. Power							
HMI	Digital LED Meters							
Phase Angle	For Balanced Load: ≤ ± 2° ; For 100% Unbalanced Load: ≤ ± 4°							
Overload Capacity	120%/1 hour, 150%/1 minute, 200%/15 seconds <sup>*3</sup>							
Protection	Input / Output Circuit Breakers and Protection Circuitry for OVP, OCP, OPP, OTP and Short Circuit							
Operational Temperature	-20°C ~ 45°C							
Humidity	0~90% ( Non condensing )							
Altitude	< 1,500m							
Dimensions (H x W x D)	990 x 430 x 750 mm		1240 x 600 x 970 mm			1600 x 800 x 1090 mm		
	38.97 x 16.92 x 29.52 inch		48.81 x 23.62 x 38.18 inch			62.99 x 31.49 x 42.91 inch		
Weight	150kg	175kg	265kg	345kg	385kg	528kg	635kg	700kg
	330.7lbs	385.8lbs	584.2lbs	760.6lbs	848.8lbs	1164lbs	1399.9lbs	1543.2lbs

\*1 Please contact for other voltage specification.

\*2 The rated input voltage is 220V/380V.

\* all specifications are subject to change without notice.

\*3 The unit needs a interval of at least 3 times of overload time for the next overload operation. For example, for every 1-hour of 120% overload operation, the unit needs at least 3 hours (1 hour\*3) of interval for the next overload operation.

## SPECIFICATIONS

### AMF Series Three-Phase Output (100kVA - 400kVA)

Model	AMF-33100	AMF-33120	AMF-33150	AMF-33180	AMF-33200	AMF-33250	AMF-33300	AMF-33400
<b>INPUT</b>								
Phase	3Ø / 4 Wire ( Y )+G ( Option : 3Ø / 3 Wire ( Δ ) +G )							
Voltage <sup>*1</sup>	220V/380V±15% ( Option : 220V±15% )							
Frequency	50Hz ± 3Hz or 60Hz ± 3Hz							
Max. Current <sup>*2</sup>	241A	289.3A	361.6A	433.9A	482.1A	602.6A	723.1A	964.2A
Power Factor	≥ 0.85 ( Max. Power )							
<b>OUTPUT</b>								
Power	100kVA	120kVA	150kVA	180kVA	200kVA	250kVA	300kVA	400kVA
Phase	3Ø / 4 Wire + G							
Voltage Ranges	115V/200V±10%							
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+4 counts							
Frequency Range	400Hz fixed and 350Hz ~ 450Hz variable ( contact us for other frequency range )							
Frequency Resolution	0.1Hz							
Frequency Accuracy	±0.5% F.S.							
Max. Current (RMS)	289.9A	347.8A	434.8A	521.7A	579.7A	724.6A	869.6A	1159.4A
Line Regulation	≤ 1%							
Load Regulation	≤ 1.5%							
Total Harmonic Distortion(THD)	≤ 3 %							
Response Time	≤ 2ms							
<b>MEASUREMENT</b>								
Voltage Range	0V-300.0V							
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+4 counts							
Frequency Range	0~999.9Hz							
Frequency Resolution	0.1Hz							
Frequency Accuracy	±0.5% F.S.							
Current Range(RMS)	0-999A							
Current Resolution(RMS)	4.5 Digits Meter / Resolution : 0.1A							
Current Accuracy(RMS)	0.2% F.S.+4 counts							
<b>GENERAL</b>								
Efficiency	≥ 87% at Max. Power							
HMI	Digital LED Meters							
Phase Angle	For Balanced Load: ≤ ± 2° ; For 100% Unbalanced Load: ≤ ± 4°							
Overload Capacity	120%/1 hour, 150%/1 minute, 200%/15 seconds <sup>*3</sup>							
Protection	Input / Ouput Circuit Breakers and Protection Circuitry for OVP, OCP, OPP, OTP and Short Circuit							
Operational Temperature	-20°C ~ 45°C							
Humidity	0~90% ( Non condensing )							
Altitude	< 1,500m							
Dimensions (H x W x D)	1800 x 1050 x 970 mm		1900 x 1150 x 1240 mm			2000 x 2240 x 1240 mm		
	70.86 x 41.33 x 38.18 inch		74.8 x 45.27 x 48.81 inch			78.7 x 88.18 x 48.81 inch		
Weight	1000kg	1200kg	1350kg	1800kg	2000kg	2270kg	2740kg	3030kg
	2204.62lbs	2645.54lbs	2976.24lbs	3968.32lbs	4409.24lbs	5004.49lbs	6040.66lbs	6680lbs

\*1 Please contact for other voltage specification.

\*2 The rated input voltage is 220V/380V.

\* all specifications are subject to change without notice.

\*3 The unit needs a interval of at least 3 times of overload time for the next overload operation. For example, for every 1-hour of 120% overload operation, the unit needs at least 3 hours (1 hour\*3) of interval for the next overload operation.

## Shore Power Supply



The BPS series is a family of high performance Shore Power Supply developed according to needs for shipbuilding, berths and ships. It can operate under environment with high level of humidity, heat and corrosion, and provide pure 50Hz and 60Hz power to abusive loads.

With output power up to 2000kVA, the BPS series has output voltage of 440V (L-L) and output frequency of 47~63Hz continuously adjustable and 50/60Hz fixed. Installed in a customized container, it has protection level up to IP54 and overload capability for harsh conditions

### Product Features

- Overload Capability: 110% for 1 hour and 150% for 1 minute.
- Equipped with outdoor level container to increase protection level up to IP54 for harsh conditions.
- High input power factory and high efficiency up to 92%.
- Patented power module design with compact size for easier maintenance and high power density.
- Comprehensive protection includes over voltage, over current, over load, input under voltage and over temperature with corresponding error codes.
- Emergency stop button to shut down output immediately.

### Output Power

**300kVA~2000kVA**

### Interfaces

Standard **RS-485**

### Applications

- Aerospace & Defense
- Shore Power
- Ship Building
- Repair Station



## SPECIFICATIONS

### BPS-F Series Three-Phase Output (300kVA - 1200kVA)

Model	BPS-F-33300	BPS-F-33400	BPS-F-33500	BPS-F-33600	BPS-F-33800	BPS-F-331000	BPS-F-331200
<b>INPUT</b>							
Phase	3Ø / 4 Wire + G						
Voltage <sup>*1</sup>	220V/380V±15%						
Frequency	50 Hz ± 3Hz · 60Hz ± 3Hz						
Max. Current <sup>*2</sup>	629A	839A	1049A	1258A	1678A	2097A	2517A
Power Factor	≥ 0.85 ( Max. Power )						
<b>OUTPUT</b>							
Power	300kVA	400kVA	500kVA	600kVA	800kVA	1000kVA	1200kVA
Phase	3Ø / 3 Wire + G						
Voltage Range	440V ±5V (L-L)						
Voltage Resolution	0.1V						
Voltage Accuracy	0.5% F.S.+4 counts						
Frequency Range	47-63 Hz, 50 Hz, 60 Hz						
Frequency Resolution	0.1Hz						
Frequency Accuracy	±0.02% F.S.						
Max. Current (RMS)	394A	525A	656A	787A	1050A	1312A	1575A
Line Regulation	≤ 1%						
Load Regulation	≤ 1% ( Resistive Load )						
Total Harmonic Distortion(THD)	≤ 3% ( Resistive Load )						
Response Time	≤ 2ms						
Crest Factor	≥ 3						
<b>MEASUREMENT</b>							
Voltage Range	0-600.0V						
Voltage Resolution	0.1V						
Voltage Accuracy	0.5% F.S.+4 counts						
Frequency Range	40.0-70.0Hz						
Frequency Resolution	0.01Hz						
Frequency Accuracy	±0.02% F.S.						
Current Range(RMS)	0-9999A						
Current Resolution(RMS)	0.1A						
Current Accuracy(RMS)	0.5% F.S.+4 counts						
Power Range	0-1200kW						
Power Resolution	0.1kW						
Power Accuracy	1% F.S.+6 counts						
<b>GENERAL</b>							
Efficiency	≥ 85% at Max. Power						
HMI	Digital LED Meters						
Overload Capacity	150% of rated current for 1 minute <sup>*4</sup> Inrush current capability: 250% of rated current for 2 seconds <sup>*5</sup> Output over current protection: 400% of rated current						
Protection	Input Circuit Breakers and Protection Circuitry for OVP, OCP, LVP and OTP						
Remote Interface	RS-485						
Operational Temperature	-10°C ~ 45°C						
Humidity	0~90% ( Non condensing )						
Altitude	< 1,500m						
IP Level	Outdoor Model: IP54 Indoor Model: IP20						
Dimensions (H x W x D)	1900 x 1240 x 1150 mm	2000 x 2240 x 1240 mm			2000 x 3450 x 1240 mm		
	74.8 x 48.81 x 45.27 inch	78.74 x 88.18 x 48.81 inch			78.74 x 135.82 x 48.81 inch		
Weight <sup>*3</sup>	2800kg	3500kg	4300kg	5200kg	6800kg	8500kg	10500kg
	6172.9lbs	7716.2lbs	9479.9lbs	11464lbs	14991.4lbs	18739.3lbs	23148.5lbs

\*1 Please contact us for other voltage specification. \*2 The rated input voltage is 220V/380V. \*3 The size listed excludes container's size \*4 all specifications are subject to change without notice.

\*4 For every 1-minute of 150% overload operation, the unit needs at least 10-minute interval for the next 150% overload operation.

\*5 For every 2-second of 250% overload operation, the unit needs at least 20-second interval for the next 250% overload operation.

## SPECIFICATIONS

### BPS-V Series Three-Phase Output (300kVA - 2000kVA)

Model	BPS-V-33300	BPS-V-33400	BPS-V-33500	BPS-V-33600	BPS-V-33800	BPS-V-331000	BPS-V-331200	BPS-V-331500	BPS-V-332000
<b>INPUT</b>									
Phase	3Ø / 4 Wire + G								
Voltage <sup>*1</sup>	220V/380V±15%								
Frequency	45-65 Hz								
Max. Current <sup>*2</sup>	520A	693A	866A	1040A	1387A	1734A	2080A	2600A	3467A
Power Factor	≥ 0.95 ( Max. Power )								
<b>OUTPUT</b>									
Power	300kVA	400kVA	500kVA	600kVA	800kVA	1000kVA	1200kVA	1500kVA	2000kVA
Phase	3Ø / 4 Wire + G								
Voltage Ranges	440V ±5V (L-L)								
Voltage Resolution	0.1V								
Voltage Accuracy	0.5% F.S.+4 counts								
Frequency Range	50 Hz, 60 Hz								
Frequency Resolution	0.1Hz								
Frequency Accuracy	±0.02% F.S.								
Max. Current (RMS)	394A	525A	656A	787A	1050A	1312A	1575A	1968A	2624A
Line Regulation	≤ 1%								
Load Regulation	≤ 1% (Resistive Load)								
Total Harmonic Distortion(THD)	≤ 3% (Resistive Load)								
Response Time	≤ 2ms								
Crest Factor	≥ 3								
<b>MEASUREMENT</b>									
Voltage Range	0-600.0V								
Voltage Resolution	0.1V								
Voltage Accuracy	0.5% F.S.+4 counts								
Frequency Range	40.0-70.0Hz								
Frequency Resolution	0.01Hz								
Frequency Accuracy	±0.02% F.S.								
Current Range(RMS)	0-9999A								
Current Resolution(RMS)	0.1A								
Current Accuracy(RMS)	0.5% F.S.+4 counts								
Power Range	0-2000kW								
Power Resolution	0.1kW								
Power Accuracy	1% F.S.+6 counts								
<b>GENERAL</b>									
Efficiency	≥ 92% at Max. Power								
HMI	Pointer Meter								
Overload Capacity	150% of rated current for 1 minute <sup>*4</sup> Inrush current capability: 250% of rated current for 2 seconds <sup>*5</sup> Output over current protection: 400% of rated current								
Protection	Input Circuit Breakers and Protection Circuitry for Input OVP/LVP, OVP, OCP, RCP and OTP								
Remote Interface	RS-485								
Operational Temperature	-20°C ~ 45°C								
Humidity	0~90% ( Non condensing )								
Altitude	< 1,000m								
IP Level	Outdoor Model: IP54 Indoor Model: IP20								
Dimensions (H x W x D)	2280 x 4000 x 850 mm			2280 x 4000 x 1000 mm	2280 x 4800 x 1000 mm			2280 x 6000 x 1200 mm	
	89.76 x 157.48 x 33.46 inch			89.76 x 157.48 x 39.37 inch	89.76 x 188.97 x 39.37 inch			89.76 x 236.22 x 47.24 inch	
Weight <sup>*3</sup>	1550kg	2050kg	2500kg	2950kg	3900kg	4900kg	6000kg	7200kg	9600kg
	3417.2lbs	4519.5lbs	5511.6lbs	6503.6lbs	8598lbs	10802.7lbs	13227.7lbs	15873.3lbs	21164.4lbs

\*1 Please contact us for other voltage specification.

\*2 The rated input voltage is 220V/380V.

\*3 The size listed excludes container's size

\* all specifications are subject to change without notice.

\*4 For every 1-minute of 150% overload operation, the unit needs at least 10-minute interval for the next 150% overload operation.

\*5 For every 2-second of 250% overload operation, the unit needs at least 20-second interval for the next 250% overload operation.

**ORDERING INFORMATION :****BPS-F Series Three-Phase Output (300kVA - 1200kVA)**

Model Number	Description
BPS-F-33300	Shore Power Supply (300kVA/440V L-L/47-63Hz Variable, 50Hz, 60Hz)
BPS-F-33400	Shore Power Supply (400kVA/440V L-L/47-63Hz Variable, 50Hz, 60Hz)
BPS-F-33500	Shore Power Supply (500kVA/440V L-L/47-63Hz Variable, 50Hz, 60Hz)
BPS-F-33600	Shore Power Supply (400kVA/440V L-L/47-63Hz Variable, 50Hz, 60Hz)
BPS-F-33800	Shore Power Supply (800kVA/440V L-L/47-63Hz Variable, 50Hz, 60Hz)
BPS-F-331000	Shore Power Supply (1000kVA/440V L-L/47-63Hz Variable, 50Hz, 60Hz)
BPS-F-331200	Shore Power Supply (1200kVA/440V L-L/47-63Hz Variable, 50Hz, 60Hz)

**BPS-V Series Three-Phase Output (300kVA - 2000kVA)**

Model Number	Description
BPS-V-33300	Shore Power Supply (300kVA/440VL-L/50Hz, 60Hz)
BPS-V-33400	Shore Power Supply (400kVA/440VL-L/50Hz, 60Hz)
BPS-V-33500	Shore Power Supply (500kVA/440VL-L/50Hz, 60Hz)
BPS-V-33600	Shore Power Supply (400kVA/440VL-L/50Hz, 60Hz)
BPS-V-33800	Shore Power Supply (800kVA/440VL-L/50Hz, 60Hz)
BPS-V-331000	Shore Power Supply (1000kVA/440VL-L/50Hz, 60Hz)
BPS-V-331200	Shore Power Supply (1200kVA/440VL-L/50Hz, 60Hz)
BPS-V-331500	Shore Power Supply (1500kVA/440VL-L/50Hz, 60Hz)
BPS-V-332000	Shore Power Supply (2000kVA/440VL-L/50Hz, 60Hz)

# DC Power Supply Selection Guide

## Programmable Models

## General Model

## Industry Specific



Series		ADG-L	ADG <sup>+</sup>	ADG-P	ADC	Series	ADS
Output Power		5k-75kW	30k-1800kW	30k-100kW	2k-8kW	Specific Industry	Aerospace & Military
Output Voltage		0-115V to 0-1000V	0-40V to 0-2000V	0-40V to 0-2000V	0-30V to 0-600V	Output Current	Up to 4500A
Ripple		down to <0.05%			<0.15%	Circuit Design	SCR
Line Regulation		≤ 0.08%	≤ 0.1%	≤ 0.1%	<0.05%	Output Voltage	28V±10%
Load Regulation		≤ 0.3%			<0.05%	Ripple	≤ 1%
Efficiency		≥ 87-90%			≥ 85-89%	Line Regulation	≤ 0.5%
Output Mode		CV / CC / CP	CV / CC / CP	CV / CC	CV / CC	Load Regulation	≤ 0.5%
Step & Gradual		○	○	○	-	Efficiency	≥ 85%
Parallel		○	○	○	○	Overload Capability	3 Times Overload
Auto Range		△ (3-time)	△	-	-	HMI	LED display & Rotary Knob
Transient Response		≤ 5ms	≤ 6-10ms	≤ 4-20ms	≤ 1ms	Other Features	Trailer / Stand-Alone
Error Log		○	○	○	-		Analog Control (opt.)
OVP / OCP Protection		○	○	○	-		
Remote Sensing		○	○	△	-		
Preen Program		○	○	○	-		
Interface		○	○	△	-		
		RS-232	○	○	△		
		RS-485	○	○	○		
		USB	△	○	△		
		Ethernet	△	○	-		
		GPIB	△	△	△		
		Analog	○	○	△		
HMI		Touch screen	Touch screen	Touch screen	LED display & Rotary Knob		
Other Features		15 kW only 3U	Output to 2000V	single unit up to 100kW			
		Power Factor ≥ 0.99	Solar Array Simulation	Power Factor ≥ 0.90			
		I-V Curve	Emergency stop button	Voltage Slew Rate : ≤ 60ms			
		Series connection (Max. 2 units) Parallel connection (Max. 5 units)	Series connection (Max. 2 units) Parallel connection (Max. 5 units)	Output Current up to 2500A			
Applications		Renewable Energy	■	□	-		
		EV	■	■	□	-	
		Motor	■	■	■	■	
		Laboratory	■	■	□	■	
		Aerospace & Military	■	■	■	■	
		Industrial Power Supply	■	■	■	■	
		Public Transportation	□	■	■	-	
Communication Industry	■	□	□	-			

- Standard
- △ Optional
- Specially Designed for the applications
- Suitable for the applications
- None

Product Applications





# Programmable DC Power Supplies

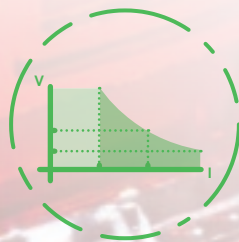
## High Output Voltage and High Power Density for Renewable Energy Applications

Preen's latest ADG-L series is a programmable DC power supply with high power density, low noise, and tight regulation. The combination of DSP and PWM technologies has enabled significant advances in stability and measurements. The ADG-L series includes 19 models with 5kW, 10kW and 15kW maximum output powers and Auto Range models available to provide a higher output current at lower output voltage.



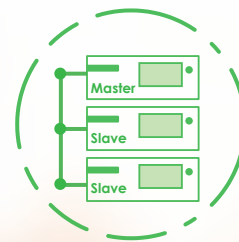
### 2000V Output Voltage

Wide Voltage Range, Ideal for Renewable Energy Applications



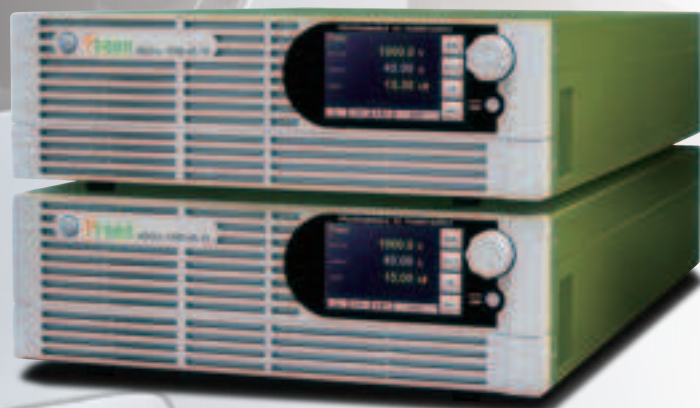
### 3 Times Auto Range Model

Lower Voltage, Higher Current



### Parallel Connection

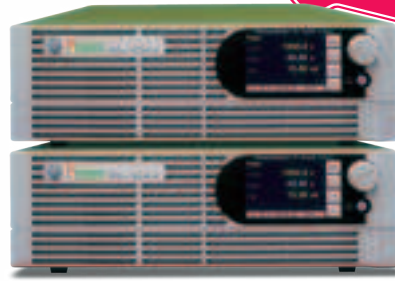
Fast Setting, Easy Wiring





# Programmable DC Power Supply

RoHS  
Compliant CE



Preen's new ADG-L series is a programmable DC power supply with high power density, low noise, and tight regulation. The combination of DSP and PWM technologies has enabled significant advances in stability and measurements. The ADG-L series includes 19 models with 5kW, 10kW and 15kW maximum output powers and several Auto Range models to provide a higher output current at lower output voltage. With CV/CC/CP modes and its high voltage and high power features, the ADG-L series is an ideal DC power for applications on photovoltaic (PV), electric vehicle (EV), battery charge simulation, fuse, and contactors.

Parallel configuration is available for higher output level. The ADG-L series is operated via the 5" intuitive touch screen or the rotary knob to quickly access measurements, setting parameters, and configurations. The unit can also be controlled via standard RS-232, RS-485 and Analog remote interfaces, or through optional Ethernet, USB, or GPIB interfaces. The built-in simulation function allows devices to be tested on voltage dropouts, spikes and other repetitive testing for voltage and current.

## Product Features

- Output Current: 135 A or 0~675A (with 5 units parallel operation).
- Wide range of input voltage: 187~264Vac (1 or 3 phase) or 340~460V (3 phase 4 wires Y connection)
- Easy master/slave parallel operation.
- Capable of simulating all kinds of load testing conditions: step or consecutive voltage variation can be set via STEP & RAMP function.
- Complimentary remote control software available.
- CE and RoHS certified.
- Complete protection features including OVP, OCP, OPP, input OVP/UVP and OTP.
- Optional I-V curve function for Solar Array Simulation (built-in EN50530 mathematical formula).
- I-V curve remote control software (opt.).

## Output Power

**5kW/10kW/15kW**

## Interfaces

Standard	<b>RS-232</b>	<b>RS-485</b>
	<b>Analog</b>	
Option	<b>Ethernet</b>	<b>USB</b>
	<b>GPIB</b>	

## Applications

- Renewable Energy
- Laboratory/Certification Bureau
- Industrial Power Supply
- Electric Vehicles
- IT / SMT Production Line
- Transportation
- Motor & Compressor
- Power Tool
- Home Appliance
- Medical Industry
- Aerospace & Defense
- Communication Industry

## QR Code

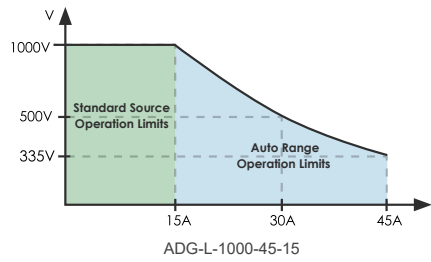


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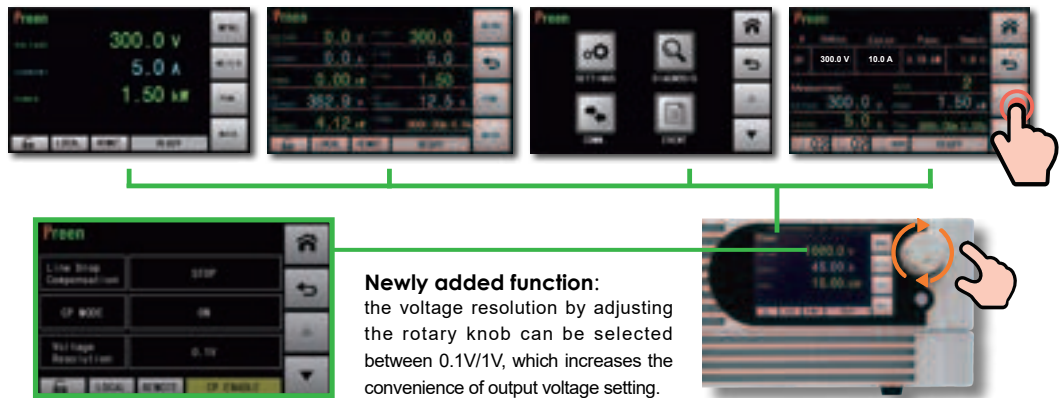
Product  
Video

## Auto Range Functions



Auto range feature can generate a higher output current at lower output voltage, or a higher output voltage at lower output current. This feature is an ideal solution for both high current/low voltage and low voltage/high current DUT, and makes one unit to cover a wide range of applications to further save cost and space.

## Intuitive Touch Screen and Rotary Knob



The ADG-L series equips 5" touch screen and rotary knob to provide intuitive display and easy-to-use control. Users can quickly access output settings, measurements, sequences and system configurations from the touch screen. Sophisticated sequences can not only be set from the PC but also easily from the touch screen.

## Complimentary Control Software and Various Interfaces

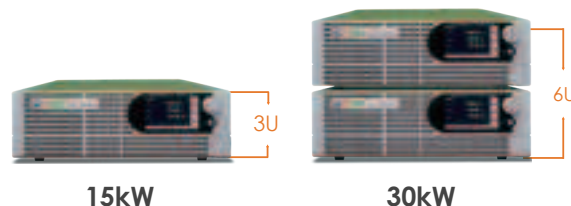


The ADG-L series can be controlled via the Preen Program to configure sophisticated sequences, save/recall STEPs, and generate test result reports. This intuitive control software makes remote programming no longer a difficult task.

RS-232 RS-485 Analog Standard Ethernet GPIB USB Optional

The DC power supply is equipped with RS-232/RS-485 (MODBUS) for standard interfaces. Optional Ethernet, USB, GPIB and RS-232/RS-485 (SCPI) are also available for better integrations with automatic test systems and the needs of industry 4.0.

## High Power Density: 15kW in 3U



Employing PWM technology and DSP-based control, Preen's ADG-L series DC power supply has 15kW available only in 3U package, and with parallel configuration, 30kW only has 6U height.

The rack-mount enclosure is designed to accommodate a wide range of applications, especially for automatic test systems and integrations.

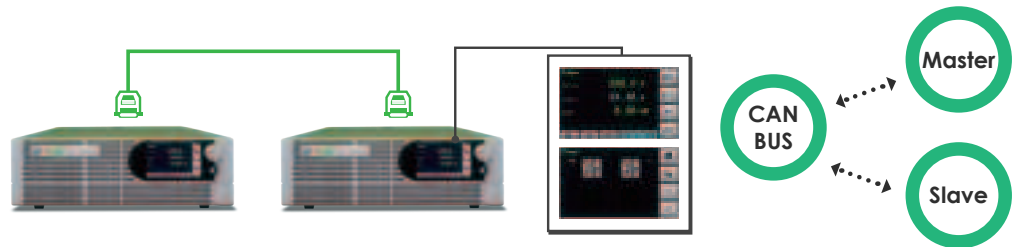
## Wide Voltage and Current Range

**19** Models



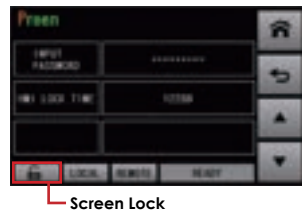
Preen's ADG-L series has 19 different models with three output power levels, 5kW, 10kW and 15kW. With up to 1000V output voltage and multiple Auto Range models, the ADG-L series covers a wide range of applications including electric vehicle, photovoltaic, battery, DC/DC converters and electronic products.

## Master/Slave Parallel Operation



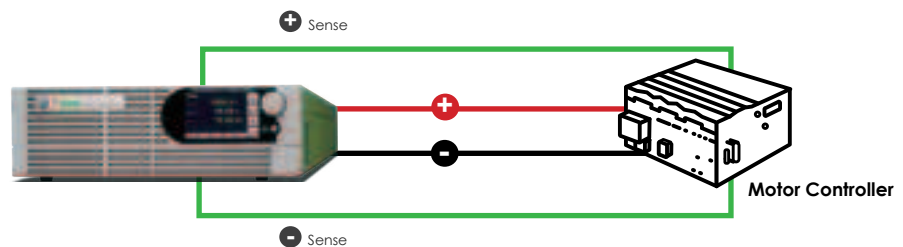
Through a simple and fast setup, the ADG-L series can generate higher power by connecting identical models in a Master/Slave parallel operation. Users only need to control the master unit for multiple units' setup and readbacks. The master unit automatically calculates the parameters and downloads data to slave units to make programming easier and current sharing more precise.

## Screen Lock Password Function



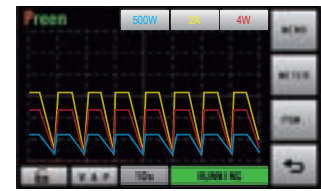
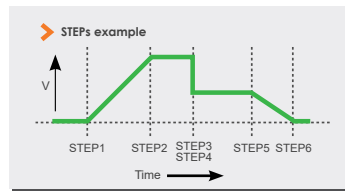
In order to prevent the operator from changing the set parameters by mistake, the new Screen Lock Password function is added on ADG-L series, so that the operator can only perform the output of the device, and only authorized personnel has the password to unlock the screen and edit parameters.

## Remote Sensing



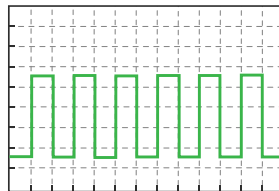
In many laboratories and factories, the DC power supply is located in a certain distance away from the DUT, and sometimes it causes voltage drop due to the resistance of the wires. The ADG-L series' Remote Sensing function is able to compensate voltage drops and provide a stable output voltage.

## Programming Sequences and Simulations

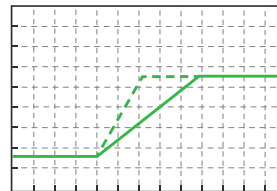


Program Setting Page

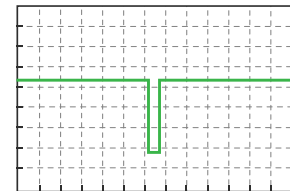
Wave Page



DC Pulse



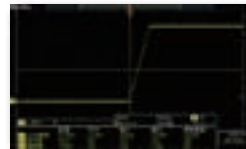
Slew Rate Control



Voltage Sag

The built-in programming function of the ADG-L series has four types: Mode 1 : Group 25 / Step 16, Mode 2: Group 10 / Step 40, Mode 3 : Group 5 / Step 80, Mode 4 : Group 2 / Step 200. Users can set each STEP's output voltage, output current and time to generate consecutive voltage/current changes or set different rise/fall time. This built-in function and the ADG-L series' control software allow users to create complex DC waveform without sophisticated coding. Making programming the DC power supply an easy task.

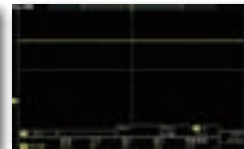
## Industry-leading Performance



Fast Rise Time



Fast Fall Time



Low Voltage Ripple



Fast Transient Response

The ADG-L series is designed for low ripple, high accuracy and tight regulation for simulating different DC voltages. With fast transient response and rise time, the ADG-L series' DC sources are ideal to test DUT behavior to voltage sags, dropouts, ON/OFF tests and complex DC waveforms.

## Multiple Ways of AC Input Connections

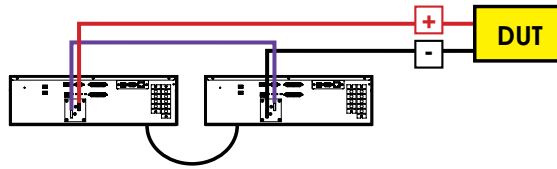
Conventional DC power supplies have only one type of AC input range and one way of input wirings. Different from most of high power DC power supply, the ADG-L series' 10kW and 15kW models offer more than two ways of input connections. For example, the 10kW models can have single phase or three phase input without factory modifications. This feature provides flexibility and convenience for users to operate the unit in different environments.

## Reverse Current Protection Module (opt.)

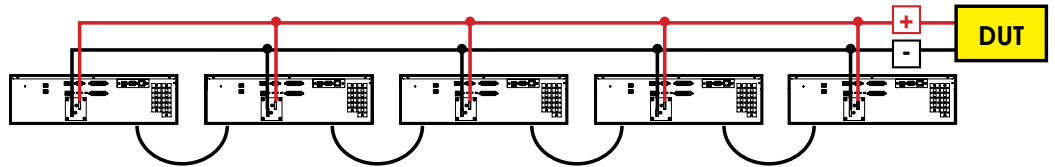
ADG-L series has optional Reverse Current Protection Module. When the DUT generates the reverse energy flowing back to the output of ADG-L series it can effectively block the reverse current to protect ADG-L series from possible damages.

## Multiple Connections

### Series connection (Max. 2 units)



### Parallel connection (Max. 5 units)



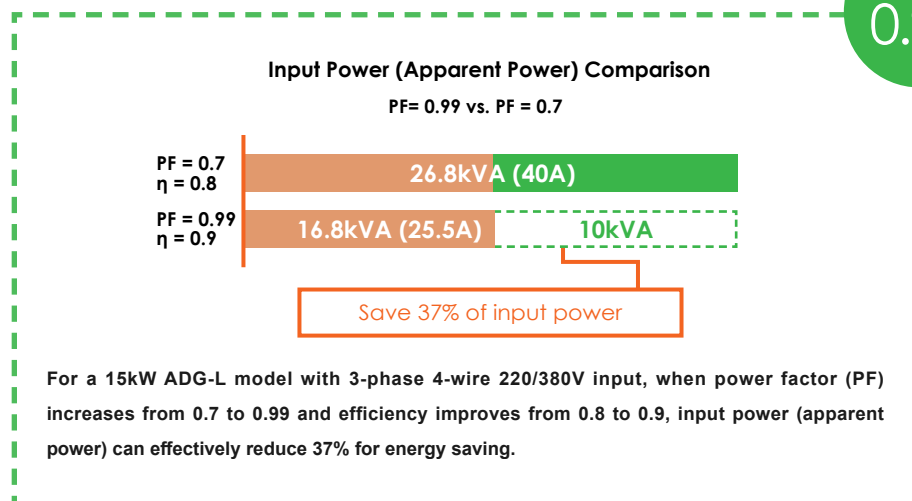
The single unit power of ADG-L series can reach up to 15kW, and can be expanded to 75kW through parallel connection, or can output up to 2000V through series connection. Each unit can be set as Master or Slave. The user can freely combine ADG-L series according to the load test requirements, thereby increases flexibility of the application.

## 0.99 Input Power Factor

The ADG-L series is equipped with active Power Factor Corrector (PFC) to enhance input PF up to industry-leading 0.99, which helps reducing the interference on the grid.

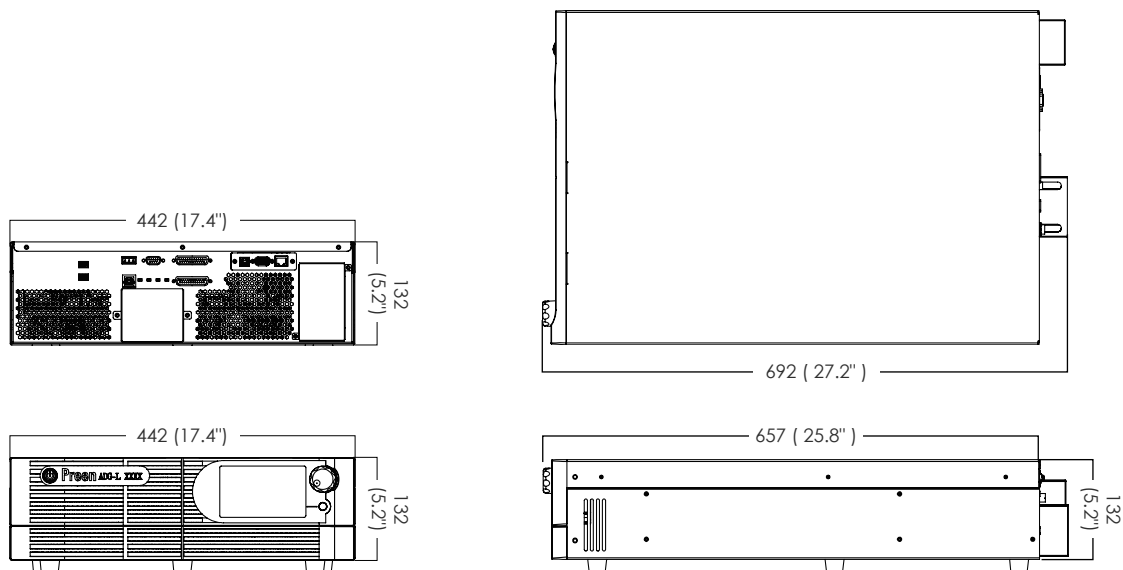
- 01 Effectively increase real power (P) and reduce reactive power (Q) for better energy saving and operation cost.
- 02 Able to suppress peak current and power loss to have lower harmonic distortions.
- 03 Reduce input current to have compact and high power density DC sources.
- 04 Save more energy and lower carbon footprint for better environment.
- 05 The ADG-L series (with PFC) v.s. Conventional DC Sources (without PFC)

PF up to  
**0.99**



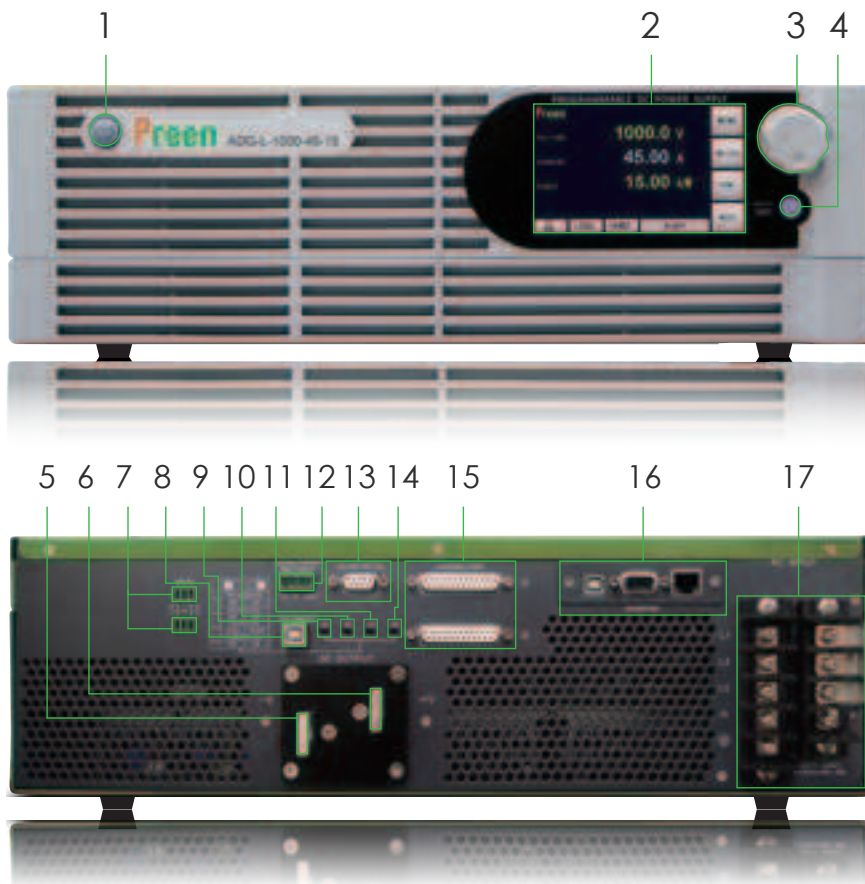
## Dimensions

Unit : mm (inch)



## PANEL DESCRIPTION

1. Power Switch
2. Touch Screen HMI
3. Rotary Knob
4. Output / Reset Button
5. DC Negative Output Terminal
6. DC Positive Output Terminal
7. Remote Sense Connector
8. USB Interface ( for firmware update )
9. CANBUS Terminal Resister Switch
10. Serial and Parallel Switch
11. RS-485 Terminal Resister Switch
12. Accessory power Outlet
13. RS232/RS485 Interface (standard)
14. RS232/RS485 Interface Switch
15. Analog Interface
16. Optional Communication Interface :  
USB/RS-232/RS-485(SCPI)/  
Ethernet/GPIB
17. Input Terminals



## ORDERING INFORMATION

### ADG-L Series (5kW - 15kW)

Model Number	Description
ADG-L-115-45	Programmable DC Power Supply (5kW/115V/45A)
ADG-L-160-32	Programmable DC Power Supply (5kW/160V/32A)
ADG-L-335-15	Programmable DC Power Supply (5kW/335V/15A)
ADG-L-335-45-5	Programmable DC Power Supply (5kW/335V/45A) (Auto Range Model)
ADG-L-115-90	Programmable DC Power Supply (10kW/115V/90A)
ADG-L-160-63	Programmable DC Power Supply (10kW/160V/63A)
ADG-L-335-30	Programmable DC Power Supply (10kW/335V/30A)
ADG-L-335-90-10	Programmable DC Power Supply (10kW/335V/90A) (Auto Range Model)
ADG-L-500-20	Programmable DC Power Supply (10kW/500V/20A)
ADG-L-670-15	Programmable DC Power Supply (10kW/670V/15A)
ADG-L-670-45-10	Programmable DC Power Supply (10kW/670V/45A) (Auto Range Model)
ADG-L-115-135	Programmable DC Power Supply (15kW/115V/135A)
ADG-L-160-94	Programmable DC Power Supply (15kW/160V/94A)
ADG-L-335-45	Programmable DC Power Supply (15kW/335V/45A)
ADG-L-335-135-15	Programmable DC Power Supply (15kW/335V/135A) (Auto Range Model)
ADG-L-500-30	Programmable DC Power Supply (15kW/500V/30A)
ADG-L-670-23	Programmable DC Power Supply (15kW/670V/23A)
ADG-L-1000-15	Programmable DC Power Supply (15kW/1000V/15A)
ADG-L-1000-45-15	Programmable DC Power Supply (15kW/1000V/45A) (Auto Range Model)
ADG-L-007	RS-232/RS-485/USB/Ethernet ( SCPI ) Interface Board
ADG-L-008	Multiple Units Connection Cord DB25(Male * 2) 50 cm
ADG-L-013	GPIB Interface Board
ADG-L-014	Reverse Current Protection Module
ADG-L-015	I-V Curve Simulation and Remote Control Software



# SPECIFICATIONS

## ADG-L Series (5kW - 10kW)

Model	ADG-L-115-45	ADG-L-160-32	ADG-L-335-15	ADG-L-335-45-5	ADG-L-115-90	ADG-L-160-63	ADG-L-335-30	ADG-L-335-90-10	ADG-L-500-20
<b>Output Power</b>	5kW	5kW	5kW	5kW	10kW	10kW	10kW	10kW	10kW
<b>INPUT</b>									
<b>Input Voltage</b>	1Ø 2W+G 187-264 VAC				1Ø 2W+G 187-264 VAC 3Ø3W+G 187-264 VAC 3Ø4W+G 340-460 VAC				
<b>Input Current</b>	30A				1Ø : 60A 3ØΔ: 35A 3ØY : 19A				
<b>Input Frequency</b>	47 Hz - 63 Hz				47 Hz - 63 Hz				
<b>Power Factor</b>	≥ 0.99 at max. power				≥ 0.99 at max. power				
<b>OUTPUT</b>									
<b>Voltage</b>	0~115V	0~160V	0~335V	0~335V	0~115V	0~160V	0~335V	0~335V	0~500V
<b>Current</b>	0~45A	0~32A	0~15A	0~45A	0~90A	0~63A	0~30A	0~90A	0~20A
<b>Voltage Ripple (RMS)</b>	≤ 0.25% F.S.	≤ 0.2% F.S.	≤ 0.08% F.S.	≤ 0.08% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.	≤ 0.15% F.S.	≤ 0.15% F.S.	≤ 0.08% F.S.
<b>Voltage Ripple (peak to peak)</b>	≤ 1.6% F.S.	≤ 1.6% F.S.	≤ 0.8% F.S.	≤ 0.8% F.S.	≤ 2.5% F.S.	≤ 2.5% F.S.	≤ 1.6% F.S.	≤ 1.6% F.S.	≤ 0.8% F.S.
<b>Voltage Line Regulation</b>	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.03% F.S.
<b>Voltage Load Regulation<sup>1</sup></b>	≤ 0.3% F.S.	≤ 0.3% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.	≤ 0.05% F.S.
<b>Current Ripple (RMS)</b>	≤ 0.25% F.S.	≤ 0.2% F.S.	≤ 0.15% F.S.	≤ 0.15% F.S.	≤ 0.3% F.S.	≤ 0.2% F.S.	≤ 0.3% F.S.	≤ 0.2% F.S.	≤ 0.5% F.S.
<b>Current Line Regulation</b>	≤ 0.03% F.S.	≤ 0.03% F.S.	≤ 0.03% F.S.	≤ 0.03% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.05% F.S. +50mA
<b>Current Load Regulation</b>	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.15% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.	≤ 0.25% F.S.
<b>Slew Rate<sup>3</sup></b>	<b>Rise Time</b>	≤ 25ms	≤ 25ms	≤ 30ms	≤ 30ms	≤ 25ms	≤ 25ms	≤ 30ms	≤ 30ms
	<b>Fall Time (Full Load)</b>	≤ 30ms	≤ 30ms	≤ 45ms	≤ 45ms	≤ 30ms	≤ 30ms	≤ 45ms	≤ 45ms
	<b>Fall Time (No Load)</b>	≤ 3s				≤ 3s			
<b>Transient Response<sup>2</sup></b>	≤ 5ms								
<b>Programming &amp; Measurement</b>									
<b>Voltage Programming Accuracy</b>	≤ 0.08% F.S. +100mV				≤ 0.08% F.S. +100mV				
<b>Voltage Measurement Accuracy</b>	≤ 0.08% F.S. +100mV				≤ 0.08% F.S. +100mV				
<b>Voltage Resolution</b>	100mV				100mV				
<b>Current Programming Accuracy</b>	≤ 0.3% F.S. +60mA				≤ 0.3% F.S. +60mA				
<b>Current Measurement Accuracy</b>	≤ 0.2% F.S. +60mA				≤ 0.3% F.S. +60mA				
<b>Current Resolution</b>	10mA				10mA				
<b>Power Programming Accuracy</b>	≤ 0.4% F.S.				≤ 0.4% F.S.				
<b>Power Measurement Accuracy</b>	≤ 0.4% F.S.				≤ 0.4% F.S.				
<b>Power Resolution</b>	0.01kW				0.01kW				
<b>General Specs.</b>									
<b>Efficiency</b>	≥ 90% at max. power				≥ 90% at max. power				
<b>Interfaces</b>	Standard: RS-485/RS-232 (Modbus) & Analog Option : Ethernet/USB/RS-485/RS-232 (SCPI) or GPIB				Standard: RS-485/RS-232 (Modbus) & Analog Option : Ethernet/USB/RS-485/RS-232 (SCPI) or GPIB				
<b>Remote sense compensation</b>	≤ 5V				≤ 5V				
<b>Operating Temperature</b>	0° C ~ 40° C				0° C ~ 40° C				
<b>Storage Temperature</b>	-20° C ~ 70° C				-20° C ~ 70° C				
<b>Protections</b>	OVP · OCP · OPP · OTP · Vin OV · Vin Unbalance · LDC OV								
<b>OVP Range</b>	0~110% F.S.				0~110% F.S.				
<b>OCP Range</b>	0~110% F.S.				0~110% F.S.				
<b>OPP Range</b>	0~110% F.S.				0~110% F.S.				
<b>Dimension (HxWxD)</b>	132 x 442 x 692 mm / 5.2 x 17.4 x 27.2 inch				132 x 442 x 692 mm / 5.2 x 17.4 x 27.2 inch				
<b>Weight</b>	approx. 19.1kg / 42.1 lbs				approx. 26.5kg / 58.42 lbs				

\*1. Load changes from 0% to 100% under nominal AC input.

\*2. Under nominal AC input, recovers to ±1% of full-scale output voltage for a 50% to 100% or 100% to 50% load change.

\*3. Measured from 10% to 90% of the output voltage change - resistive load, typical.

\*\* Above specifications are under output voltage over 1% F.S.

\* All specifications are subject to change without notice.

## SPECIFICATIONS

## ADG-L Series (10kW - 15kW)

Model	ADG-L-670-15	ADG-L-670-45-10	ADG-L-115-135	ADG-L-160-94	ADG-L-335-45	ADG-L-335-135-15	ADG-L-500-30	ADG-L-670-23	ADG-L-1000-15	ADG-L-1000-45-15
Output Power	10kW	10kW	15kW	15kW	15kW	15kW	15kW	15kW	15kW	15kW
<b>INPUT</b>										
Input Voltage	1Ø 2W+G 187-264 VAC 3Ø3W+G 187-264 VAC 3Ø4W+G 340-460 VAC					1Ø 2W+G 187-264 VAC 3Ø3W+G 187-264 VAC 3Ø4W+G 340-460 VAC				
Input Current	1Ø : 60A 3ØΔ: 35A 3ØY : 19A					1Ø : 90A 3ØΔ: 52A 3ØY : 30A				
Input Frequency	47 Hz - 63 Hz					47 Hz - 63 Hz				
Power Factor	≥ 0.99 at max. power					≥ 0.99 at max. power				
<b>OUTPUT</b>										
Voltage	0~670V	0~670V	0~115V	0~160V	0~335V	0~335V	0~500V	0~670V	0~1000V	0~1000V
Current	0~15A	0~45A	0~135A	0~94A	0~45A	0~135A	0~30A	0~23A	0~15A	0~45A
Voltage Ripple (RMS)	≤ 0.08% F.S.	≤ 0.08% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.	≤ 0.15% F.S.	≤ 0.15% F.S.	≤ 0.15% F.S.	≤ 0.15% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.
Voltage Ripple (peak to peak)	≤ 0.8% F.S.	≤ 0.8% F.S.	≤ 1.6% F.S.	≤ 1.6% F.S.	≤ 1% F.S.	≤ 1% F.S.	≤ 0.8% F.S.	≤ 0.8% F.S.	≤ 0.5% F.S.	≤ 0.5% F.S.
Voltage Line Regulation	≤ 0.03% F.S.		≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.
Voltage Load Regulation <sup>1</sup>	≤ 0.05% F.S.	≤ 0.05% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.
Current Ripple (RMS)	≤ 0.5% F.S.	≤ 0.25% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.15% F.S.	≤ 0.1% F.S.	≤ 0.25% F.S.	≤ 0.25% F.S.	≤ 0.5% F.S.	≤ 0.25% F.S.
Current Line Regulation	≤ 0.05% F.S. +50mA	≤ 0.05% F.S. +50mA	≤ 0.05% F.S. +50mA	≤ 0.05% F.S. +50mA	≤ 0.05% F.S. +50mA	≤ 0.05% F.S. +50mA	≤ 0.05% F.S. +50mA	≤ 0.05% F.S. +50mA	≤ 0.05% F.S.	≤ 0.05% F.S.
Current Line Regulation	≤ 0.25% F.S.	≤ 0.25% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.
Slew Rate <sup>3</sup>	Rise Time	≤ 60ms	≤ 60ms	≤ 25ms	≤ 30ms	≤ 30ms	≤ 30ms	≤ 55ms	≤ 60ms	≤ 90ms
	Fall Time (Full Load)	≤ 45ms	≤ 45ms	≤ 30ms	≤ 45ms	≤ 45ms	≤ 45ms	≤ 45ms	≤ 45ms	≤ 40ms
	Fall Time (No Load)	≤ 3s					≤ 3s			
Transient Response <sup>2</sup>	≤ 5ms									
<b>Programming &amp; Measurement</b>										
Voltage Programming Accuracy	≤ 0.08% F.S. +100mV					≤ 0.08% F.S. +100mV				
Voltage Measurement Accuracy	≤ 0.08% F.S. +100mV					≤ 0.08% F.S. +100mV				
Voltage Resolution	100mV					100mV				
Current Programming Accuracy	≤ 0.3% F.S. +60mA					≤ 0.4% F.S. +60mA				
Current Measurement Accuracy	≤ 0.3% F.S. +60mA					≤ 0.4% F.S. +60mA				
Current Resolution	10mA					10mA				
Power Programming Accuracy	≤ 0.4% F.S.					≤ 0.4% F.S.				
Power Measurement Accuracy	≤ 0.4% F.S.					≤ 0.4% F.S.				
Power Resolution	0.01kW					0.01kW				
<b>General Specs.</b>										
Efficiency	≥ 90% at max. power					≥ 90% at max. power				
Interfaces	Standard: RS-485/RS-232 (Modbus) & Analog Option : Ethernet/USB/RS-485/RS-232 (SCPI) or GPIB									
Remote sense compensation	≤ 5V									
Operating Temperature	0° C ~ 40° C									
Storage Temperature	-20° C ~ 70° C									
Protections	OVP、OCP、OPP、OTP、Vin OV、Vin Unbalance、LDC OV									
OVP Range	0~110% F.S.									
OCP Range	0~110% F.S.									
OPP Range	0~110% F.S.									
Dimension (HxWxD)	132 x 442 x 692 mm / 5.2 x 17.4 x 27.2 inch									
Weight	approx. 26.5kg / 58.42lbs					approx. 31.8kg / 70.1lbs				

\*1. Load changes from 0% to 100% under nominal AC input.

\*2. Under nominal AC input, recovers to ±1% of full-scale output voltage for a 50% to 100% or 100% to 50% load change.

\*3. Measured from 10% to 90% of the output voltage change - resistive load, typical.

\*\* Above specifications are under output voltage over 1% F.S.

\* All specifications are subject to change without notice.

# A Great Leap for DC Power Supply

## Industrial-leading Power Supply

### Up to 1800kW

**ADG<sup>+</sup> series** High Power Programmable DC Power Supply

**Upgraded!**

Preen's ADG<sup>+</sup> series is an upgraded high power DC power supply, featuring low ripple, high accuracy and fast response. It can simulate various characteristic of solar array with the optional I-V curve function. The output power is up to 300kW per unit with the patented modularized design and easy master-slave parallel operation. The maximum 2000V output also makes it the ideal choice for applications like EV motor, DC/DC converters, ESS and inverters.



30kW



50kW



75kW



100kW

ADG<sup>+</sup>Series



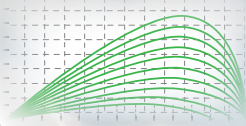
### Auto Range<sup>\*2</sup>

0-1500V, 0-300A  
Adjustable

### Solar Array Simulation

(Built-in EN50530 Simulation)

PV Curve



IV Curve



### High Output Power

30 kW-1800 kW<sup>\*1</sup>

Low Ripple  
 $\leq 0.05\%$   
High Precision  
 $\leq 0.1\%$

### Complimentary Control Software

User-friendly &  
Intuitive Operation

PV Emulator up to 1800kW <sup>\*1</sup>

<sup>\*1</sup> with parallel connection

<sup>\*2</sup> Available for specific ADG+(300kW) models, please refer to specifications for more information

# High Power Programmable DC Power Supply

RoHS  
Compliant



Preen's newly released ADG+ series is a high-power-density programmable DC power supply. With the design of DSP control, it offers a great response time and high accuracy. The self-developed high power module enhances stability and heat dissipation, thus improving product quality. The output mode of CV, CC and CP are fully equipped. This series' single-unit power ranges from 30kW to 100kW, and with wide range of output voltage / current, it can reach up to 2000V, and up to 2500A in low-voltage high-current models. The output voltage and current can even be further expanded via parallel operation and series operation. The ADG+ series is ideal for testing EV motor/compressor, server power supply, fuse, circuit breaker, contactor and PV inverter.

For communication interface, the users can select the standard RS-485, RS-232, Analog Control, Ethernet, USB and optional GPIB. The product also equips with remote control software for users to control with ease via PC. The product is CE and RoHS certified.

## Product Features

- Wide range of output voltage up to 2000V.
- Easy master/slave operation up to 1800kW parallel or series connection.
- Low ripple  $\leq 0.05\%$  and high accuracy  $\leq 0.1\%$ .
- Fast response  $\leq 6-20$  ms
- Optional I-V curve function for Solar Array Simulation (built-in EN50530 mathematical formula).
- Large 7" touch screen and rotary knob for easy operation and measurement display.
- Time setting resolution 0.01S for fast response programming testings.
- Capable of simulating all kinds of load testing conditions: step or consecutive voltage variation can be set via STEP & RAMP function.
- Remote Sensing Compensation.
- Equipped with emergency stop button, which meets the requirement for laboratory related testing field.

## Output Power

30kW~1800kW

## Interfaces

Standard	RS-232	RS-485	USB
	Analog	Ethernet	
Option	GPIB		

## Applications

- Renewable Energy
- Electric Vehicles
- Automatic Testing System
- Power Battery
- Inverter
- Switching Supply / Connectors
- Passive Components
- Semiconductor Test Equipment
- Testing Laboratories
- Electrolytic Deposition, Sputtering, Surface Coating
- Aerospace & Defense

## QR Code



Product  
Info.



Product  
Video

### Industrial leading 1800kW Power Supply



Preen has supported one of the leading testing center in Taiwan on setting up the largest PV inverter testing laboratories. Preen's ADG<sup>+</sup> series can be paralleled up to 1800kW which is ideal for PV Inverter, Renewable Energy and EV verification.

### Intuitive Touch Screen and Rotary Knob

- The upgraded HMI and 7" colored touch screen can clearly display the parameters and status of the product, and combined with the built-in programming function, user can easily perform various simulations.
- The rotary knob can be used for fine tuning and quick selection to improve convenience on operation.
- Emergency stop button is used for quick shut down, thus enhancing the protection function and meet the requirement for laboratory related testing field.

### UPGRADED Advanced HMI with Intuitive Design for Easier and Safer Operatin

The ADG<sup>+</sup> series employs 7" touch screen and rotary knob to provide intuitive display and easy-to-use control. The built-in programming function has been upgraded, so not only can complex sequences be set from the PC, but also from the touch screen. Emergency stop button is equipped for quick shut down, thus enhancing the product safety. Users can quickly access output settings and measurements, including voltage, current and power.

### Master/Slave Parallel Operation



The output power of the ADG<sup>+</sup> series is up to 300kW per unit, which can be expanded to 1800kW through simple master-slave operation (max. 5 units). User can simply operate the master unit, the slave unit will receive and reply the data accordingly and equally share the load current. ADG<sup>+</sup> series is one of the few high-power DC power supply with parallel feature on the market. The availability for single-unit and parallel operation provides greater flexibility for application.

## Solar Array Simulation (opt.)

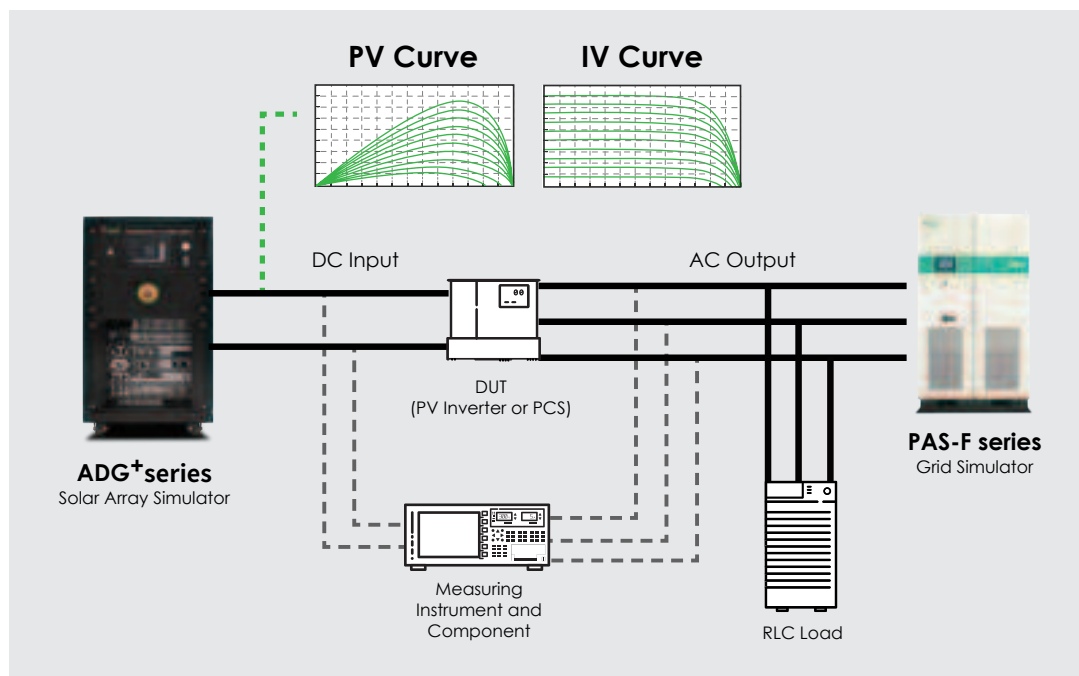
ADG<sup>+</sup> series high power programmable DC power supply options as solar array simulation function can be programmed from the front panel without using a controller. Using built-in SAS mode, only four input parameters are needed to establish an I-V curve, which simulates solar panels under different irradiation and temperature.

Using built-in EN50530 mode, the I-V curve is established according to the solar cell material (C-SI or thin film), and the user can program the output according to the irradiation and temperature. In addition, the user can also define I-V curves based on different material characteristic to simulate various solar cell materials.

**UPGRADED**

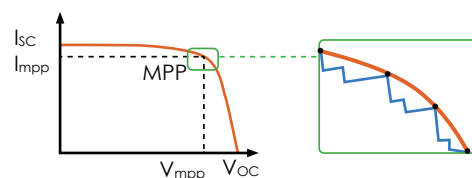
Complete Solar Array Simulation and Easy Static & Dynamic MPPT Efficiency Validation

- Static & dynamic MPPT efficiency test (with optional remote control software).
- Simulation of I-V curve under different irradiation and temperature.
- Complied with standard SAS, EN50530, Sandia test regulation.
- IV curve can be user-defined and edited via remote control software.
- Simulation of output characteristic of various solar cell (C-SI and thin film).
- Accurate voltage and current measurement.



### ■ SAS Testing Mode

Using SAS Mode, user can set  $V_{oc}$ ,  $I_{sc}$ ,  $V_{mpp}$  and  $I_{mpp}$  according to the spec of PV inverter, then the DSP control system performs P-V and I-V curve calculation accordingly. The dynamic irradiation adjustment is also available during output.



- **V<sub>oc</sub>** open circuit voltage
- **V<sub>mp</sub>** voltage at the peak power point on the curve
- **I<sub>sc</sub>** short circuit current
- **I<sub>mp</sub>** current at the peak power point on the curve

### ■ EN50530 Testing Mode

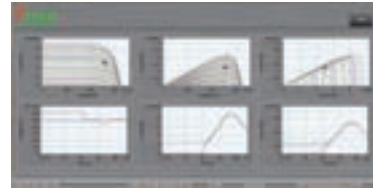
Mainly used for grid-tie inverters, the EN50530 Testing Mode features solar cell model of C-SI/thin-film and the feature of dynamic irradiances/temperature adjustment, user can verify the performance of the inverters: static & dynamic MPPT tracking efficiency, conversion efficiency and overall efficiency.



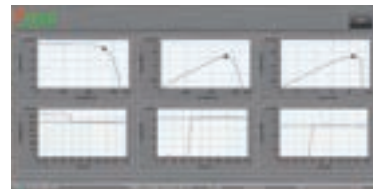
### Solar Array Simulation Control Software (opt.)

ADG<sup>+</sup> series options I-V curve remote control software with parameter setting and output waveform display to verify Dynamic & Static MPPT Efficiency of SAS Mode and EN50530 test regulations.

#### ■ Dynamic MPPT Efficiency



#### ■ Static MPPT Efficiency



### Complimentary Control Software and Various Interfaces

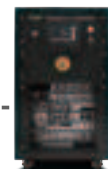
The ADG<sup>+</sup> series offers complimentary remote control software, Preen Program. This graphical user interface provides easy settings and user-friendly configurations for users to fully control the unit. The Preen Program includes GENERAL mode or PROGRAMMABLE mode with STEP and RAMP features available. The preview waveform and report functions also greatly enhance convenience for on review parameters and results before or after testing.



Preen Program



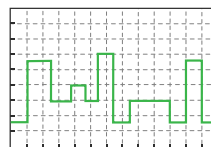
PC



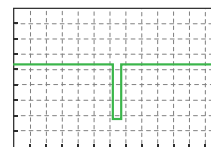
ADG<sup>+</sup>series

High Power Programmable DC Power Supply

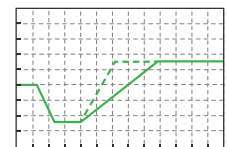
### Programming Sequences and Simulations



DC Pulse



Voltage Sag



Slew Rate Control

The built-in programming function of the ADG<sup>+</sup> series is consisted of GROUPS and STEPS. Users can set output voltage, output current and time to generate step or consecutive voltage/current changes, and set different rise/fall time according to their requirement. This built-in function and the ADG<sup>+</sup> series control software allow users to create complex DC waveform with sophisticated coding. Making programming the DC power supply an easy task.

## Industry-leading Performance

As an unique high-power single-unit programmable DC power supply, ADG<sup>+</sup> series has a wide range of output voltage and current, which reach up to 2000V and 2500A continuously adjustable. Its single unit output is up to 300kW and provides customized parallel operation to expand capacity up to 1800kW. It features high power with excellent programming function, fast response and high stability. For communication interface, it has standard RS-485, RS-232, Ethernet, Analog Control, USB and optional GPIB. The STEP & RAMP modes allow easy setup on test sequence and depending on CV/CC/CP settings and load conditions, ADG<sup>+</sup> series can operate as a current or voltage source.

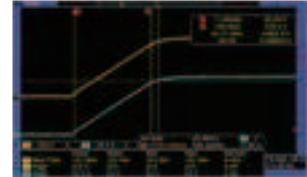
### ■ Low Ripple



### ■ Low Noise



### ■ Fast Rise Time



### ■ Fast Transient Response When Added Load



### ■ Fast Transient Response When Removed Load



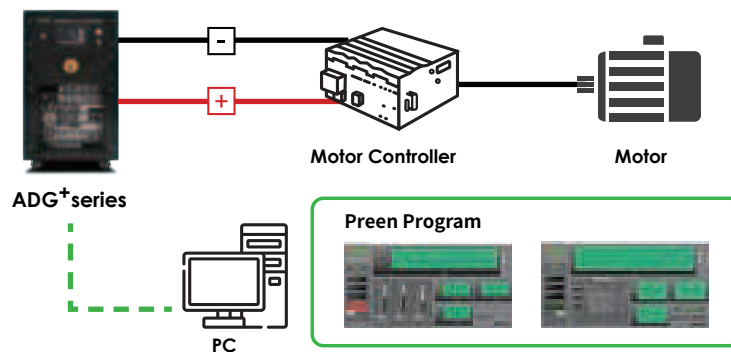
### ■ High Stability



## EV Testing Applications

### ■ EV Motor Controlling

Motor controlling, as the core component of electric vehicle, controls the initiation, speed, movement and direction of the motor drive, and converts the electrical energy of power battery and provide to the motor drive. ADG<sup>+</sup> series has many high voltage models to simulate power battery of EV for motor controlling verification or aging testing.

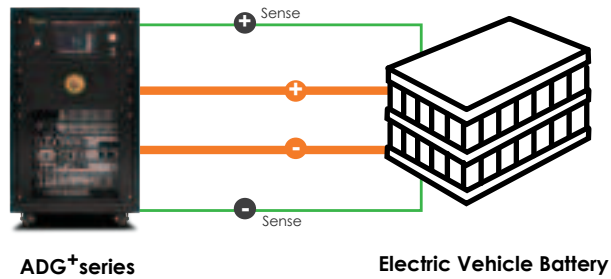


### ■ DC/DC Converters

Power batteries of electric vehicle convert DC high voltage to DC low voltage through DC/DC converters, such as 12V/24V of car lamp, wiper and car stereo. Featuring high power and high voltage, ADG<sup>+</sup> series is suitable to simulate power batteries on different working conditions, such as voltage dip(sag), and voltage ramp or missing. From R&D verification to HALT/HASS Accelerated Life Testing, ADG<sup>+</sup> series is an ideal choice for DC power supply.



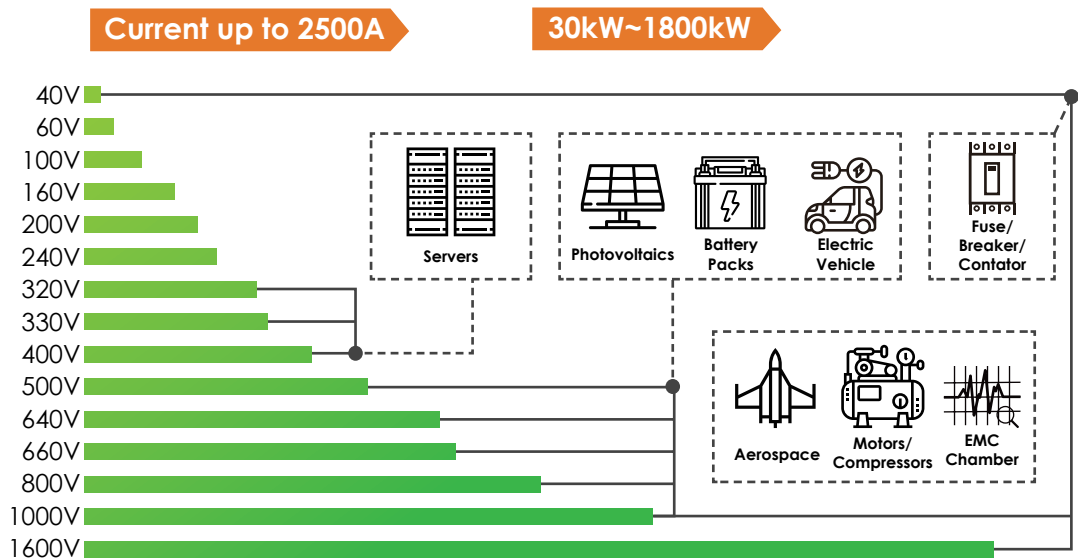
## Remote Sensing Compensation



In the factory or laboratory, there is often a certain distance in the configuration of power and load. The Remote Sensing of ADG<sup>+</sup> series is able to compensate the voltage drop caused by the cable length, so the user can avoid the inconvenience of adjusting the voltage.

## Variety of Applications

ADG<sup>+</sup> series has many output voltage ranges suitable for different market applications. Models over 400V output voltage are applicable for renewable energy, EV, and lithium battery industries. When it comes to circuit breakers, contactors or fuses that require high voltage or current, models with 2500A or 2000V can fulfill the power demands of this type of component testing. The 400V or 320V models can be applied to server related applications due to the increased needs for high voltage DC in data centers.

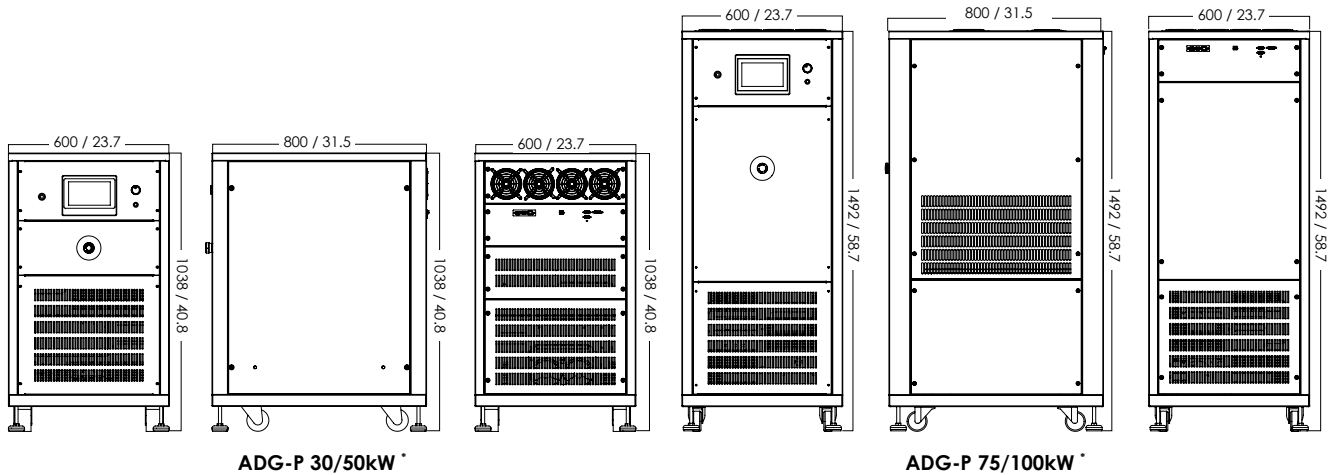


## Device Protection

The ADG<sup>+</sup> series has multiple levels of protection to safeguard your device. These include over-voltage, over-current, over-power, over-temperature, line-drop-compensation, over-voltage, input over-voltage, input unbalance and to shut down the power supply and prevent fault conditions and further damages.

## Dimensions

Unit : mm / inch



\* The diagrams and dimensions are for 380V input models.

## ORDERING INFORMATION

### ADG<sup>+</sup> Series (30kW - 100kW)

Model Number	Description
ADG-PLUS-40-750	Programmable DC Power Supply (30kW/40V/750A)
ADG-PLUS-60-500	Programmable DC Power Supply (30kW/60V/500A)
ADG-PLUS-100-300	Programmable DC Power Supply (30kW/100V/300A)
ADG-PLUS-200-150	Programmable DC Power Supply (30kW/200V/150A)
ADG-PLUS-240-125	Programmable DC Power Supply (30kW/240V/125A)
ADG-PLUS-320-94	Programmable DC Power Supply (30kW/320V/94A)
ADG-PLUS-400-75	Programmable DC Power Supply (30kW/400V/75A)
ADG-PLUS-500-60	Programmable DC Power Supply (30kW/500V/60A)
ADG-PLUS-640-47	Programmable DC Power Supply (30kW/640V/47A)
ADG-PLUS-800-38	Programmable DC Power Supply (30kW/800V/38A)
ADG-PLUS-1000-30	Programmable DC Power Supply (30kW/1000V/30A)
ADG-PLUS-1600-18	Programmable DC Power Supply (30kW/1600V/18A)
ADG-PLUS-40-1250	Programmable DC Power Supply (50kW/40V/1250A)
ADG-PLUS-60-834	Programmable DC Power Supply (50kW/60V/834A)
ADG-PLUS-100-500	Programmable DC Power Supply (50kW/100V/500A)
ADG-PLUS-200-250	Programmable DC Power Supply (50kW/200V/250A)
ADG-PLUS-240-208	Programmable DC Power Supply (50kW/240V/208A)
ADG-PLUS-320-156	Programmable DC Power Supply (50kW/320V/156A)
ADG-PLUS-400-125	Programmable DC Power Supply (50kW/400V/125A)
ADG-PLUS-500-100	Programmable DC Power Supply (50kW/500V/100A)
ADG-PLUS-640-78	Programmable DC Power Supply (50kW/640V/78A)
ADG-PLUS-800-63	Programmable DC Power Supply (50kW/800V/63A)
ADG-PLUS-1000-50	Programmable DC Power Supply (50kW/1000V/50A)
ADG-PLUS-1600-31	Programmable DC Power Supply (50kW/1600V/31A)
ADG-PLUS-40-1875	Programmable DC Power Supply (75kW/40V/1875A)

Model Number	Description
ADG-PLUS-60-1250	Programmable DC Power Supply (75kW/60V/1250A)
ADG-PLUS-100-750	Programmable DC Power Supply (75kW/100V/750A)
ADG-PLUS-320-234	Programmable DC Power Supply (75kW/320V/234A)
ADG-PLUS-640-117	Programmable DC Power Supply (75kW/640V/117A)
ADG-PLUS-1000-75	Programmable DC Power Supply (75kW/1000V/75A)
ADG-PLUS-1600-47	Programmable DC Power Supply (75kW/1600V/47A)
ADG-PLUS-40-2500	Programmable DC Power Supply (100kW/40V/2500A)
ADG-PLUS-60-1666	Programmable DC Power Supply (100kW/60V/1666A)
ADG-PLUS-100-1000	Programmable DC Power Supply (100kW/100V/1000A)
ADG-PLUS-320-312	Programmable DC Power Supply (100kW/320V/312A)
ADG-PLUS-640-156	Programmable DC Power Supply (100kW/640V/156A)
ADG-PLUS-1000-100	Programmable DC Power Supply (100kW/1000V/100A)
ADG-PLUS-1600-63	Programmable DC Power Supply (100kW/1600V/63A)
ADG-PLUS-500-900-300	Programmable DC Power Supply (300kW/500V/900A)
ADG-PLUS-1000-450-300	Programmable DC Power Supply (300kW/1000V/450A)
ADG-PLUS-1500-300-300	Programmable DC Power Supply (300kW/1500V/300A)
ADG-PLUS-001	GPIB Interface Converter
ADG-PLUS-002	Cable for RS-485 (10m)
ADG-PLUS-003	200V/208V Input Voltage (30~50kW)
ADG-PLUS-004	480V Input Voltage (30~50kW)
ADG-PLUS-005	200V/208V Input Voltage (100kW)
ADG-PLUS-006	480V Input Voltage (75~100kW)
ADG-PLUS-007	I-V Curve Simulation and Remote Control Software
ADG-PLUS-008	200V/208V Input Voltage (75kW)

## SPECIFICATIONS

## ADG+ Series (30kW - 50kW)

Model												
30kW	ADG-PLUS-40-750	ADG-PLUS-60-500	ADG-PLUS-100-300	ADG-PLUS-200-150	ADG-PLUS-240-125	ADG-PLUS-320-94	ADG-PLUS-400-75	ADG-PLUS-500-60	ADG-PLUS-640-47	ADG-PLUS-800-38	ADG-PLUS-1000-30	ADG-PLUS-1600-18
50kW	ADG-PLUS-40-1250	ADG-PLUS-60-834	ADG-PLUS-100-500	ADG-PLUS-200-250	ADG-PLUS-240-208	ADG-PLUS-320-156	ADG-PLUS-400-125	ADG-PLUS-500-100	ADG-PLUS-640-78	ADG-PLUS-800-63	ADG-PLUS-1000-50	ADG-PLUS-1600-31
AC Input												
Voltage	3Ø3W+G 323VAC-460VAC (Option 200VAC/208VAC/415VAC/440VAC/480VAC)											
Frequency	47-63Hz											
Power Factor	≥ 90% at maximum power											
DC Output												
Voltage	40V	60V	100V	200V	240V	320V	400V	500V	640V	800V	1000V	1600V
Current(30kW)	750A	500A	300A	150A	125A	94A	75A	60A	47A	38A	30A	18A
Current(50kW)	1250A	834A	500A	250A	208A	156A	125A	100A	78A	63A	50A	31A
Line Regulation	≤ 0.05%											
Load Regulation <sup>1</sup>	≤ 0.1% ≤ 0.034%    ≤ 0.02%    ≤ 0.05%											
Voltage Ripple (RMS)	≤ 0.4% F.S.			≤ 0.1% F.S.			≤ 0.1% F.S.			≤ 0.05% F.S.		
Voltage Noise (Peak)	≤ 2% F.S.				≤ 0.88% F.S.	≤ 0.88% F.S.	≤ 1.34% F.S.	≤ 0.88% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.4% F.S.
Voltage Slew Rate <sup>2</sup>	≤ 50ms	≤ 60ms	≤ 85ms	≤ 100ms	≤ 100ms	≤ 100ms	≤ 100ms	≤ 100ms	≤ 115ms	≤ 120ms	≤ 120ms	≤ 120ms
Transient Response <sup>3</sup>	≤ 6 ms											
Measurement <sup>4</sup>												
Voltage Accuracy	0.5% F.S.						0.1% F.S.					
Voltage Resolution	≤ 100V@0.01V, > 100V@0.1V											
Current Accuracy	0.5% F.S. ( ≥ 1% Rated Current )											
Current Resolution	≤ 100A@0.01A, >100A@0.1A											
Power Accuracy	P=V*I											
Power Resolution	0.01KW											
General												
Mode	CC/CV/CP											
Efficiency	≥ 87% at maximum power for input 380V~ 400V ≥ 84% at maximum power for input 200VAC/208VAC/415VAC/440VAC/480VAC			≥ 90% at maximum power for input 380V~ 400V ≥ 87% at maximum power for input 200VAC/208VAC/415VAC/440VAC/480VAC								
Interfaces	Standard : Ethernet/RS-232/RS-485/USB/Analog Option : GPIB											
Analog Input Control (V & I)	0-5V, Accuracy: 1% (at output rated voltage & current ≥ 5%)											
Analog Output Monitor (V & I)	0-5V, Accuracy : 5%											
Remote Sensing	5% maximum voltage drop from product output to load			3% maximum voltage drop from product output to load						2% maximum voltage drop from product output to load		
Protections	Input : Vin OV 、 Vin Unbalance Output : OVP 、 OCP 、 OPP 、 OTP, LDC OV						Input : Vin OV 、 Vin Unbalance Output : OVP 、 OCP 、 OPP 、 OTP, LDC OV					
OVP Range	0 - 110% F.S.											
OCP Range	0 - 110% F.S.											
OPP Range	0 - 110% F.S.											
Operating Temperature	0°C-40°C											
Storage Temperature	-20°C-70°C											
Humidity	0-90%(Non condensing)											
Isolation	Input to Enclosure : 1500VAC Input to Output : 2000VDC Output to Enclosure : 2000VDC											
Dimension(H×W×D) <sup>5</sup>	200VAC/208VAC/415VAC/440VAC/480VAC Input:1382×600×800 mm / 54.4x23.7x31.5 inch 380VAC Input:1038×600×800 mm / 40.8x23.7x31.5 inch											
Weight <sup>5</sup>	approx. 225 kg / 496.1 lbs			approx. 190 kg / 418.8 lbs								
	200VAC/208VAC/415VAC/440VAC/480VAC Input: approx. 420 kg / 925.9 lbs			200VAC/208VAC/415VAC/440VAC/480VAC Input: approx. 390 kg / 859.8 lbs								

\*1. Load changes from 5% to 100% under nominal AC input. \*2. Measured from 10% to 90% of the output voltage change - resistive load, typical.

\*3. Under nominal AC input, recovers to ±1% of full-scale output voltage for a 50% to 100% or 100% to 50% load change. \*4. The specifications are tested at ambient temperature of 25°C ± 5°C.

\*5. Including wheels and weight tolerance is within ± 10 kg.

\* Above specifications are under output voltage over 1% F.S. and all specifications are subject to change without notice.

# SPECIFICATIONS

## ADG<sup>+</sup> Series (75kW - 100kW)

Model							
75kW	ADG-PLUS-40-1875	ADG-PLUS-60-1250	ADG-PLUS-100-750	ADG-PLUS-320-234	ADG-PLUS-640-117	ADG-PLUS-1000-75	ADG-PLUS-1600-47
100kW	ADG-PLUS-40-2500	ADG-PLUS-60-1666	ADG-PLUS-100-1000	ADG-PLUS-320-312	ADG-PLUS-640-156	ADG-PLUS-1000-100	ADG-PLUS-1600-63
AC Input							
Voltage	3Ø3W+G 323VAC-460VAC (Option 200VAC/208VAC/415VAC/440VAC/480VAC)						
Frequency	47-63Hz						
Power Factor	≥ 90% at maximum power						
DC Output							
Voltage	40V	60V	100V	320V	640V	1000V	1600V
Current(75kW)	1875A	1250A	750A	234A	117A	75A	47A
Current(100kW)	2500A	1666A	1000A	312A	156A	100A	63A
Line Regulation	≤ 0.05%						
Load Regulation <sup>*1</sup>	≤ 0.1%	≤ 0.1%	≤ 0.1%	≤ 0.05%	≤ 0.05%	≤ 0.05%	≤ 0.05%
Voltage Ripple (RMS)	≤ 0.5% F.S.	≤ 0.5% F.S.	≤ 0.4% F.S.	≤ 0.1% F.S.		≤ 0.1% F.S.	≤ 0.1% F.S.
Voltage Noise (Peak)	≤ 2.5% F.S.			≤ 0.65% F.S.	≤ 0.35% F.S.	≤ 0.3% F.S.	≤ 0.3% F.S.
Voltage Slew Rate <sup>*2</sup>	≤ 50ms			≤ 90ms	≤ 120ms	≤ 120ms	≤ 120ms
Transient Response <sup>*3</sup>	≤ 10ms						
Measurement <sup>*4</sup>							
Voltage Accuracy	0.5% F.S				0.1% F.S		
Voltage Resolution	≤ 100V@ 0.01V, > 100V@0.1V						
Current Accuracy	0.5% F.S. ( ≥ 1% Rated Current )						
Current Resolution	≤ 100A@ 0.01A, > 100A@0.1A						
Power Accuracy	P=V*I						
Power Resolution	0.01KW						
General							
Mode	CC/CV/CP						
Efficiency	≥ 87% at maximum power for input 380V~ 400V ≥ 84% at maximum power for input 200VAC/208VAC /415VAC/440VAC/480VAC			≥ 90% at maximum power for input 380V~ 400V ≥ 87% at maximum power for input 200VAC/208VAC/415VAC/440VAC /480VAC			
Interfaces	Standard : Ethernet/RS-232/RS-485/USB/Analog Option : GPIB						
Analog Input Control (V & I )	0-5V, Accuracy: 1% (at output rated voltage & current ≥ 5%)						
Analog Output Monitor (V & I )	0-5V, Accuracy : 5%						
Remote Sensing	5% maximum voltage drop from product output to load	3% maximum voltage drop from product output to load			2% maximum voltage drop from product output to load		
Protections	Input : Vin OV、Vin Unbalance Output : OVP、OCP、OPP、OTP, LDC OV						
OVP Range	0 - 110% F.S.						
OCP Range	0 - 110% F.S.						
OPP Range	0 - 110% F.S.						
Operating Temperature	0°C-40°C						
Storage Temperature	-20°C-70°C						
Humidity	0-90%(Non condensing)						
Isolation	Input to Enclosure : 1500VAC Input to Output : 2000VDC Output to Enclosure : 2000VDC						
Dimension(H×W×D) <sup>*5</sup>	200VAC/208VAC Input: 1902×600×800 mm / 74.8×23.7×31.5 inch 480VAC Input: 1837×600×800 mm / 72.3×23.7×31.5 inch 380VAC Input: 1492×600×800 mm / 58.7×23.7×31.5inch						
Weight <sup>*5</sup>	approx. 345 kg / 760.6 lbs			approx. 300kg / 661.3 lbs			
	200VAC/208VAC/415VAC/440VAC/480VAC Input: approx. 625 kg / 1377.9 lbs			200VAC/208VAC/415VAC/440VAC/480VAC Input: approx. 574kg / 1265.4 lbs			

\*1. Load changes from 5% to 100% under nominal AC input.

\*2. Measured from 10% to 90% of the output voltage change - resistive load, typical.

\*3. Under nominal AC input, recovers to ±1% of full-scale output voltage for a 50% to 100% or 100% to 50% load change.

\*4. The specifications are tested at ambient temperature of 25°C ± 5°C.

\*5. Including wheels and weight tolerance is within ± 10 kg.

\* Above specifications are under output voltage over 1% F.S. and all specifications are subject to change without notice.

## SPECIFICATIONS

ADG<sup>+</sup> Series (300kW)

Model			
300kW	ADG-PLUS-500-900-300	ADG-PLUS-1000-450-300	ADG-PLUS-1500-300-300
AC Input			
Voltage	3Ø3W+G 323VAC-460VAC		
Frequency	47-63Hz		
Power Factor	≥ 90% at maximum power		
DC Output			
Voltage	500V	1000V	1500V
Current	900A	450A	300A
Line Regulation	≤ 0.05%		
Load Regulation <sup>1</sup>	≤ 0.1%	≤ 0.05%	≤ 0.03%
Voltage Ripple (Vrms)	≤ 0.15% F.S.	≤ 0.1% F.S.	
Voltage Noise (Vp-p)	≤ 0.5% F.S.		
Voltage Slew Rate <sup>2</sup>	≤ 150ms		
Transient Response <sup>3</sup>	≤ 20ms		
Measurement <sup>4</sup>			
Voltage Accuracy	≤ 0.2% F.S		
Voltage Resolution	0.1V		
Current Accuracy	≤ 0.5% F.S. (at ≥ 1% Rated Current )		
Current Resolution	0.1A		
Power Accuracy	P=V*I		
Power Resolution	0.1KW		
General			
MODE	CC/CV/CP		
Efficiency	≥ 90% at maximum voltage & power for input 380V~ 400V		
Interfaces	Standard: Ethernet/RS-232&RS-485/USB/Analog Option : GPIB		
Analog Input Control (V & I)	0-5V, Accuracy : 1% (at output rated voltage & current ≥ 5%)		
Analog Output Monitor (V & I)	0-5V, Accuracy : 5%		
Remote Sensing	3% maximum voltage drop from product output to load		
Protections	Input : Vin OV · Vin Unbalance Output : OVP · OCP · OPP · OTP, LDC OV, Module OCP, Interlock open.		
OVP Range	0 - 110% F.S.		
OCP Range	0 - 110% F.S.		
OPP Range	0 - 110% F.S.		
Operating Temperature	0°C-40°C		
Storage Temperature	-20°C-70°C		
Humidity	0-90%(Non condensing)		
Isolation	Input to Enclosure : 1500VAC , Input to Output : 2000VDC , Output to Enclosure : 2000VDC		
Dimension(H×W×D)	2000×1200×1100 mm / 78.7x47.2x43.3 inch		
Weight	approx. 2180kg / 4806 lbs	approx. 2150kg / 4740 lbs	

\*1. Load changes from 5% to 100% under nominal AC input.

\*2. Measured from 10% to 90% of the output voltage change - resistive load, typical.

\*3. Under nominal AC input, recovers to ±1% of full-scale output voltage for a 50% to 100% or 100% to 50% load change.

\*4. The specifications are tested at ambient temperature of 25°C ± 5°C.

\* Above specifications are under output voltage over 1% F.S. and all specifications are subject to change without notice.



# DC Power Featuring High Power, High Voltage and Programmable Functions

## ADG-P series High Power Programmable DC Power Supply

ADG-P series is a programmable DC power supply with high power density. Using Preen's patented module design, ADG-P series features fast response, high precision and low ripples. Output voltage is up to 2000V. The single unit capacity is up to 100kW and the capacity can be further extended by parallel connection. It is suitable for various industry applications.

**Up to 100kW  
in Single-unit**

30.50.75.100kW  
4 Output Power Level

**Output Voltage  
Up to 2000V**

More than 12 Voltage  
Range for Selection.

**Ideal for EV Testing**

Meet High Voltage Requirement for  
Renewable Energy.



# High Power Programmable DC Power Supply



Preen's ADG series is a programmable DC power supply with high power density and high output power, offering great response time, high accuracy and many output voltage and current combinations.

Designed for the increasing demand of high power DC, ADG is ideal for testing EV's motor/compressor, server power supply, fuse/circuit breaker/contactors, and PV inverter or can be used as a facility power or EMC chamber power.

With output power up to 100kW per unit, the ADG series offers output voltage up to 1600V and output current up to 2500A.

Users can select standard RS-485 interface or optional RS-232 and GPIB. The STEP and GRADUAL modes allow easy setup on test sequence and depending on CV/CC settings and load conditions, ADG series can operate as a current or voltage source. Its remote sensing feature can effectively reduce voltage drop caused by cable length and provides more flexibility on installation.

## Product Features

- Wide output voltage range: with maximum voltage up to 2000V, ideal for renewable energy, smart grid, and Electric Vehicle (EV) related applications.
- High Efficiency and Power Factor: up to 90% efficiency and power factor.
- High Output Power: up to 100kW in one chassis with high power density.
- Fast Transient Response Time: <4~12ms.
- Standard RS485 interface with Modbus compatibility and optional RS-232 and GPIB interfaces.
- Programming Sequence Function: STEP and GRADUAL modes allow users to easily set sequences of start/ end voltage, run time and current for testing purposes.
- CV and CC Modes.
- 7" Touch Screen Display for Easy Operation.
- Remote Sense for Line Drop Compensation.
- Comprehensive Protection: Input OVP/UVP, output OVP/OCP, OTP.
- 12 Different Output Voltage Ranges & 41 Models.

## Output Power

**30kW~100kW**

## Interfaces

- Standard **RS-485**
- Option **GPIB** **RS-232**
- Analog**

## Applications

- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- Electric Vehicles
- IT / SMT Production Line
- Renewable Energy
- Transportation
- Motor & Compressor
- Medical Industry
- Aerospace & Defense
- Communication Industry

## QR Code



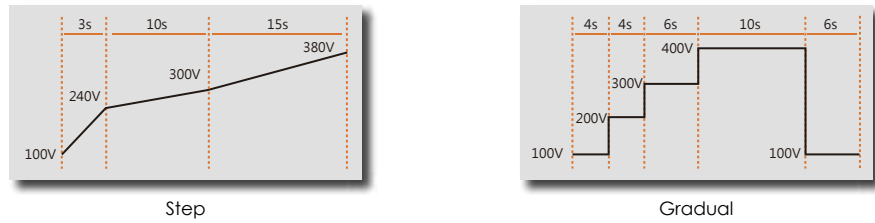
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## User-friendly HMI



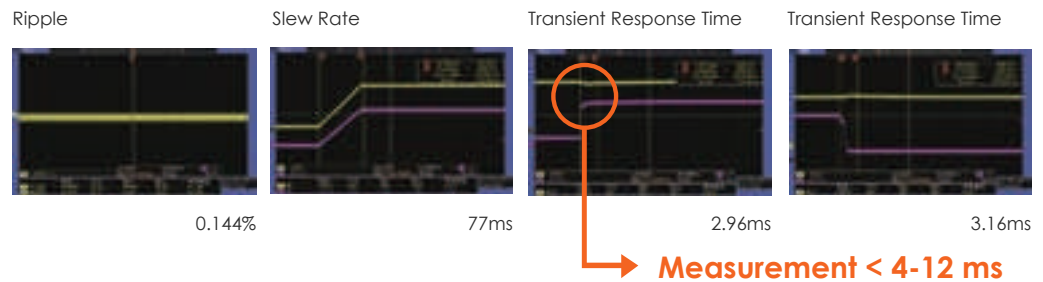
ADG-P series has an intuitive touch screen HMI for easy operation and data display. Users also can easily set up voltage or current variation simulations through the built-in programmable functions in the touch screen.

## Built-in Voltage/ Current Programmable Function



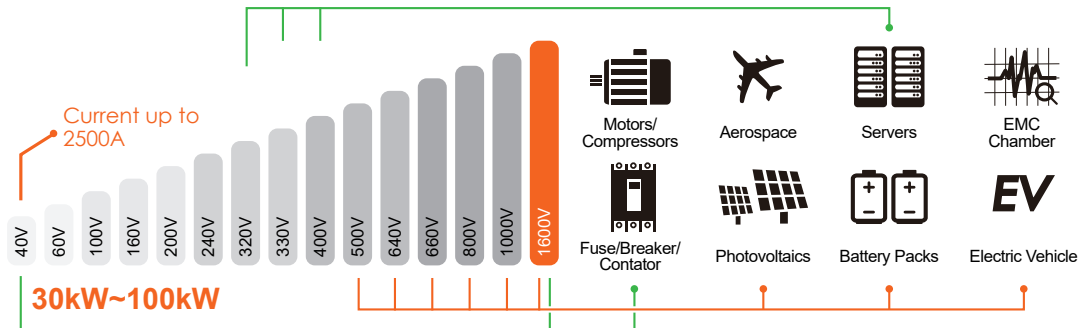
Users can not only realize remote programming through the remote interface, but can also set the voltage / current stepwise or continuously through the built-in STEP and Gradual modes of the ADG-P series. Simulation of various power conditions can be achieved without further programming. It is ideal for performance testing like voltage variation test, ON/OFF test, aging test etc. More customized power curve simulations are also available.

## Technically Advanced Performance



ADG-P series has the industry leading performance on ripple, response time, and voltage regulation, which make it an ideal DC power supply for all kinds of testing.

## Variety of Applications



ADG-P series has many output voltage ranges suitable for different market applications. Models over 640V output voltage are applicable for renewable energy, EV, and lithium battery industries. When it comes to circuit breakers, contactors or fuses that require high voltage or current, models with 2000A or 1600V can fulfill the power demands of this type of component testing. The 400V or 320V models can be applied to server related applications due to the increased needs for high voltage DC in data centers.

## Complimentary Control Software



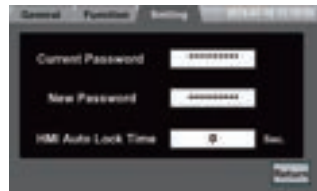
The ADG-P series offers complimentary remote control software, Preen Program. This graphical interface provides easy settings and user-friendly configurations for users to fully control the unit. The Preen Program includes GENERAL mode or PROGRAMMABLE mode with STEP and RAMP features available. The preview waveform and report functions also greatly enhance convenience for on review parameters and results before or after testing.

## Easy Remote Control Set Up



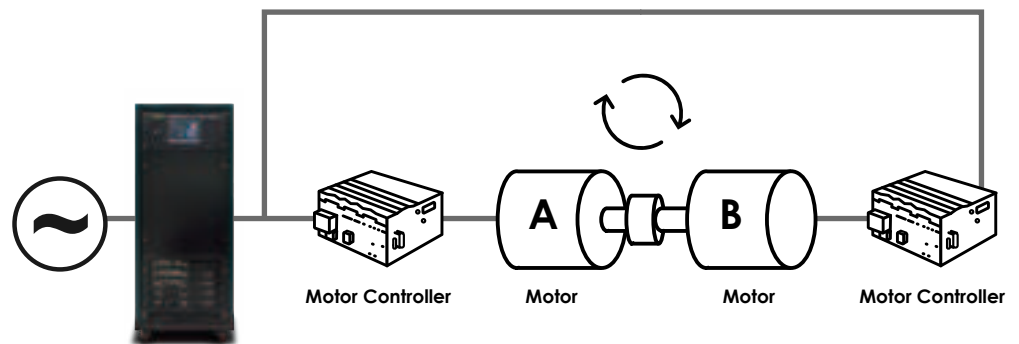
ADG-P series comes with RS-485 interfaces and optional RS-232, GPIB, and Analog interfaces, allow user to easily programming the unit through different interfaces or Preen's control software.

## Screen Lock Password Function



In order to prevent the operator from changing the set parameters by mistake, the new Screen Lock Password function is added on ADG-P series, so that the operator can only perform the output of the device, and only authorized personnel has the password to unlock the screen and edit parameters.

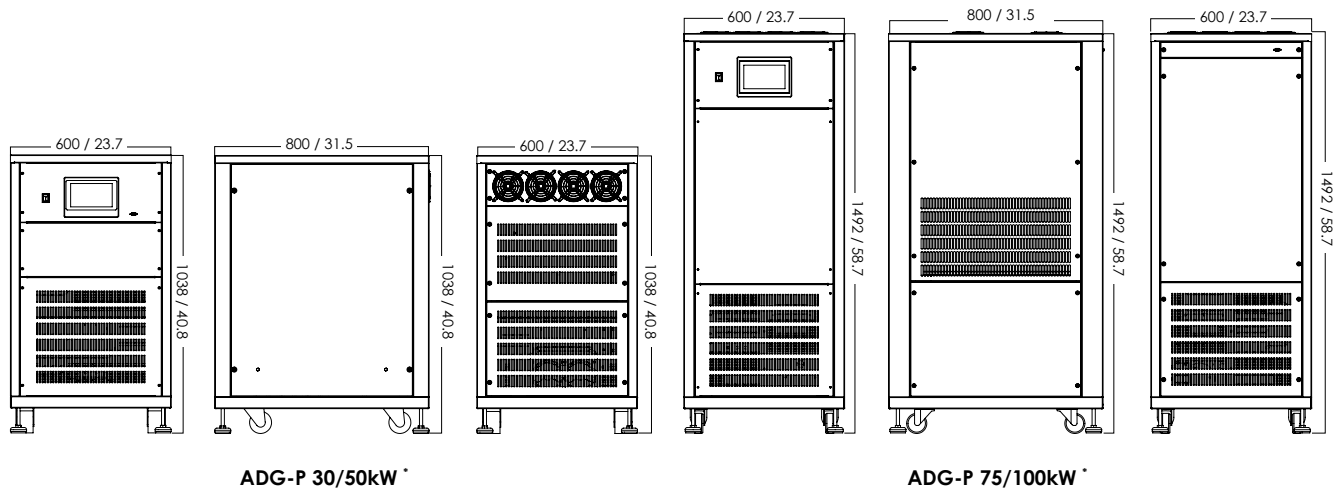
## EV Motor Testing Application Case



Alternative fuel vehicle industries have grow rapidly in recent years. The unique technical structure of alternative fuel vehicles makes them very different from traditional vehicle tests. Electric motors become the power engines of EV and HEV in replacement of traditional engine. Therefore, testing and verification for motor system becomes significant. The driving of motor and motor controlling requires accurate programmable DC supply to simulate output voltage of different batteries, and also require high-power DC supply. Preen's ADG-P series is the ideal DC power supply for the testing system.

## Dimensions

Unit : mm / inch



ADG-P 30/50kW \*

ADG-P 75/100kW \*

\* The diagrams and dimensions are for 380V input models.

## ORDERING INFORMATION

### ADG-P Series (30kW - 100kW)

Model Number	Description	Model Number	Description
ADG-P-40-1250	High Power Programmable DC Power Supply (50kW/40V/1250A)	ADG-P-40-1875	High Power Programmable DC Power Supply (75kW/40V/1875A)
ADG-P-60-834	High Power Programmable DC Power Supply (50kW/60V/834A)	ADG-P-60-1250	High Power Programmable DC Power Supply (75kW/60V/1250A)
ADG-P-100-500	High Power Programmable DC Power Supply (50kW/100V/500A)	ADG-P-100-750	High Power Programmable DC Power Supply (75kW/100V/750A)
ADG-P-200-250	High Power Programmable DC Power Supply (50kW/200V/250A)	ADG-P-320-234	High Power Programmable DC Power Supply (75kW/320V/234A)
ADG-P-240-208	High Power Programmable DC Power Supply (50kW/240V/208A)	ADG-P-640-117	High Power Programmable DC Power Supply (75kW/640V/117A)
ADG-P-320-156	High Power Programmable DC Power Supply (50kW/320V/156A)	ADG-P-1000-75	High Power Programmable DC Power Supply (75kW/1000V/75A)
ADG-P-400-125	High Power Programmable DC Power Supply (50kW/400V/125A)	ADG-P-1600-47	High Power Programmable DC Power Supply (75kW/1600V/47A)
ADG-P-500-100	High Power Programmable DC Power Supply (50kW/500V/100A)	ADG-P-40-2500	High Power Programmable DC Power Supply (100kW/40V/2500A)
ADG-P-640-78	High Power Programmable DC Power Supply (50kW/640V/78A)	ADG-P-60-1666	High Power Programmable DC Power Supply (100kW/60V/1666A)
ADG-P-800-63	High Power Programmable DC Power Supply (50kW/800V/63A)	ADG-P-100-1000	High Power Programmable DC Power Supply (100kW/100V/1000A)
ADG-P-1000-50	High Power Programmable DC Power Supply (50kW/1000V/50A)	ADG-P-320-312	High Power Programmable DC Power Supply (100kW/320V/312A)
ADG-P-1600-31	High Power Programmable DC Power Supply (50kW/1600V/31A)	ADG-P-640-156	High Power Programmable DC Power Supply (100kW/640V/156A)
ADG-P-40-750	High Power Programmable DC Power Supply (30kW/40V/750A)	ADG-P-1000-100	High Power Programmable DC Power Supply (100kW/1000V/100A)
ADG-P-60-500	High Power Programmable DC Power Supply (30kW/60V/500A)	ADG-P-1600-63	High Power Programmable DC Power Supply (100kW/1600V/63A)
ADG-P-100-300	High Power Programmable DC Power Supply (30kW/100V/300A)	ADG-P-001	GPIO Interface Converter
ADG-P-200-150	High Power Programmable DC Power Supply (30kW/200V/150A)	ADG-P-002	Cable for RS-485 (10m)
ADG-P-240-125	High Power Programmable DC Power Supply (30kW/240V/125A)	ADG-P-003	USB Interface Converter
ADG-P-320-94	High Power Programmable DC Power Supply (30kW/320V/94A)	ADG-P-004	RS-232 Interface Converter
ADG-P-400-75	High Power Programmable DC Power Supply (30kW/400V/75A)	ADG-P-007	200V/208 Input Voltage (30~50kW)
ADG-P-500-60	High Power Programmable DC Power Supply (30kW/500V/60A)	ADG-P-008	480V Input Voltage (30~50kW)
ADG-P-640-47	High Power Programmable DC Power Supply (30kW/640V/47A)	ADG-P-009	200V/208 Input Voltage (100kW)
ADG-P-800-38	High Power Programmable DC Power Supply (30kW/800V/38A)	ADG-P-010	480V Input Voltage (100kW)
ADG-P-1000-30	High Power Programmable DC Power Supply (30kW/1000V/30A)	ADG-P-015	200V/208 Input Voltage (75kW)
ADG-P-1600-18	High Power Programmable DC Power Supply (30kW/1600V/18A)		



## ADG-P SPECIFICATIONS

### ADG-P Series (30kW - 100kW)

30kW	Output Voltage	Output Current	Voltage Ripple (RMS)	Voltage Noise (Peak)	Voltage Slew Rate <sup>*1</sup>
ADG-P-40-750	0~40V	0~750A	≤ 0.5%	≤ 3.7%	≤ 65ms
ADG-P-60-500	0~60V	0~500A			
ADG-P-100-300	0~100V	0~300A			
ADG-P-200-150	0~200V	0~150A	≤ 0.26%	≤ 2%	≤ 60ms
ADG-P-240-125	0~240V	0~125A	≤ 0.19%		
ADG-P-320-94	0~320V	0~94A	≤ 0.16%	≤ 0.88%	≤ 85ms
ADG-P-400-75	0~400V	0~75A	≤ 0.13%		
ADG-P-500-60	0~500V	0~60A		≤ 1.34%	≤ 115ms
ADG-P-640-47	0~640V	0~47A	≤ 0.109%	≤ 0.77%	≤ 280ms
ADG-P-800-38	0~800V	0~38A	≤ 0.07%	≤ 0.29%	
ADG-P-1000-30	0~1000V	0~30A	≤ 0.05%	≤ 0.27%	
ADG-P-1600-18	0~1600V	0~18A	≤ 0.08%	≤ 0.4%	

50kW	Output Voltage	Output Current	Voltage Ripple (RMS)	Voltage Noise (Peak)	Voltage Slew Rate <sup>*1</sup>
ADG-P-40-1250	0~40V	0~1250A	≤ 0.5%	≤ 3.7%	≤ 65ms
ADG-P-60-834	0~60V	0~834A			
ADG-P-100-500	0~100V	0~500A			
ADG-P-200-250	0~200V	0~250A	≤ 0.26%	≤ 2%	≤ 60ms
ADG-P-240-208	0~240V	0~208A	≤ 0.19%		
ADG-P-320-156	0~320V	0~156A	≤ 0.16%	≤ 0.88%	≤ 85ms
ADG-P-400-125	0~400V	0~125A	≤ 0.13%		
ADG-P-500-100	0~500V	0~100A		≤ 1.34%	≤ 115ms
ADG-P-640-78	0~640V	0~78A	≤ 0.109%	≤ 0.77%	≤ 280ms
ADG-P-800-63	0~800V	0~63A	≤ 0.07%	≤ 0.29%	
ADG-P-1000-50	0~1000V	0~50A	≤ 0.05%	≤ 0.27%	
ADG-P-1600-31	0~1600V	0~31A	≤ 0.08%	≤ 0.4%	

75kW	Output Voltage	Output Current	Voltage Ripple (RMS)	Voltage Noise (Peak)	Voltage Slew Rate <sup>*1</sup>
ADG-P-40-1875	0~40V	0~1875A	≤ 1.3%	≤ 7%	≤ 120ms
ADG-P-60-1250	0~60V	0~1250A	≤ 1.5%	≤ 5%	
ADG-P-100-750	0~100V	0~750A	≤ 1.5%	≤ 5%	
ADG-P-320-234	0~320V	0~234A	< 0.1%	< 0.65%	≤ 90ms
ADG-P-640-117	0~640V	0~117A	≤ 0.1%	≤ 0.35%	≤ 120ms
ADG-P-1000-75	0~1000V	0~75A	≤ 0.2%	≤ 0.8%	≤ 130ms
ADG-P-1600-47	0~1600V	0~47A	≤ 0.1%	≤ 0.5%	≤ 300ms

100kW	Output Voltage	Output Current	Voltage Ripple (RMS)	Voltage Noise (Peak)	Voltage Slew Rate <sup>*1</sup>
ADG-P-40-2500	0~40V	0~2500A	≤ 1.3%	≤ 7%	≤ 120ms
ADG-P-60-1666	0~60V	0~1666A	≤ 1.5%	≤ 5%	
ADG-P-100-1000	0~100V	0~1000A	≤ 1.5%	≤ 5%	
ADG-P-320-312	0~320V	0~312A	< 0.1%	< 0.65%	≤ 90ms
ADG-P-640-156	0~640V	0~156A	≤ 0.1%	≤ 0.35%	≤ 120ms
ADG-P-1000-100	0~1000V	0~100A	≤ 0.2%	≤ 0.8%	≤ 130ms
ADG-P-1600-63	0~1600V	0~63A	≤ 0.1%	≤ 0.5%	≤ 300ms

\*1 For output voltage change from 5% to 90% at maximum power after output softstart.

\* Voltage ripple and noise specs are under full scale \*



# SPECIFICATIONS

## ADG-P series (30kW - 50kW)

30kW		ADG-P-40-750	ADG-P-60-500	ADG-P-100-300	ADG-P-200-150	ADG-P-240-125	ADG-P-320-94
50kW		ADG-P-40-1250	ADG-P-60-834	ADG-P-100-500	ADG-P-200-250	ADG-P-240-208	ADG-P-320-156
AC Input	Voltage	3Ø3W + G 380Vac ± 15% (Option : 200V/208V/480V)					
	Frequency	47-63Hz					
	Power factor	≥ 0.9 at maximum power					
DC Output	Output Voltage	40V	60V	100V	200V	240V	320V
	Output Current (30kW)	750A	500A	300A	150A	125A	94A
	Output Current (50kW)	1250A	834A	500A	250A	208A	156A
	Line Regulation	< 0.3%			< 0.1%		
	Load Regulation	< 0.3%			< 0.065%	< 0.104%	< 0.14%
	Transient Response <sup>2</sup>	≤ 4-12ms					
Measurement	Voltage Accuracy	0.5% F.S.					
	Voltage Resolution	0.1V					
	Current Accuracy	0.5% F.S.					
	Current Resolution	0.1A					
Protection	Type	Vin OVP, Vin UVP, OVP, OCP, OTP					
	OVP Range	5% - 115% from front panel					
	OCP Range	5% - 115% from front panel					
General	Efficiency	≥ 87% at maximum power			≥ 90% at maximum power		
	Remote Interface	RS-485 (Opt. GPIB / RS-232/Analog)					
	Operational Temperature	0°C - 40°C					
	Storage Temperature	-20°C - 70°C					
	Humidity	0-90%(Non condensing)					
	Isolation	Input to Enclosure: 2000VAC					
	Dimension (H×W×D)	200VAC/208VAC/415VAC/440VAC/480VAC Input:1382×600×800 mm / 54.4x23.7x31.5 inch 380VAC Input:1038×600×800 mm / 40.8x23.7x31.5 inch					
	Weight <sup>3</sup>	380V Input : approx. 222 kg / 489.4 lbs 200V/208V/480V Input : approx. 418 kg / 921.5 lbs			380V Input : approx. 188 kg / 414.5 lbs 200V/208V/480V Input : approx. 388 kg / 855.4 lbs		

30kW		ADG-P-400-75	ADG-P-500-60	ADG-P-640-47	ADG-P-800-38	ADG-P-1000-30	ADG-P-1600-18
50kW		ADG-P-400-125	ADG-P-500-100	ADG-P-640-78	ADG-P-800-63	ADG-P-1000-50	ADG-P-1600-31
AC Input	Voltage	3Ø3W + G 380Vac ± 15% (Option : 200V/208V/480V)					
	Frequency	47-63Hz					
	Power factor	≥ 0.9 at maximum power					
DC Output	Output Voltage	400V	500V	640V	800V	1000V	1600V
	Output Current (30kW)	75A	60A	47A	38A	30A	18A
	Output Current (50kW)	125A	100A	78A	63A	50A	31A
	Line Regulation	< 0.1%					
	Load Regulation	< 0.032%	< 0.14%	< 0.132%	< 0.034%	< 0.02%	< 0.05%
	Transient Response <sup>2</sup>	≤ 4-12ms					
Measurement	Voltage Accuracy	0.5% F.S.					
	Voltage Resolution	0.1V					
	Current Accuracy	0.5% F.S.					
	Current Resolution	0.1A					
Protection	Type	Vin OVP, Vin UVP, OVP, OCP, OTP					
	OVP Range	5% - 115% from front panel					
	OCP Range	5% - 115% from front panel					
General	Efficiency	≥ 90% at maximum power					
	Remote Interface	RS-485 (Opt. GPIB / RS-232/Analog)					
	Operational Temperature	0°C - 40°C					
	Storage Temperature	-20°C - 70°C					
	Humidity	0-90%(Non condensing)					
	Isolation	Input to Enclosure: 2000VAC					
	Dimension (H×W×D)	200VAC/208VAC/415VAC/440VAC/480VAC Input:1382×600×800 mm / 54.4x23.7x31.5 inch 380VAC Input:1038×600×800 mm / 40.8x23.7x31.5 inch					
	Weight <sup>3</sup>	380V Input : approx. 222 kg / 489.4 lbs 200V/208V/480V Input : approx. 418 kg / 921.5 lbs			380V Input : approx. 188 kg / 414.5 lbs 200V/208V/480V Input : approx. 388 kg / 855.4 lbs		

# SPECIFICATIONS

## ADG-P series (75kW - 100kW)

	75kW	ADG-P-40-1875	ADG-P-60-1250	ADG-P-100-750	ADG-P-320-234	ADG-P-640-117	ADG-P-1000-75	ADG-P-1600-47	
	100kW	ADG-P-40-2500	ADG-P-60-1666	ADG-P-100-1000	ADG-P-320-312	ADG-P-640-156	ADG-P-1000-100	ADG-P-1600-63	
AC Input	Voltage	3Ø3W + G 380Vac ± 15% (Option : 200V/208V/480V)							
	Frequency	47 - 63Hz							
	Power factor	≥ 90% at maximum power							
DC Output	Output Voltage	40V	60V	100V	320V	640V	1000V	1600V	
	Output Current (75kW)	1875A	1250A	750A	234A	117A	75A	47A	
	Output Current (100kW)	2500A	1666A	1000A	312A	156A	100A	63A	
	Line Regulation	< 0.1%							
	Load Regulation	< 0.1%	< 0.15%	< 0.15%	< 0.08%	< 0.08%	< 0.1%	< 0.08%	
	Transient Response <sup>*2</sup>	≤ 10-20ms							
Measurement <sup>*3</sup>	Voltage Accuracy	0.5% F.S.							
	Voltage Resolution	0.1V							
	Current Accuracy	0.5% F.S.							
	Current Resolution	0.1A							
Protection	Type	Vin OVP, Vin UVP, OVP, OCP, OTP							
	OVP Range	5% - 115% from front panel							
	OCP Range	5% - 115% from front panel							
General	Efficiency	≥ 87% at maximum power			≥ 90% at maximum power				
	Remote Interface	RS-485 (Opt. GPIB / RS-232/Analog)							
	Operational Temperature	0°C - 40°C							
	Storage Temperature	-20°C - 70°C							
	Humidity	0-90%(Non condensing)							
	Isolation	Input to Enclosure: 2000VAC							
	Dimension (H×W×D) <sup>*4</sup>	200VAC/208VAC Input: 1902×600×800 mm / 74.8×23.7×31.5 inch 480VAC Input: 1837×600×800 mm / 72.3×23.7×31.5 inch 380VAC Input: 1492×600×800 mm / 58.7×23.7×31.5 inch							
	Weight <sup>*4</sup>	380V Input : approx. 342 kg / 754 lbs 200V/208V/480V Input : approx. 622 kg / 1371.3 lbs				380V Input : approx. 298 kg / 656.9 lbs 200V/208V/480V Input : approx. 570 kg / 1256.6 lbs			

\*2 Recover to ±0.1% of regulated output with a 50% to 100% or 100% to 50% step load change.

\*3. The specifications are tested at ambient temperature of 25°C ± 5°C.

\*4. Including wheels and weight tolerance is within ± 10 kg.

\* Above specifications are for output voltage over 1% F.S. and all specifications are subject to change without notice.

## Rack Mount DC Power Supply

CE



The ADC Series is a Military/Aerospace DC Power Supply with robust circuit design and high stability. It is suitable for inductive type loads and aerospace or military applications, such as motor equipment, production testing, maintenance & repair, generators, aircraft engines, laboratories and etc.

ADC series has overload capability up to 300% and users can select between two output voltage:  $28V \pm 10\%$  or  $270V \pm 10\%$ (opt.). Its output power is up to 180kW and can deliver up to 1500A. There are two models of ADC series, trailer and stand-alone.

### Product Features

- Modular Design : 4kW in 2U, 8kW in 4U only.
- Two Operational Modes: constant-voltage and constant-current.
- Protections: overvoltage, over current, over load, input under voltage and over temperature.
- Remote sense for line drop compensation of 0~3V.
- Standard 19 inches model with high flexibility in different environments.
- CE mark with high electromagnetic compatibility performance.

### Output Power

**2kW~8kW**

### Applications

- Industrial Power Supply
- Electric Vehicles
- IT / SMT Production Line
- Medical Industry
- Aerospace & Defense
- Communication Industry
- Motor & Compressor
- Power Tool

### QR Code



Product  
Info.

## High Power Density

2U / 2~4kW

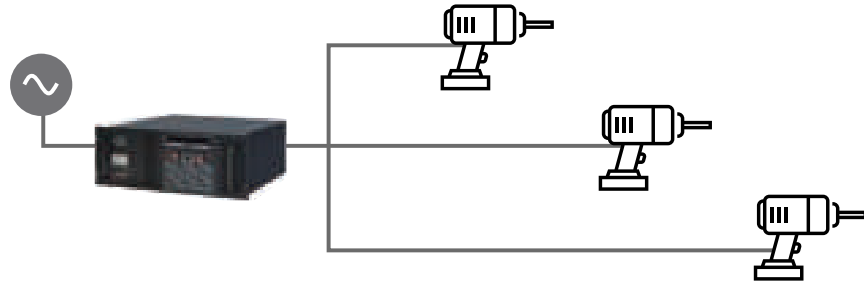


4U / 8kW



ADC series is 19 inches rack mount type DC power supply with high power density. 2U is up to 4 kW and 4U is up to 8 kW which gives user the flexibility to arrange its working space and easy to maintain the unit.

## Applications



For electric power tools, in order to enhance product reliability and consistency, aging test or accelerated life testing is usually a necessary procedure during R&D or quality assurance stage. The ADC series can be used to simulate the battery of power tools, and provides clean and low ripple DC power for a variety of voltage levels.

## SPECIFICATIONS

2 kW Model	Max. Voltage	Max. Current	Size (HxWxD)	Weight
ADC-0300067	30V	67A	88 x 430 x 500 mm	14 kg
ADC-0400050	40V	50A		
ADC-0600033	60V	33A		
ADC-0800025	80V	25A		
ADC-1000020	100V	20A		
ADC-1200017	120V	17A		
ADC-1600013	160V	13A		
ADC-2400008	240V	8A		
ADC-3300006	330V	6A		
ADC-6000003	600V	3A		

4 kW Model	Max. Voltage	Max. Current	Size (HxWxD)	Weight
ADC-0300133	30V	133A	88 x 430 x 500 mm for Rated Voltage: 187~253Vac 3 Ø 3W+G or 323~437Vac 3 Ø 3W+G	17kg for Rated Voltage: 187~253Vac 3 Ø 3W+G or 323~437Vac 3 Ø 3W+G
ADC-0400100	40V	100A		
ADC-0600067	60V	67A		
ADC-0800050	80V	50A		
ADC-1000040	100V	40A		
ADC-1200033	120V	33A		
ADC-1600025	160V	25A		
ADC-2400017	240V	17A		
ADC-3300012	330V	12A		
ADC-6000007	600V	7A		

8 kW Model	Max. Voltage	Max. Current	Size (HxWxD)	Weight
ADC-0300267	30V	267A	176 x 430 x 500 mm for Rated Voltage: 187~253Vac 3 Ø 3W+G or 323~437Vac 3 Ø 3W+G	30kg for Rated Voltage: 187~253Vac 3 Ø 3W+G or 323~437Vac 3 Ø 3W+G
ADC-0400200	40V	200A		
ADC-0600133	60V	133A		
ADC-0800100	80V	100A		
ADC-1000080	100V	80A		
ADC-1200060	120V	67A		
ADC-1600050	160V	50A		
ADC-2400033	240V	33A		
ADC-3300024	330V	24A		
ADC-6000013	600V	13A		

\* all specifications are subject to change without notice.

## SPECIFICATIONS

### ADC Series (2kW - 8kW)

Capacity		2kW	4kW	8kW	4kW	8kW	
<b>INPUT</b>							
Rated Voltage <sup>*1</sup>		187~253 Vac 1 Ø 2W+G	187~253Vac 3 Ø 3W+G or 323~437Vac 3 Ø 3W+G		187~253Vac 1 Ø 2W+G		
current	Single-Phase 220VAC	17A	-	-	34A	68A <sup>*2</sup>	
	three-Phase 220VAC	-	15A	30A	-	-	
	three-Phase 380VAC	-	9A	18A	-	-	
Frequency		47~63Hz					
<b>OUTPUT</b>							
Voltage		Please refer to the Specifications on page 112					
current		Please refer to the Specifications on page 112					
Ripple		<0.15%					
Voltage Adjustment		0~100% adjustable					
Current limit adjustment		10~100% adjustable					
Over-voltage adjustment		10% given value~110% given value adjustable					
Power adjustment rate		< ± 0.05% full scale					
Load adjustment rate		< ± 0.05% full scale					
Transient response time <sup>*3</sup>		< 1ms (load changes from 50% to 100% or from 100% to 50%)					
<b>OTHER SPECIFICATION</b>							
Efficiency (at rated input, max load)		>0.85	>0.9				
Circuit type		Switching power supply					
Protection function		Over voltage, over current, short circuit, over temperature					
Local control	Voltage meter	3 1/2digital meter (Option 4 1/2digital meter)					
	Current meter	3 1/2digital meter (Option 4 1/2digital meter)					
	Indicator light	Abnormal, external control, constant voltage, constant current					
	Pre-set	Output voltage, output current, output over current, reset					
Remote control	Compensation	0~3V					
	Control	Output voltage, output current 0~100% adjustable through external 0~5Vdc Voltage External control and reset					
	Monitor	Remote control to output voltage, output current from 0 to 100% through external 0~5Vdc voltage					
Environment	Operation temperature	0 ~ 50 °C					
	Storage temperature	-26 ~ 65 °C					
	Humidity	0~90% ( non-condensing )					
	Cooling mode	Wind enter from the front and out in the back. Can be installed with rack from top to bottom.					
	Noise	< 55dB / 1m ( fan speed control )					
Withstand voltage		Input to crust 2200Vdc/1min without arc /4mA					
Insulation Resistance		Input to crust 100M (500Vdc)					
Electromagnetic Compatibility(EMC)		Input EMI filter					
<b>MECHANICAL SPECIFICATION</b>							
Input mode		Terminal strips					
Output mode		Copper busbar					
Structure		19" 483 mm , xU rack type					
Dimension (H×W×D)	88 x 430 x 500 mm		176 x 430 x 500mm		264 x 430 x 500 mm		
	3.5 x16.9 x 19.7 inch		7.0 x 16.9 x 19.7 inch		10.3 x 16.9 x 19.6 inch		
Weight	14kg		17kg		30kg		
	30.86lbs		37.47lbs		66.13lbs		
						45kg	
						99.2lbs	

\*1 Please contact for other voltage specification.

\*2 Height is 6U and weight is 50kg

\*3 Load changes from 50% to 100% or from 100% to 50%

\* Specifications for line regulation and load regulation are under full scales.

**ORDERING INFORMATION :****ADC Series (2kW - 8kW)**

Model Number	Description
ADC-0300067	Rack Mount DC Power Supply (2kW/30V/67A)
ADC-0400050	Rack Mount DC Power Supply (2kW/40V/50A)
ADC-0600033	Rack Mount DC Power Supply (2kW/60V/33A)
ADC-0800025	Rack Mount DC Power Supply (2kW/80V/25A)
ADC-1000020	Rack Mount DC Power Supply (2kW/100V/20A)
ADC-1200017	Rack Mount DC Power Supply (2kW/120V/17A)
ADC-1600013	Rack Mount DC Power Supply (2kW/160V/13A)
ADC-2400008	Rack Mount DC Power Supply (2kW/240V/8A)
ADC-3300006	Rack Mount DC Power Supply (2kW/330V/6A)
ADC-6000003	Rack Mount DC Power Supply (2kW/600V/3A)
ADC-0300133	Rack Mount DC Power Supply (4kW/30V/133A)
ADC-0400100	Rack Mount DC Power Supply (4kW/40V/100A)
ADC-0600067	Rack Mount DC Power Supply (4kW/60V/67A)
ADC-0800050	Rack Mount DC Power Supply (4kW/80V/50A)
ADC-1000040	Rack Mount DC Power Supply (4kW/100V/40A)
ADC-1200033	Rack Mount DC Power Supply (4kW/120V/33A)
ADC-1600025	Rack Mount DC Power Supply (4kW/160V/25A)
ADC-2400025	Rack Mount DC Power Supply (4kW/240V/25A)
ADC-3300012	Rack Mount DC Power Supply (4kW/330V/12A)
ADC-6000007	Rack Mount DC Power Supply (4kW/600V/7A)
ADC-0300267	Rack Mount DC Power Supply (8kW/30V/267A)
ADC-0400200	Rack Mount DC Power Supply (8kW/40V/200A)
ADC-0600133	Rack Mount DC Power Supply (8kW/60V/133A)
ADC-0800100	Rack Mount DC Power Supply (8kW/80V/100A)
ADC-1000080	Rack Mount DC Power Supply (8kW/100V/80A)
ADC-1200060	Rack Mount DC Power Supply (8kW/120V/60A)
ADC-1600050	Rack Mount DC Power Supply (8kW/160V/50A)
ADC-2400033	Rack Mount DC Power Supply (8kW/240V/33A)
ADC-3300024	Rack Mount DC Power Supply (8kW/330V/24A)
ADC-6000013	Rack Mount DC Power Supply (8kW/600V/13A)



## Military/Aerospace DC Power Supply

CE



The ADS Series is a Military/Aerospace DC Power Supply with robust circuit design and high stability. It is suitable for inductive type loads and aerospace or military applications, such as motor equipment, production testing, maintenance & repair, generators, aircraft engines, laboratories and etc.

ADS series has overload capability up to 300% and users can select between two output voltage:  $28V \pm 10\%$  or  $270V \pm 10\%$ (opt.). Its output power is up to 180kW and can deliver up to 1500A. There are two models of ADS series, trailer and stand-alone.

### Product Features

- Output voltage of  $28V \pm 10\%$  or  $270V \pm 10\%$ (opt.) for aerospace or military usage.
- Output current ranges from 50A to 1500A with maximum overload to 4500A.
- Capable to sustain abusive loads with inrush current and reverse current, such as aircraft engine or generators.
- Constant voltage and current limitation functions.
- Comprehensive protection includes over voltage, over current, over load, input under voltage and over temperature.

### Output Power

**50A~4500A**

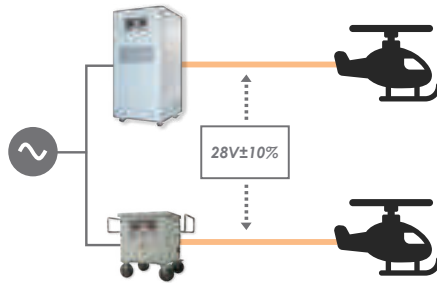
### Interfaces

Option RS-232 RS-485 GPIB

### Applications

- Aerospace & Defense
- Aircraft
- Helicopter
- Aircraft Factory
- Hangar
- Repair Stations
- Transportation
- Industrial Power Supply

## Ground Power Unit for Aircraft



ADS provides stable DC power and has 300% overload capability, which is an ideal ground power solution for the aircraft production and maintenance related industries.

## Overload Capability



The ADS Series has robust circuit design and high stability. It is suitable for start up, repair and the production line of the inductive type loads, such as aircraft engine and compressor.

## Highly Reliable

The ADS series is a SCR type of DC power supply. Utilizing industrial frequency transformer and advanced 6-pulse or 12-pulse rectifier topology, the ADS series offer clean and reliable DC power with full protections including OVP, OCP, OTP and short circuit protection. It is a DC power supply with features of high output power output, easy maintenance, high reliability and robust.

## ORDERING INFORMATION :

### ADS Series (1.5kW - 45kW)

Model Number	Description
ADS-28-50	Military/Aerospace DC Power Supply(1.5kW/28V/50A)
ADS-28-100	Military/Aerospace DC Power Supply(3kW/28V/100A)
ADS-28-200	Military/Aerospace DC Power Supply(6kW/28V/200A)
ADS-28-300	Military/Aerospace DC Power Supply(9kW/28V/300A)
ADS-28-400	Military/Aerospace DC Power Supply(12kW/28V/400A)
ADS-28-500	Military/Aerospace DC Power Supply(15kW/28V/500A)
ADS-28-600	Military/Aerospace DC Power Supply(18kW/28V/600A)
ADS-28-800	Military/Aerospace DC Power Supply(24kW/28V/800A)
ADS-28-1000	Military/Aerospace DC Power Supply(30kW/28V/1000A)
ADS-28-1500	Military/Aerospace DC Power Supply(45kW/28V/1500A)
ADS-001	300% Overload
ADS-002	RS-232 Interface
ADS-003	RS-485 Interface
ADS-004	GPIB Interface
ADS-005	Dry Contact Control

## SPECIFICATIONS

### ADS Series (1.5kW - 12kW)

Model	ADS-28-50		ADS-28-100		ADS-28-200		ADS-28-300		ADS-28-400			
Capacity	1.5kVA	4.5kVA	3kVA	9kVA	6kVA	18kVA	9kVA	27kVA	12kVA	36kVA		
Circuit Type	SCR											
<b>INPUT</b>												
Phase	3 Phase 3W+G ( $\Delta$ ) 3 Phase 4W+G ( Y )											
Voltage	220V/380V *1											
Voltage Range	$\pm 10\%$											
Frequency	50Hz $\pm 3$ Hz or 60Hz $\pm 3$ Hz											
<b>OUTPUT</b>												
Voltage	28VDC $\pm 10\%$ Adjustable ( 25.2VDC ~ 30.8VDC )											
Rate Current	0~50A		0~100A		0~200A		0~300A		0~400A			
Overload Capacity	None	150A	None	300A	None	600A	None	900A	None	1200A		
Current-limiting adjustable	5~50A	15~150A	10~100A	30~300A	20~200A	60~600A	30~300A	90~900A	40~400A	120~1200A		
Line Regulation	$\leq 0.5\%$											
Load Regulation	$\leq 0.5\%$											
Ripple(Vrms)	$\leq 1\%$											
<b>INDICATOR</b>												
Digital Voltmeter	28.0 V											
Digital Ammeter	50.0 A	150.0 A	100.0 A	300.0 A	200.0 A	600.0 A	300.0 A	900.0 A	400.0 A	1200.0 A		
Protection	Over-Voltage; Over-Current; Over-temperature; Short-circuit protection											
Cooling System	Air Forced Fan											
Environment	-20°C ~ +45 / 500meter(Altitude) / Prevent against dust and dust from carbon bush											
Humidity	0~90% ( Non-condensing ) Continuous working											
Resistance	$\geq 10M\Omega$ ( 500Vdc )											
Withstand voltage	1500Vac 10mA/1min											
Noise	< 65dB											
Remote Monitoring	Adjust output voltage range from 0~100% via 0~5Vdc external control. ( option )											
<b>DIMENSION</b>												
Trailer	H x W x D ( mm/ inch )		880 x 1198 x 760 / 34.64 x 47.16 x 29.92									
Stand-Alone	H x W x D ( mm/ inch )		1605 x 750 x 835 / 63.18 x 29.52 x 32.87									
<b>WEIGHT</b>												
Trailer	( lbs / kg )		507/230	660/300	570/260	728/330	660/300	815/370	728/330	882/400	794/360	948/430
Stand-Alone	( lbs / kg )		330/150	400/180	375/170	441/200	441/200	530/240	507/230	661/300	595/270	728/330

\*1 Other required voltage, please kindly refer to Form 1.

\*No compensating function.

\*Custom-made specifications are on request.

\*Outlook: F-Free standing type, T-Trailer type, B-Bridge mounted type, W-Wall mounted type.

\*One year warranty;

\*All specifications are subject to change without prior notice.

## SPECIFICATIONS

### ADS Series (15 kW - 45 kW)

Model	ADS-28-500		ADS-28-600		ADS-28-800		ADS-28-1000		ADS-28-1500		
Capacity	15kVA	45kVA	18kVA	54kVA	24kVA	72kVA	30kVA	90kVA	45kVA	135kVA	
Circuit Type	SCR										
<b>INPUT</b>											
Phase	3 Phase 3W+G ( $\Delta$ ) 3 Phase 4W+G ( Y )										
Voltage	220V/380V <sup>*1</sup>										
Voltage Range	$\pm 10\%$										
Frequency	50Hz $\pm 3\text{Hz}$ or 60Hz $\pm 3\text{Hz}$										
<b>OUTPUT</b>											
Voltage	28VDC $\pm 10\%$ Adjustable ( 25.2VDC ~ 30.8VDC )										
Rate Current	0~500A		0~600A		0~800A		0~1000A		0~1500A		
Overload Capacity	None	1500A	None	1800A	None	2400A	None	3000A	None	4500A	
Current-limiting adjustable	50~500A	150~1500A	60~600A	180~1800A	80~800A	240~2400A	100~1000A	300~3000A	150~1500A	450~4500A	
Line Regulation	$\leq 0.5\%$										
Load Regulation	$\leq 0.5\%$										
Ripple(Vrms)	$\leq 1\%$										
<b>INDICATOR</b>											
Digital Voltmeter	28.0 V										
Digital Ammeter	500.0 A	1500.0 A	600.0 A	1800.0 A	800.0 A	2400 A	1000.0 A	3000 A	1500.0 A	4500 A	
Protection	Over-Voltage; Over-Current; Over-temperature; Short-circuit protection										
Cooling System	Air Forced Fan										
Environment	-20°C ~ +45 / 500meter(Altitude) / Prevent against dust and dust from carbon bush										
Humidity	0~90% ( Non-condensing ) Continuous working										
Resistance	$\geq 10\text{M}\Omega$ ( 500Vdc )										
Withstand voltage	1500Vac 10mA/1min										
Noise	< 65dB										
Remote Monitoring	Adjust output voltage range from 0~100% via 0~5Vdc external control. ( option )										
<b>DIMENSION</b>											
Trailer	H x W x D ( mm / inch )	970 x 1355 x 930 / 38.18 x 53.34 x 36.61							-		
Stand-Alone	H x W x D ( mm / inch )	1355 x 600 x 980 / 53.34 x 23.62 x 38.58					2060 x 1180 x 1060 / 81.1 x 46.45 x 41.73				
<b>WEIGHT</b>											
Trailer	( lbs / kg )	882/400	1036/470	926/420	1080/490	992/450	1168/530	1080/490	1280/580	1213/550	1433/650
Stand-Alone	( lbs / kg )	640/290	772/350	728/330	838/380	816/370	1058/480	992/450	1102/500	1124/510	1390/630

\*1 Other required voltage, please kindly refer to Form 1.

\*No compensating function.

\*Custom-made specifications are on request.

\*Outlook: F-Free standing type, T-Trailer type, B-Bridge mounted type, W-Wall mounted type.

\*One year warranty;

\*All specifications are subject to change without prior notice.

# Power Conditioner / AVR

## Power Conditioner / AVR



Product Series	APS	APH
Circuit Design	Solid state	Inductive
Output Phase	1Ø / 3Ø	3Ø
Output Power	1-300kVA	10-600kVA
Efficiency	≥ 98%	≥ 97%
Load Regulation / Accuracy	±2% - 4%	±2% - 5%
Input Voltage Range	±18%	-13% - 17%
CE certified	o	o
Up to 2000V Surge Absorbers (opt.)	o	-
Precision Instruments & Equipment Applications	o	-
Factory and Facility Applications	-	o
Overload Capability	-	125% - 40mins 150% - 20mins 175% - 10mins 200% - 5mins
Other Features	Optional Surge Protection	
	Input PF ≥ 95%	Event Function

o Standard      - None

Product Applications



Transport System



Oil Platform



Medical Equipment



Laboratory



Electronic Manufacturing



# Solid State Power Conditioner

CE



Preen's APS series is a solid state power conditioner with high precision and fast response time. Applying electronic compensation design topology, the APS series can detect fluctuation on input voltage and compensate to provide pure and stable voltage.

Applications include mobile / laptop SMT production lines, medical equipment, communication equipment, telecom stations, EMC test and laboratory.

The APS series has single-phase and three-phase models with power level up to 300kVA and input voltage range of  $\pm 18\%$  or  $\pm 25\%$ (option). The 2% voltage regulation makes it ideal for applications requiring accurate and stable input.

## Product Features

- Wide input voltage range : rated voltage  $\pm 18\% \sim \pm 25\%$ .
- Optional EMI filter for better power quality.
- CE mark with high electromagnetic compatibility performance.
- High input power factor:  $\geq 0.95$ .
- High efficiency: up to 98% at full load.
- Customized outdoor cabinet available to increase protection class to IP54.
- Comprehensive protection includes over voltage, over current, over load, input under voltage and over temperature.
- Optional surge protection with different levels.

## Output Power

**1kVA~300kVA**

## Applications

- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- IT / SMT Production Line
- Medical Industry
- Transportation
- Communication Industry

## QR Code



Product Info.

## SPECIFICATIONS

### APS Series Single-Phase Output (1kVA - 15kVA)

Model	APS-11001	APS-11002	APS-11003	APS-11005	APS-11007	APS-11010	APS-11015
Capacity	1kVA	2kVA	3kVA	5kVA	7.5kVA	10kVA	15kVA
<b>AC INPUT</b>							
Phase	Single Phase						
Voltage <sup>1</sup>	220V						
Voltage Range	±18%			±18 % / ± 25 % (option)			
Frequency	47Hz ~ 63Hz						
Power Factor	0.95 ~ 1						
<b>AC OUTPUT</b>							
Phase	Single Phase						
Voltage <sup>2</sup>	220V ( G )						
Frequency	Same as input frequency.						
Power Factor	±0.7~1						
<b>METER &amp; INDICATOR</b>							
Voltage Meter	Yes						
Current Meter	-			Yes			
LED Indicator	Power abnormal, output over/under voltage , auto bypass						
<b>PROTECTION</b>							
Over Range	Auto Shutdown & LED Indicator			LED Indicator			
Over Load	Circuit Breaker			150% for 15 Sec.; 130% for 30 Sec.; 110% for 300 Sec.			
Over/Under Voltage	Alarm & Auto Shutdown			Alarm & Auto Shutdown (option)			
Auto Bypass	LED Indicator & Alarm						
Noise Filter	Surge Absorber, LC Filter, EMI Filter (option)			Surge Absorber, LC Filter (option), EMI Filter (option)			
<b>GENERAL</b>							
VA Efficiency	≥ 98% at Full load / No load energy power consumption ≤ 2%.						
Line Regulation	±2%~ ±4%			±2%			
Load Regulation	±2%~ ±4%			±2%			
Total Harmonic Distortion(THD)	≤ 1%(Additional waveform distortion)						
Audible Noise (1 meter)	≤ 45 dB			≤ 50 dB			
Cooling System	Natural cooling			Fan cooling			
Connections	Socket or Terminal			Terminal			
<b>ENVIRONMENT</b>							
Operational Temperature	0 °C~ 40°C						
Humidity	0~95% ( Non-condensing )						
Dimension(H x W x D)	220 x 120 x 360mm		310 x 170 x 400mm		380 x 200 x 550mm		
	8.66 x 4.72 x 14.17inch		12.20 x 6.69 x 15.74inch		14.96 x 7.87 x 21.65inch		
Weight	10kg	15kg	20kg	25kg	35kg	40kg	45kg
	22.04lbs	33.06lbs	44.09lbs	55.11lbs	77.16lbs	88.18lbs	99.2lbs

\*1 Weight and size vary with input and output voltage, please contact us.

\*2 Custom-made specifications are on request.

\*All specifications are subject to change without prior notice.

## SPECIFICATIONS

### APS Series Single-Phase Output (20kVA - 100kVA)

Model	APS-11020	APS-11030	APS-11040	APS-11050	APS-11060	APS-11080	APS-11100
Capacity	20kVA	30kVA	40kVA	50kVA	60kVA	80kVA	100kVA
<b>AC INPUT</b>							
Phase	Single Phase						
Voltage <sup>1</sup>	220V <sup>1</sup>						
Voltage Range	±18 % / ± 25 % (option)						
Frequency	47Hz ~ 63Hz						
Power Factor	0.95 ~ 1						
<b>AC OUTPUT</b>							
Phase	Single Phase						
Voltage <sup>2</sup>	220V ( G ) <sup>1</sup>						
Frequency	Same as input frequency.						
Power Factor	±0.7~1						
<b>METER &amp; INDICATOR</b>							
Voltage Meter	Yes						
Current Meter	Yes						
LED Indicator	Power abnormal, output over/under voltage , auto bypass						
<b>PROTECTION</b>							
Over Range	Alarm						
Over Load	150% for 15Sec.; 130% for 30Sec.; 110% for 300Sec.						
Over/Under Voltage	Alarm and Auto Shutdown (option)						
Auto Bypass	LED Indicator & Alarm						
Noise Filter	Surge Absorber, LC Filter (option), EMI Filter (option)						
<b>GENERAL</b>							
Efficiency	≥ 98% at Full load / energy power consumption ≤ 2% under no load						
Line Regulation	±2%						
Load Regulation	±2%						
Total Harmonic Distortion(THD)	≤ 1%(Additional waveform distortion)						
Audible Noise (1 meter)	≤ 50 dB			≤ 55 dB			
Cooling System	Fan cooling						
Connections	Terminal				Busbar		
<b>ENVIRONMENT</b>							
Operational Temperature	0 °C~ 40°C						
Humidity	0~95% ( Non-condensing )						
Dimension(H x W x D)	605 x 330 x 550mm		860 x 450 x 800mm		960 x 600 x 900mm		
	23.81 x 12.99 x 21.65inch		33.85 x 17.71 x 31.49 inch		37.79 x 23.62 x 35.43inch		
Weight	75kg	120kg	230kg	270kg	350kg	390kg	430kg
	165.34lbs	264.55lbs	507.06lbs	595.24lbs	771.61lbs	859.80lbs	947.98lbs

\*1 Weight and size vary with input and output voltage, please contact us.

\*2 Custom-made specifications are on request.

\*All specifications are subject to change without prior notice.

## SPECIFICATIONS

### APS Series Three-Phase Output ( 10kVA-100kVA )

Model	APS-33010	APS-33015	APS-33022	APS-33030	APS-33045	APS-33060	APS-33075	APS-33100
Capacity	10kVA	15kVA	22kVA	30kVA	45kVA	60kVA	75kVA	100kVA
<b>AC INPUT</b>								
Phase	Three Phase							
Voltage <sup>1</sup>	220V / 380 ( T )							
Voltage Range	±18 %		±18 % / ± 25 % (option)					
Frequency	47Hz ~ 63Hz							
Power Factor	0.95 ~ 1							
<b>AC OUTPUT</b>								
Phase	Three Phase							
Voltage <sup>2</sup>	220V / 380 ( G )							
Frequency	Same as input frequency.							
Power Factor	±0.7~1							
<b>METER &amp; INDICATOR</b>								
Voltage Meter	Yes, range: 0~300 VAC for each phase							
Current Meter	Yes, with R/S/T phase current							
LED Indicator	Auto Bypass							
<b>PROTECTION</b>								
Over Range	Auto shutdown (option) & Alarm							
Over Load	Circuit Breaker	150% for 15Sec.; 130% for 30Sec.; 110% for 300Sec.						
Over/Under Voltage	Alarm & Auto Shutdown (option)							
Auto Bypass	LED Indicator & Alarm							
R.S.T. Phase Failure	LED Indicator (option) & Alarm (option) & Auto Shutdown (option)							
Noise Filter	Surge Absorber, LC Filter(option), EMI Filter (option)							
<b>GENERAL</b>								
Efficiency	≥ 98% at Full load / energy power consumption ≤ 2% under no load							
Line Regulation	±2%~ ±4%		±2%					
Load Regulation	±2%~ ±4%		±2%					
Total Harmonic Distortion(THD)	≤ 1%(Additional waveform distortion)							
Audible Noise (1 meter)	≤ 50 dB			≤ 55 dB				
Cooling System	Natural cooling			Fan cooling				
Connections	Terminal							
<b>ENVIRONMENT</b>								
Operational Temperature	0 °C~ 40°C							
Humidity	0~95% ( Non-condensing )							
Dimension(H x W x D)	770 x 355 x 650mm					860 x 450 x 800mm		
	30.31 x 13.97 x 25.59inch					33.85 x 17.71 x 31.49inch		
Weight	80kg	85kg	100kg	150kg	190kg	230kg	270kg	360kg
	176.3lbs	187.3lbs	220.4lbs	330.6lbs	418.8lbs	507lbs	595.2lbs	792lbs

\*1 Weight and size vary with input and output voltage, please contact us.

\*2 Custom-made specifications are on request.

\*All specifications are subject to change without prior notice.

## SPECIFICATIONS

### APS Series Three-Phase Output ( 120kVA-300kVA )

Model	APS-33120	APS-33150	APS-33180	APS-33240	APS-33300
Capacity	120kVA	150kVA	180kVA	240kVA	300kVA
<b>AC INPUT</b>					
Phase	Three Phase				
Voltage <sup>1</sup>	220V / 380 ( G )				
Voltage Range	±18 %				
Frequency	47Hz ~ 63Hz				
Power Factor	0.95 ~ 1				
<b>AC OUTPUT</b>					
Phase	Three Phase				
Voltage <sup>2</sup>	220V / 380 ( G )				
Frequency	Same as input frequency.				
Power Factor	±0.7~1				
<b>METER &amp; INDICATOR</b>					
Voltage Meter	Indicator/LCD display (option)				
Current Meter	Auto bypass				
<b>PROTECTION</b>					
Over Range	Auto shutdown (option) & Alarm				
Over Load	150% for 15Sec.; 130% for 30Sec.; 110% for 300Sec.				
Over/Under Voltage	Alarm & Auto shutdown (option)				
Auto Bypass	LED Indicator & Alarm				
R.S.T. Phase Failure	Alarm & Auto shutdown (option)				
Noise Filter	Surge Absorber, LC Filter, EMI Filter (option)				
<b>GENERAL</b>					
Efficiency	≥ 98% at Full load / energy power consumption ≤ 2% under no load				
Line Regulation	±2%				
Load Regulation	±2%				
Total Harmonic Distortion(THD)	≤ 1%(Additional waveform distortion)				
Audible Noise (1 meter)	≤ 58 dB				
Cooling System	Fan cooling				
Connections	Terminal		Busbar		
<b>ENVIRONMENT</b>					
Operational Temperature	0 °C~ 40°C				
Humidity	0~95% ( Non-condensing )				
Dimension(H x W x D)	1500 x 600 x 1200mm		1700 x 800 x 1200mm		
	59.05 x 23.62 x 47.24inch		66.92 x 31.49 x 47.24 inch		
Weight	550kg	630kg	660kg	700kg	750kg
	1210lbs	1386lbs	1452lbs	1540lbs	1650lbs

\*1 Weight and size vary with input and output voltage, please contact us.

\*2 Custom-made specifications are on request.

\*All specifications are subject to change without prior notice.

## SPECIFICATIONS

### APS Series Single-Phase Output (1kVA - 100kVA)

Model Number	Discription
APS-11001	Solid State Power Conditioner ( 1 kVA)
APS-11002	Solid State Power Conditioner ( 2 kVA)
APS-11003	Solid State Power Conditioner ( 3 kVA)
APS-11005	Solid State Power Conditioner ( 5 kVA)
APS-11007	Solid State Power Conditioner ( 7 kVA)
APS-11010	Solid State Power Conditioner ( 10 kVA)
APS-11015	Solid State Power Conditioner ( 15 kVA)
APS-11020	Solid State Power Conditioner ( 20 kVA)
APS-11030	Solid State Power Conditioner ( 30 kVA)
APS-11040	Solid State Power Conditioner ( 40 kVA)
APS-11050	Solid State Power Conditioner ( 50 kVA)
APS-11060	Solid State Power Conditioner ( 60 kVA)
APS-11080	Solid State Power Conditioner ( 80 kVA)
APS-11100	Solid State Power Conditioner ( 100 kVA)

### APS Series Three-Phase Output (10kVA - 300kVA)

Model Number	Discription
APS-33010	Solid State Power Conditioner ( 10 kVA)
APS-33015	Solid State Power Conditioner ( 15 kVA)
APS-33022	Solid State Power Conditioner ( 22 kVA)
APS-33030	Solid State Power Conditioner ( 30 kVA)
APS-33045	Solid State Power Conditioner ( 45 kVA)
APS-33060	Solid State Power Conditioner ( 60 kVA)
APS-33075	Solid State Power Conditioner ( 75 kVA)
APS-33100	Solid State Power Conditioner ( 100 kVA)
APS-33120	Solid State Power Conditioner ( 120 kVA)
APS-33150	Solid State Power Conditioner ( 150 kVA)
APS-33180	Solid State Power Conditioner ( 180 kVA)
APS-33240	Solid State Power Conditioner ( 240 kVA)
APS-33300	Solid State Power Conditioner ( 300 kVA)



# Inductive Automatic Voltage Regulator

CE



APH series is a cost-effective inductive type automatic voltage regulator with output power up to 600kVA and strong overload capability to sustain impulse loads. These features make it widely applied in motor industries, CNC machines, transportation system, production equipment, and factory for power conditioning purpose.

Applying electromagnetic inductive design, APH is different from conventional voltage regulators that it does not have carbon brush, which makes it easier to maintain. As the grid's voltage fluctuates, APH uses the internal rotation of the motor to adjust the angle of compensation transformer to step up or step down the output voltage and stabilize the voltage to the load.

APH series are three-phase voltage regulators with output power range from 10kVA to 1000kVA, input voltage range of -13% to +18% (or optional -22% to +30%), and voltage regulation of  $\pm 2\%$ . The APH units have strong overload capability for different types of loads.

## Product Features

- Inductive type voltage regulator without carbon brush for easy maintenance.
- High output power range: three-phase 10-600kVA.
- High overload capability: 125% for 40minutes, 150% for 20 minutes, 175% for 10minutes and 200% for 5 minutes.
- Sustainable for impulse load, capable to sustain surge, non-linear load.
- Comprehensive protection includes over voltage, over current, over load, input under voltage and over temperature.
- High cost-effective for high power conditioning.
- Optional surge protection with different levels.

## Output Power

**10kVA~600kVA**

## Applications

- Aerospace & Defense
- Industrial Power Supply
- IT / SMT Production Line
- Medical Industry
- Transportation
- Communication Industry

## QR Code



Product Info.

## SPECIFICATIONS

### APH Series Three-Phase Output (10kVA - 75kVA)

Model	APH-330010	APH-330015	APH-330020	APH-330030	APH-330045	APH-330060	APH-330075
Capacity	10kVA	15kVA	20kVA	30kVA	45kVA	60kVA	75kVA
<b>AC INPUT</b>							
Phase	3 Ø 3W+G ( Δ ) / 3 Ø 4W+G ( Y ) (option)						
Voltage <sup>*1</sup>	220V / 380V						
Voltage Range	-13% ~ +17% / -22% ~ +30% (option)						
Frequency	47Hz ~ 63Hz						
<b>AC OUTPUT</b>							
Phase	3 Ø 3W+G ( Δ ) / 3 Ø 4W+G ( Y ) (option)						
Voltage <sup>*2</sup>	220V / 380V / 230V / 400V / 240V / 415V (option)						
Accuracy	± 2% ( ± 2% ~ ± 5% adjustable )						
Frequency	47 -63Hz						
Power Factor	± 0.7 ~ 1						
<b>METER &amp; INDICATOR</b>							
Voltmeter	LED digital meter for voltage of each phase; Accuracy ≤ 1%						
Ammeter	LED digital meter for voltage of each phase; Accuracy ≤ 1%						
Error	Error code and message available when a abnormal condition occurs						
LED Indicator	NORMAL.ABNORMAL.OVER VOLTAGE.UNDER VOLTAGE.OVER LOAD.AUTO / MANUAL Mode						
<b>PROTECTION</b>							
Over/Under Voltage	Sound-light alarm with output shutdown						
Missing Phase	Sound-light alarm with output shutdown						
Incorrect Phase Sequence	Sound-light alarm with output shutdown						
Bypass Switch	Manual bypass switch (option)						
Over Load	Sound-light alarm						
<b>GENERAL</b>							
Efficiency	≥ 97% ( Full load )						
Voltage Modulation	≥ 4V/S						
Total Harmonic Distortion(THD)	Additional distortion ≤ 1%						
HMI	LED display for meter and auto/manual voltage adjustment						
Overload Capacity	125%- 4min , 150%- 20min , 175% - 10min , 200% - 5min						
Audible Noise (1 meter)	≤ 55dB						
Cooling System	Fan cooling						
Connections	Terminal						
Environment	Operational Temperature : -5°C ~ 40°C , Humidity : < 95% ( Non-condensing ) , Altitude : 1000m						
Dimension (H x W x D)	750 x 400 x 550 mm			950 x 450 x 600 mm			
	29.52 x 15.74 x 21.65 inch			37.4 x 17.71 x 23.62 inch			
Weight	150kg	160kg	165kg	240kg	260kg	280kg	295kg
	330.6lbs	352.7lbs	363.7lbs	529.1lbs	573.2lbs	617.2lbs	650.3lbs

\*1 Please contact for other voltage specification.

\*2 The rated input voltage is 380V.

\* all specifications are subject to change without notice.

## SPECIFICATIONS

### APH Series Three-Phase Output (100kVA - 600kVA)

Model	APH-330100	APH-330125	APH-330150	APH-330200	APH-330250	APH-330300	APH-330350	APH-330400	APH-330500	APH-330600	
Capacity	100kVA	125kVA	150kVA	200kVA	250kVA	300kVA	350kVA	400kVA	500kVA	600kVA	
<b>AC INPUT</b>											
Phase	3 Ø 3W+G ( Δ ) / 3 Ø 4W+G ( Y ) (option)										
Voltage <sup>*1</sup>	220V / 380V										
Voltage Range	-13% ~ +17% / -22% ~ +30% (option)										
Frequency	47Hz ~ 63Hz										
Power Factor	0.95 ~ 1										
<b>AC OUTPUT</b>											
Phase	3 Ø 3W+G ( Δ ) / 3 Ø 4W+G ( Y ) (option)										
Voltage <sup>*2</sup>	220V / 380V / 230V / 400V / 240V / 415V (option)										
Accuracy	± 2% ( ±2% ~ ±5% Adjustable )										
Frequency	47 -63Hz										
Power Factor	± 0.7 ~ 1										
<b>METER &amp; INDICATOR</b>											
Voltmeter	LED digital meter for voltage of each phase; Accuracy ≤ 1%										
Ammeter	LED digital meter for voltage of each phase; Accuracy ≤ 1%										
Error	Error code and message available when a abnormal condition occurs										
LED Indicator	NORMAL.ABNORMAL.OVER VOLTAGE.UNDER VOLTAGE.OVER LOAD.AUTO / MANUAL Mode										
<b>PROTECTION</b>											
Over/Under Voltage	Sound-light alarm with output shutdown										
Missing Phase	Sound-light alarm with output shutdown										
Incorrect Phase Sequence	Sound-light alarm with output shutdown										
Bypass Switch	Manual bypass switch (option)										
Over Load	Sound-light alarm										
<b>GENERAL</b>											
Efficiency	≥ 97% ( Full load )										
Voltage Modulation	≥ 4V/S										
Total Harmonic Distortion(THD)	Additional distortion ≤ 1%										
HMI	LED display for meter and auto/manual voltage adjustment										
Overload Capacity	125%- 4min · 150%- 20min · 175% - 10min · 200% - 5min										
Audible Noise (1meter)	≤ 55dB										
Cooling System	Fan cooling										
Connections	Terminal					Copper bar					
Dimension (H x W x D)	600 x 900 x 1500 mm					600 x 1100 x 1800 mm					-
	23.6 x 35.4 x 59 inch					23.6 x 43.3 x 70.9 inch					-

\*1 Please contact for other voltage specification.

\*2 The rated input voltage is 380V.

\* all specifications are subject to change without notice.

## SPECIFICATIONS

### APH Series Three-Phase Output (100kVA - 600kVA)

Model	APH-330100	APH-330125	APH-330150	APH-330200	APH-330250	APH-330300	APH-330350	APH-330400	APH-330500	APH-330600	
Capacity	100kVA	125kVA	150kVA	200kVA	250kVA	300kVA	350kVA	400kVA	500kVA	600kVA	
<b>AC INPUT</b>											
Phase	3 Ø 3W+G ( Δ ) / 3 Ø 4W+G ( Υ ) (option)										
Voltage <sup>*1</sup>	220V / 380V										
Voltage Range	-13% - +17% / -22% - 30% (option)										
Frequency	47Hz ~ 63Hz										
<b>AC OUTPUT</b>											
Phase	3 Ø 3W+G ( Δ ) / 3 Ø 4W+G ( Υ ) (option)										
Voltage <sup>*2</sup>	220V / 380V / 230V / 400V / 240V / 415V (option)										
Accuracy	± 2% ( ±2% ~ ±5% adjustable )										
Power Factor	± 0.7 ~ 1										
Incorrect Phase Sequence	≥ 4V/S										
Overload Capacity	125% - 40min , 150% - 20min · 175% - 10min · 200% - 5min										
THD	Additional distortion ≤ 1%										
Efficiency	≥ 97%( Full load )										
<b>USER INTERFACE</b>											
HMI	LCD & Light,button										
Alarm	Sound-light alarm										
Communication	ISO RS-485										
Monitor	For monitoring only										
<b>GENERAL</b>											
PROTECTION	Missing Phase / Incorrect Phase Sequence · Sound-light alarm										
	Over/Under Voltage · Sound-light alarm										
	Over Load · Sound-light alarm										
	Over Heating · Sound-light alarm										
	Redundant Circuit Control										
	Event History Inside Memory for up to 200 events										
Measurement	Input line Voltage,Input Frequency,Line Voltage,Phase Voltage,Current,Frequency,VA,W,PF,Load% and ambient temperature										
Environment	Operational Temperature : -5°C ~ 40°C · Humidity : < 95% (Non-condensing) · Altitude : 1000 m										
Cooling System	Fan cooling										
Audible Noise(1 meter)	≤ 50dB	≤ 55dB				≤ 50dB		≤ 60dB			
Optional	Autotransformer or Isolation Transformer										
	Surge Protection										
Dimension (HxWxD)	600 x 900 x 1500 mm				600 x 1100 x 1800 mm				-		
	23.6 x 35.4 x 59 inch				23.6 x 43.3 x 70.9 inch				-		

\*1 Please contact for other voltage specification.

\*2 The rated input voltage is 380V.

\* all specifications are subject to change without notice.









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