

AFV-P series

Preen®

High Performance Programmable AC Power Source



only
2U/5U



Intuitive Touch Screen HMI



▼ Output Frequency up to
15-1000Hz

▼ Multiple Simulation Functions

▼ Fast Response Time: $\leq 300\mu\text{s}$

▼ AC Source with DC output
AC & DC

▼ 600VA to 5kVA only in 2U or 5U

▼ Low THD: $\leq 0.3\%$ at $<100\text{Hz}$

▼ Transient Generation
for Disturbance Tests

▼ Complete Interface Options:
RS232 / RS485 / Ethernet / USB / GPIB

▼ User-friendly Control Software

AC POWER CORP

AC + DC
Power Solutions

AFV-P series



High Performance Programmable AC Power Source

Preen AFV-P series is a programmable AC power supply featuring DC output capability and precision measurement. This compact power source comes in four power levels, 600VA, 1250VA, 2500VA and 5000VA, providing clean power with distortion less than 0.3% at 50/60Hz. It delivers output voltage 0-310VAC and frequency 40-500 Hz (opt. 15-1000 Hz). The AFV-P is ideal for commercial, defense and aerospace test applications from design verification, quality assurance, ATE to mass production.

With a total of 1200 Steps in 50 built-in Memories, users can easily use the AFV-P for testing various voltage and frequency combinations to simulate global AC power conditions or by adding Transient feature, extreme grid fluctuations, such as surge, sag, spikes and dropouts, can easily be configured. Having the state-of-the-art PWM technology, the AFV-P series is capable of delivering up to 4.5 times of peak current from its max. rated current that makes it ideal for inrush current test. Users can define the starting and ending phase angle from 0 to 360 degrees.

The 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. Users can also remotely control the AC source via standard interfaces of USB, RS232/RS485, LAN or optional GPIB and analog control. Free control software and LabVIEW driver are available for easy programming and remote control.

Compact & High Power Density

2U/5U 2U: 600VA / 1250VA / 2500VA; 5U: 5000VA

Ideal for Inrush Current Applications

4.5 Capable of delivering up to 4.5 times of peak current from RMS current
peak/rms

Low Distortion (THD)

≤0.3% THD is only <0.3% when output is <100Hz

AC Source with DC Output

DC Extend the applications to DC testing

Wide Output Voltage & Frequency

0-310V 15-1000Hz

Pre-compliance Tests

IEC-61000-4-11 AFV-P is an ideal solution for pre-

compliance tests.

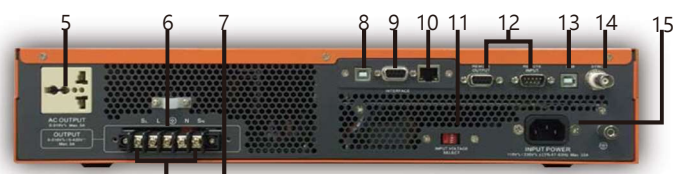
PANEL DESCRIPTION

- | | |
|-----------------------|----------------------------|
| 1. Power Switch | 10. RS232 / RS485 |
| 2. Touch Screen HMI | 11. Input Voltage Selector |
| 3. Rotary Knob | 12. PLC Remote In/Out |
| 4. Output / Reset | 13. USB Interface |
| 5. AC Output Socket | (for firmware update) |
| 6. Output Terminals | 14. Sync. Singal I/O |
| 7. Remote Sense | 15. Input Socket * |
| 8. USB Interface | |
| 9. Ethernet Interface | |

Front Panel Overview



Rear Panel Overview

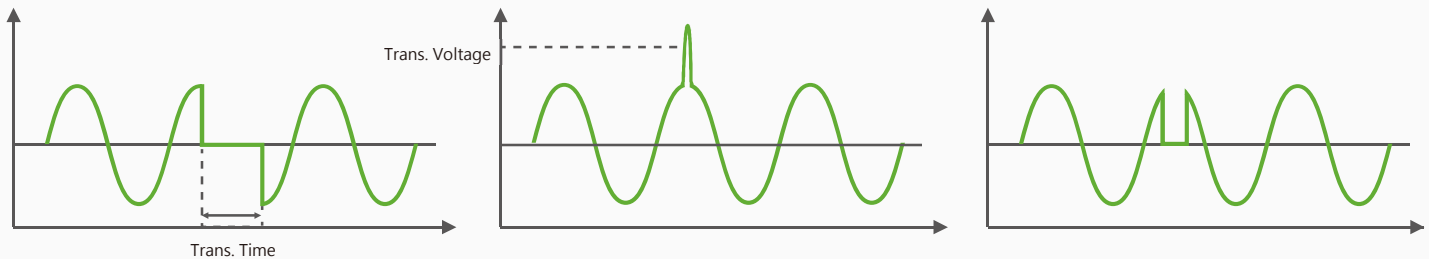


* AFV-P-1250, AFV-P-2500, AFV-P-5000 have input terminals.

Maximize your devices' reliability with Preen's AFV-P series programmable AC source.



Programmable Simulations: Transient Feature



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.

Complete 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 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.

Intuitive Touch Screen Control



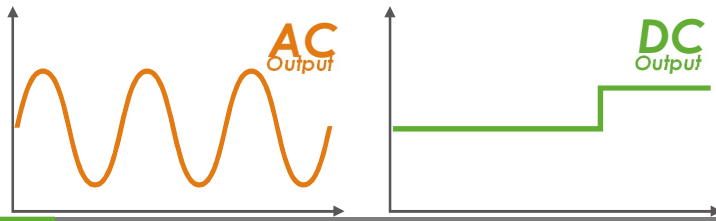
To create a complex sequence on the local control HMI is no longer a difficult task for AFV-P series. The 5 inches touch screen provides users a clear measurement display and an easy set up for parameters. AFV-P is also equipped with a rotary knob for better fine tune adjustments. Touch screen lock is available to avoid maloperation.

Wide Applications

AFV-P is ideal for power adapters testing by varying frequency and voltage during manufacturing test to represent different real-world grid conditions. AFV-P's output frequency can go up to 1000Hz, which is suitable to test avionic devices with 400Hz or 800Hz. The power line disturbance features, such as Step, Ramp, or Transient, allow the user to build a wide range of waveforms in a sequence to simulate grid faults and fluctuations, and these can also be easily configured by control software of AFV-P.



Key Features of AFV-P Series



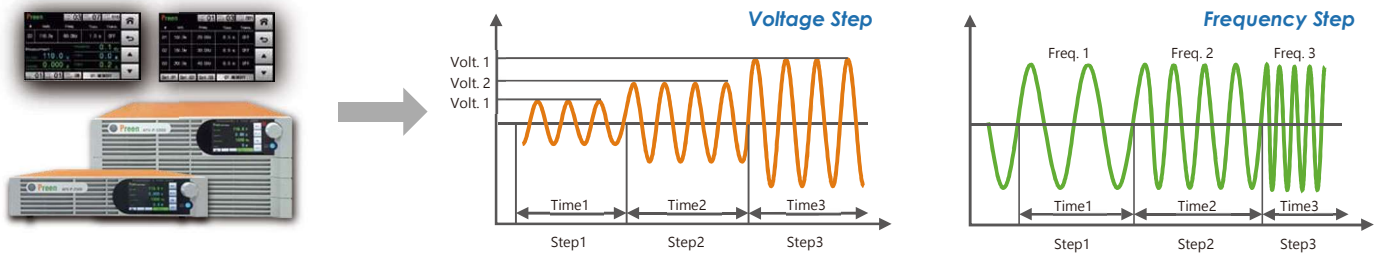
AC Output & DC Output

The AFV-P series not only provide AC output to simulate real-world grid conditions, but also can generate DC output based on user's settings. This DC output feature extends the applications to DC component testing and help user to effectively reduce the cost of purchasing another DC power supply. It is a ideal power testing solution for R&D and certification laboratories.

Programmable Simulation Functions: Step & Ramp Features

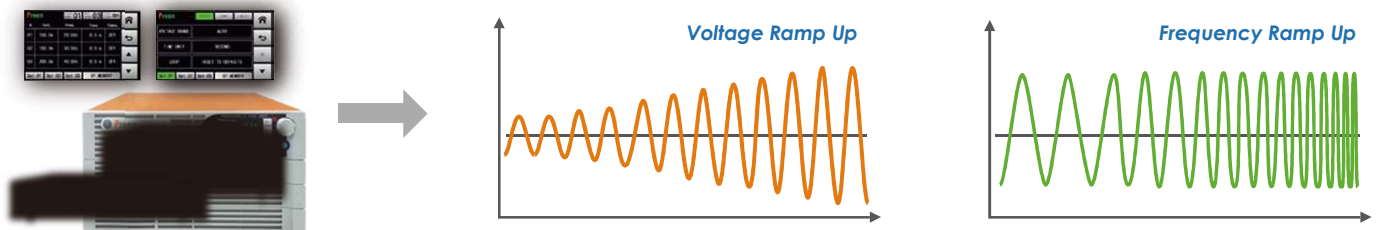
Step Feature

Through AFV-P's intuitive programmable feature settings page, user can create complex sequences by linking up to 1200 self-defined Steps in 50 Memories. Each Step's voltage, frequency and hold time can be defined independently, and users can set start Step and end Step to simulate grid voltage fluctuations or ON/OFF test. Because of its fast response time, AFV-P can finish the Step change in less than a cycle and provide user a reliably AC power simulation.



Ramp Feature

Ramp feature allows users to define slew rate of voltage and frequency at each Step. Users can set the rise/fall time, unit of time and voltage/frequency change between Steps to create a wide range of waveform. Additionally, Ramp feature can also effectively reduce the inrush current during motor or compressor startup by decreasing the slew rate, and save the cost on selecting an AC source with much higher output power for inductive-type loads.



Over Current Foldback

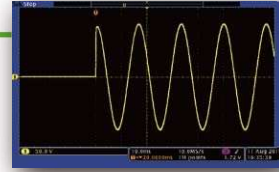
When it comes to over current, AFV-P series offers more than just output shutdown protection. Over current foldback feature enables AFV-P to maintain the output current at the set current limit value and decrease the output voltage as the load impedance increases. It is an extended protection feature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

Remote Sense Feature

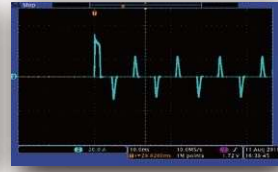
AFV-P's remote sensing feature provides voltage drop compensation when it comes to output voltage decrease due to the cable length. AFV-P can automatically correct the reduced voltage and deliver accurate voltage to ensure stable voltage conditions.

Ideal for High Inrush Current EUT & Start / End Angle Setting

Power Supply Testing

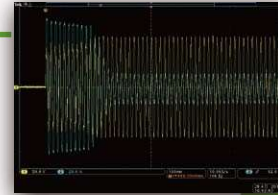


90° Start Angle



Inrush Current for 90° Start Angle

Motor Type Testing

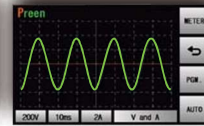


Capable to sustain high start inrush current generated by motor or compressor.

The AFV-P series can provide up to 4.5 times of peak current from its maximum rated current, which is ideal for inrush current test, such as electric motor test. Additionally, the AFV-P series allows user to set the start angle/end angle for the product output, which is suitable for testing switching power supplies.

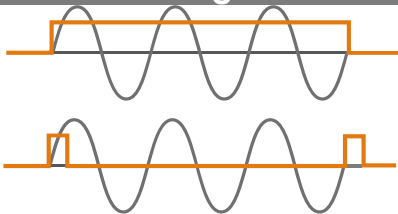
Waveform Display & Comprehensive Measurement Capability

Through built-in measurement circuitries and advanced firmware design, Preen AFV-P series is capable to provide output waveform display and precise measurements, which help users to have a visual image of waveform and easily browse the readings of RMS voltage, output frequency, RMS current, peak current, apparent power (VA), active power (W), reactive power (VAR), power factor and crest factor.



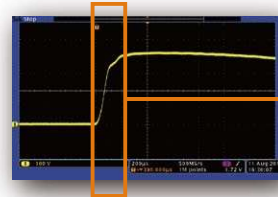
Additionally, the measurement report can be exported via AFV-P's control software to better analyze or track EUT's performance.

Synchronized Signal



5V DC Synchronized Signal

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



Measurement
<300 μ s

For tests like sags, surges, dropouts, or spikes, slew rate is a critical factor. AFV-P series is a high performance AC source that has a high slew rate of less than 300 μ s from 0~90% output voltage. It allows users to do pre-compliance test such as IEC-61000-4-11 or MIL-STD-704F.

Fast Response & High Stability

Distributed by: Reliant EMC LLC,
3311 Lewis Ave, Signal Hill CA 90755, 408-916-5750,
www.reliantemc.com

SPECIFICATIONS

Model		AFV-P-600		AFV-P-1250		AFV-P-2500		AFV-P-5000		
INPUT										
Phase		Single								
Voltage		98~132VAC / 196~264VAC				196~264VAC or 175~235VAC				
Frequency		47 Hz - 63 Hz (opt. 400Hz)								
Max. Current		10A		20A		20A		40A		
OUTPUT										
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 Resolution		0.1Vrms								
Frequency		40-500Hz (opt. 15-1000Hz)								
Frequency Resolution		0.1Hz, 1Hz at >100Hz								
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		≤ 300uS								
Crest Factor		≥ 3								
Inrush Current		≥ 4.5 times of max. output current (r.m.s)								
DC OUTPUT										
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%						≤ 0.24%		
MEASUREMENT										
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		Hi: 0.05A - 48.00A		
Current Accuracy		±(1% of reading + 5 counts) at 40.0 - 500Hz, ±(1% of reading + 10 counts) at 501 - 1000Hz *2								
Current Resolution		Hi: 0.01A / Lo: 0.001A						Hi: 0.01A		
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		Hi: 0 - 4800W		
Power Accuracy		±(2% of reading + 10 counts) @ 40 - 500Hz, ±(2% of reading + 15 counts) @ 501 - 1000Hz								
Power Resolution		Hi: 1W / Lo: 0.1W						Hi: 1W		
GENERAL										
Efficiency		≥ 77% at max. power		≥ 80% at max. power						
Protection		OVP, OCP, LVP, OPP, OTP, RCP, Fan Fail								
Remote Interface		Standard: RS232 / RS485 / Ethernet / USB / PLC Remote In&Out, Optional: GPIB / Analog Control								
Over Current Foldback		CC Mode (Constant Current)								
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)		89 x 442 x 450 mm				89 x 442 x 600 mm		222.5 x 442 x 600 mm		
Weight		approx. 16 kg		approx. 20 kg		approx. 31.3 kg		approx. 70 kg		

*1 All specifications are subject to change without notice.

*2 AFV-P-2500 is ±(1% FS + 5 counts).



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