

AFV-P series

Preen®

High Performance Programmable AC Power Source



Intuitive Touch Screen HMI



▼ Output Frequency up to
15-1000Hz

▼ Power Line Simulations:
Step & Ramp Features

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

▼ AC Source with DC output
AC & DC

▼ 600VA to 5kVA only in 2U or 4U

▼ Low Distortion: THD $\leq 0.3-0.8\%$

▼ Transient Generation
for Disturbance Tests

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

▼ User-friendly Control Software

AFV-P series



High Performance Programmable AC Power Source

Preen's AFV-P series is a programmable AC power source with stable DC output and precise measurement capability. This compact product comes in four power levels: 600VA, 1250VA, 2500VA and 5000VA, which provides clean power with distortion less than 0.3% at 50/60Hz. It delivers continuously adjustable output voltage 0-310VAC and output frequency 40-500Hz (opt. 15-1000Hz). Accordingly, AFV-P series is ideal for industries of commercial, defense and aerospace from design verification, quality assurance, ATE to mass production.

AFV-P series provides comprehensive programmable features (Step, Ramp and Transient features) and a total of 1200 Steps in 50 built-in Memory Sets, so that users now can easily configure various voltage and frequency combinations for simulating global AC power conditions, such as surge, sag, spikes and dropouts. With the advanced PWM technology, the AFV-P series is capable of delivering up to 4.5 times of peak current from its rated current, which is suitable for motor-type test with inrush current issue. Additionally, user can set the start/end angle of the product output from 0° to 359°.

AFV-P series includes measurement capability of RMS voltage, output frequency, RMS current, true power, apparent power, reactive power, power factor and crest factor. Its 5" touch screen with rotary knob eases local operation to quickly set the product output. Its complete remote interfaces and specialized control software offer an easy programming manner to remotely control the product.

- **Compact & High Power Density**

2U/4U 2U: 600VA / 1250VA / 2500VA
4U: 5000VA

- **Ideal for Inrush Current Applications**

Capable of delivering up to **4.5 times** of peak current from RMS current

- **Low Distortion (THD)**

≤0.3% Less than 0.3% when output frequency is at 50/60Hz

- **AC Source with DC Output**

DC Available for AC & DC testing applications

- **Wide Output Voltage & Frequency**

0-310V **15-1000Hz**

- **Pre-compliance Tests**

IEC-61000-4-11 An ideal pre-compliance solution for IEC-61000-4-11

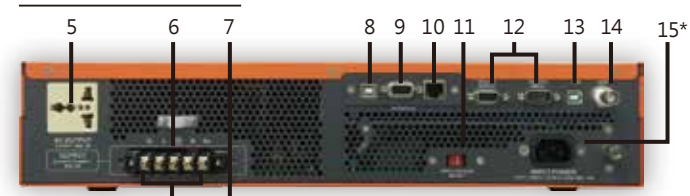
PANEL DESCRIPTION

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

Front Panel Overview



Rear Panel Overview

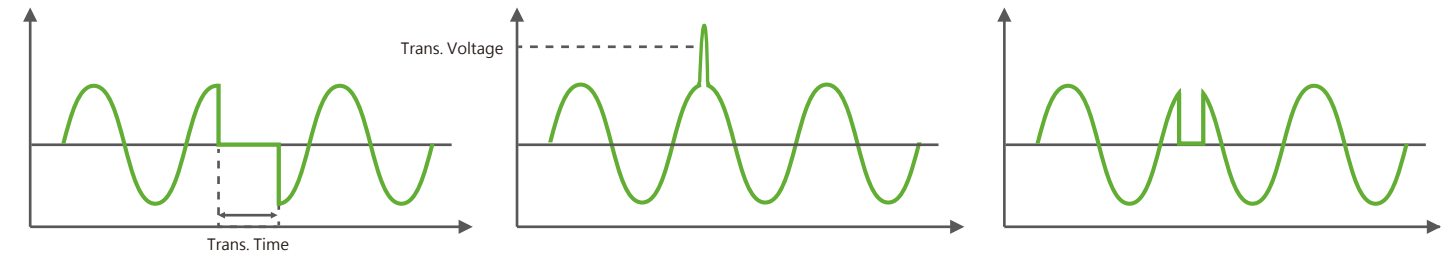


*For AFV-P-1250, AFV-P-2500 and AFV-P-5000, the input socket is replaced by the input terminals.

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



Programmable Simulations: Transient Feature



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

Complete Remote Interfaces & Control Software



AFV-P series is equipped with standard interfaces of USB, RS232, RS485 and Ethernet, so users no longer need to spend extra on interface card. Only GPIB and Analog Control are optional interfaces. AFV-P series also provides specialized control software with complete programming features and LabView driver, which allows easy control without further 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. Its 5" touch screen provides users a clear measurement display and an easy set up for product output. AFV-P series is also equipped with a rotary knob for better fine tune adjustments. Additionally, touch screen lock is available to avoid maloperation.

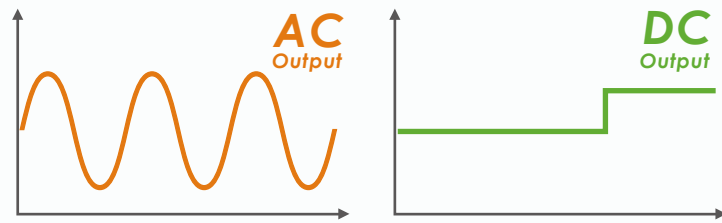
Wide Applications

AFV-P series is ideal for power adapters test by varying output voltage and frequency to simulate different real-world grid conditions. Output frequency of AFV-P series can go up to 1000Hz, which is suitable for avionic test with 400Hz or 800Hz. With the comprehensive programmable features, such as Step, Ramp and Transient features, users are allowed to build a wide range of output waveforms in a sequence, so as to simulated grid faults and fluctuations.



Key Features of AFV-P Series

AC Output & DC Output

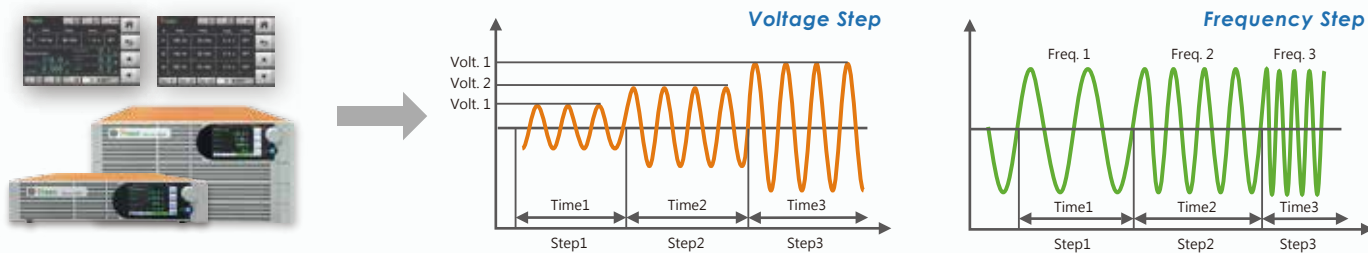


AFV-P series can selectively generate AC output or DC output according to user-defined settings. This feature not only extends applications to AC & DC component test, but allows effectively cost reduction of purchasing another DC source. Therefore, it is an ideal power testing solution for R&D unit and certification laboratories with limited space.

Programmable Simulations: Step & Ramp Features

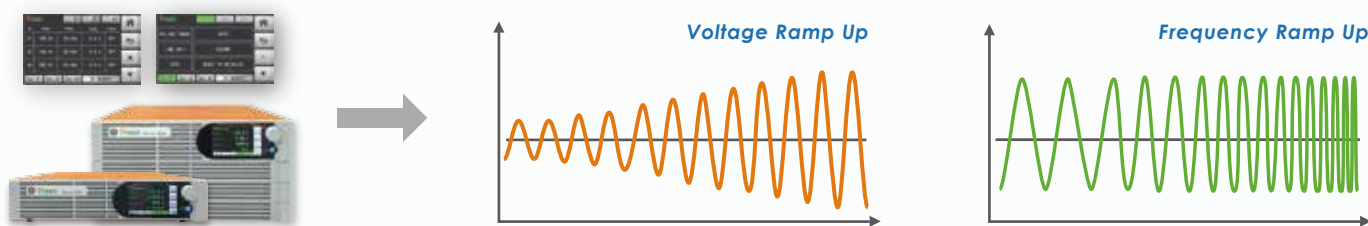
Step Feature

With the Step feature, users can create complex sequences by linking up to 1200 self-defined Steps in 50 Memory Sets. Voltage, frequency and dwell time for each Step can be defined independently, and users can set start/end number of Step Loop to cyclically perform the Step feature, so as to simulate grid voltage fluctuations or ON/OFF test. Because of its fast response time, AFV-P series can perform Step change in less than a cycle and provide a reliable AC power simulations.



Ramp Feature

With the Ramp feature, users can set Ramp time unit, Ramp time, voltage and frequency per unit, so as to define slew rate of voltage and frequency for each Step, then the product output will change according to user-defined slew rate. Additionally, this feature can effectively reduce the inrush current, 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 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.

Remote Sense Feature

With the remote sense feature, voltage drop compensation is available when it comes to output voltage decrease due to the cable length. In other words, AFV-P series 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



Motor Type Testing



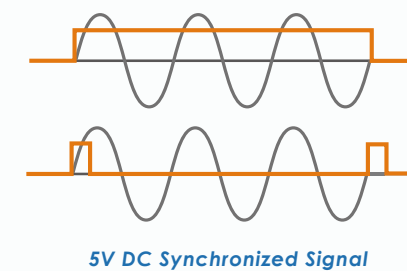
AFV-P series can deliver up to 4.5 times of peak current from its RMS current, and it can control the product output according to user-defined start/end angle, so it is suitable for testing switching power supplies with high inrush current issue. Additionally, it is able to provide a customized 150% overload capability for starting up motor-type DUT, such as electric motor.

Waveform Display & Comprehensive Measurement Capability

With the advanced measurement circuitry and firmware design, AFV-P series is capable of providing output waveform display and precise measurement readings, so that user can easily check the readings of RMS voltage, output frequency, RMS current, true power, apparent power, reactive power, power factor and crest factor according to the product output. Additionally, all measurement readings can be exported as a report via the control software for analyzing and tracking EUT performance.

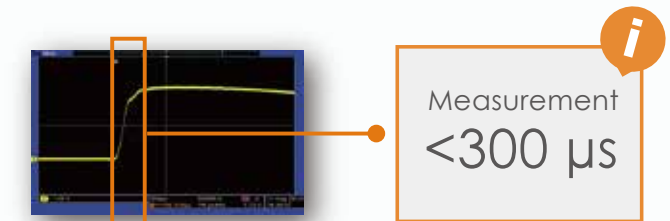


Synchronized Signal



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



To simulate power line disturbance, such as sags, surges, dropouts and spikes, response time has always been a critical factor. AFV-P series is a high performance AC source with fast response time less than 300 μs , and users are allowed to do pre-compliance tests accordingly, such as IEC-61000-4-11.

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 - 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) | 15A / 7.5A | 30A / 15A | 60A / 30A | 120A / 60A | |
| 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 | | | | |
| 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 | 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 | | | | |
| Weight | approx. 16 kg | approx. 20 kg | approx. 31.3 kg | approx. 61.5 kg | |

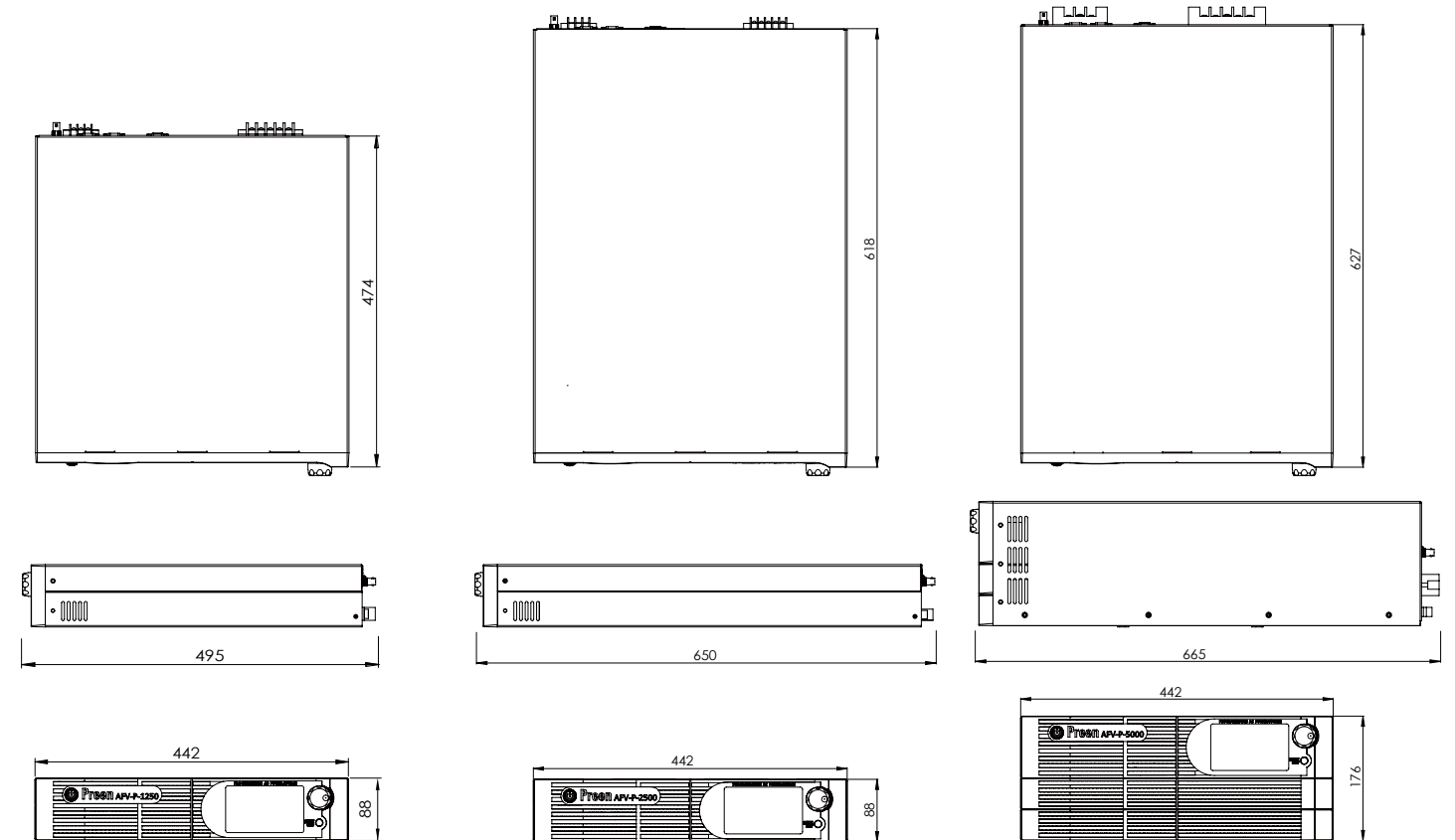
Ordering Information

| Model Number | Description |
|--------------|--|
| AFV-P-600A | Programmable AC Source 600VA/0-310VAC/15-1000Hz |
| AFV-P-600B | Programmable AC Source 600VA/0-310VAC/40-500Hz |
| AFV-P-1250A | Programmable AC Source 1250VA/0-310VAC/15-1000Hz |
| AFV-P-1250B | Programmable AC Source 1250VA/0-310VAC/40-500Hz |
| AFV-P-2500A | Programmable AC Source 2500VA/0-310VAC/15-1000Hz |
| AFV-P-2500B | Programmable AC Source 2500VA/0-310VAC/40-500Hz |
| AFV-P-5000A | Programmable AC Source 5000VA/0-310VAC/15-1000Hz |
| AFV-P-5000B | Programmable AC Source 5000VA/0-310VAC/40-500Hz |

Optional Selections

| Accessories |
|---|
| GPIB Interface Board |
| Analog Interface Board |
| RS232 Cable (1.8m/female to male) |
| Input Power Cord (30m/5.5m2/20A; 30m/14mm2/40A) |
| 0-600 High Voltage Module |
| 150% Overload Capability for 1 Second |

Dimensions



Unit: mm

AFV-P-600/1250

AFV-P-2500

AFV-P-5000

*1 All specifications are subject to change without notice. *2 AFV-P-2500 is ±(1% FS + 5 counts).

AC POWER CORP.

Specialized in power electronics, Preen (AC Power Corp.) has been developing products based on its core technology of Power Conversion. Product Line includes AC Power Sources, DC Power Supplies, Power Supplies for Defense Industry, Renewable Energy Simulators, Line Conditioners and UPS. Boasting one of the broadest product line in the industries, Preen specializes in High Power Source and has developed AC power source up to 2MVA with high power density.

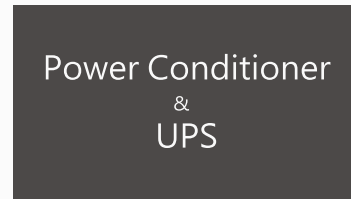
Product Lines



- Up to 1000Hz
- 500VA ~ 2,000kVA
- Regenerative Function



- Up to 2,000V
- 2kW ~ 300kW
- Fast Response & Low Ripple



- Solid State & Inductive types
- Up to 1500kVA

Applications



Renewable Energy



Laboratory



Aircraft Manufacturing



Transport System



EMC Chamber



Medical Equipment



Control Room/ Data Center



Electronics



ATE System



Airport Apron / Hangar



Home Appliance



Motor / Engine



Communication Equipment



Military Aircraft / Helicopter



Navy System



Defense Equipment

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