

AFV-P series

# High Performance Programmable AC Power Source

600VA~5kVA

CE RoHS Compliant



- Compact and high power density: 600VA to 2500VA is only 2U and 5000VA is 4U.
- AC source with DC output: extend the applications to DC testing.
- Wide output voltage of 0-310V and output frequency of 15-1000Hz.
- THD is only under 0.3 % when output power is under 100 Hz.
- Ideal for inrush current: capable to deliver up to 4.5 times of peak current.
- Start/End phase angle: users can define the start and end phase angle from 0° to 360°.
- Current foldback feature: have output current maintain constant based on the load which output voltage varies.
- STEP and RAMP function: ideal for voltage and frequency variation tests and effectively reduces the inrush current during motor startup.
- TRANSIENT generation provides users an easy setup for power line disturbance (PLD) simulation.
- Users can quickly set and view the parameters via 5 inches touch panel or rotary knob, which provides an easy operation and measurement display.
- Free control software and LabVIEW driver: allow users to easily program and remote control.
- High slew rate: less than 300  $\mu$ s from 0~90% output voltage.

## Interfaces

Ethernet

USB

RS-232

RS-485

GPIB

Analog

● Standard

● Option

## Applications

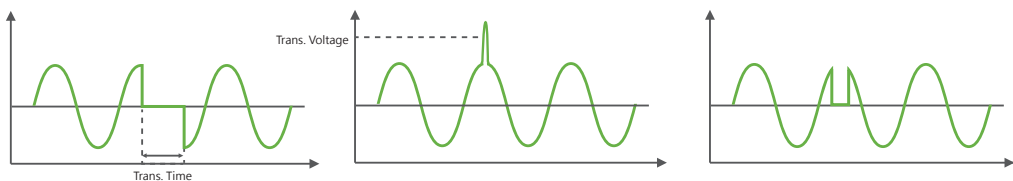
- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- Electric Vehicles
- Motor & Compressor
- IT / SMT Production Line
- Aerospace & Defense
- Transportation

## AFV-P Series

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 50/60 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 - 360 degrees and they can also remotely control AFV-P via standard interfaces. Free control software and LabVIEW driver are available for easy programming and remote control.

Programmable Simulations: Transient Feature

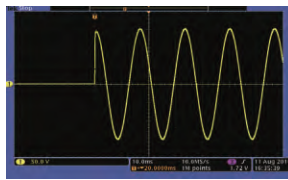


Through the Transient feature, user can have more control over the waveform by inserting disturbance at user-defined locations with user-defined drop/rise range. This is a useful feature to simulate different pre-compliance tests and various types of power line disturbance, such as surge, sag, spike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

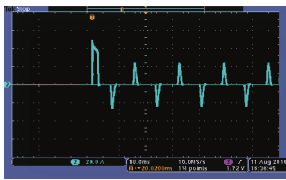
Ideal for High Inrush Current EUT & Start / End Angle Setting



Power Supply Testing



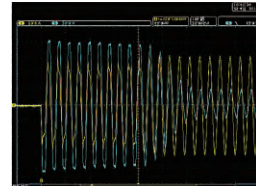
90° Start Angle



Inrush Current for 90° Start Angle



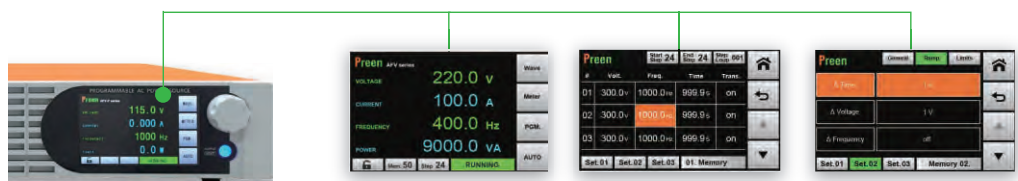
Motor Type Testing



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.

Intuitive Touch Screen Control



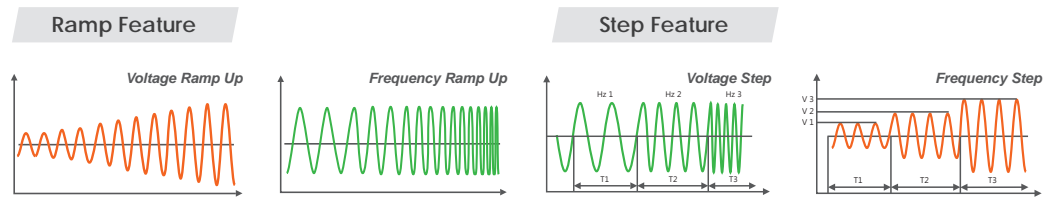
To create a complex sequence on the HMI is no longer a difficult task for AFV-P series. The 5 inches touch screen provides users a clear display and an easy set up. AFV-P is also equipped with a rotary knob for better fine tune adjustments.

## Multiple Communication Interfaces & Control Software



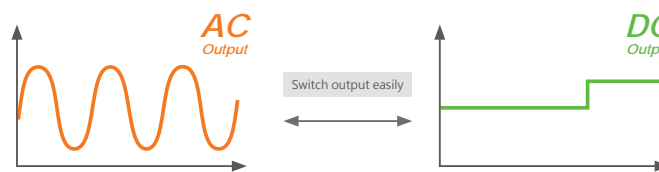
The AFV-P series is equipped with communication interfaces of USB, Ethernet, RS232, and RS485, so users no longer need to spend extra on remote interface card. Only GPIB and analog are optional interfaces. AFV-P also provides control software with comprehensive programming features and LabView driver,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

## Programmable Simulation Functions: Step & Ramp Features



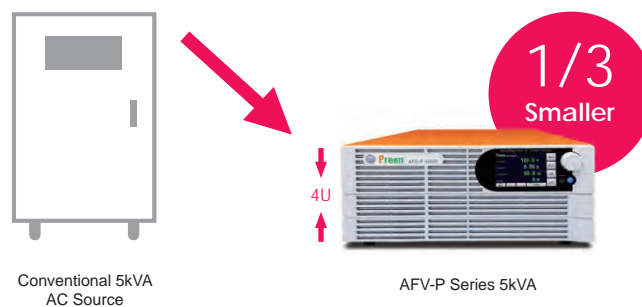
Ramp and Step feature allows users to define slew rate of voltage and frequency at each Step. Users can set the rise/fall time, time unit and voltage/frequency change between Steps to create a wide range of waveform. Additionally, Ramp feature can effectively reduce the inrush current by simulating soft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

## AC Output & DC Output



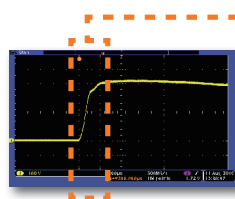
AFV-P series not only provide AC output to simulate real world grid conditions, but also can generate DC output based on user's settings. It is an ideal cost-effective power testing solution for R&D and certification laboratories.

## Compact & High Power Density



AFV-P series has the industry-leading power density and rack-mount type design for east system integration. 2500VA only comes in 2U and 5000VA is only in 4U.

## Fast Response & High Stability



Response Time  
**< 300  $\mu$ s**

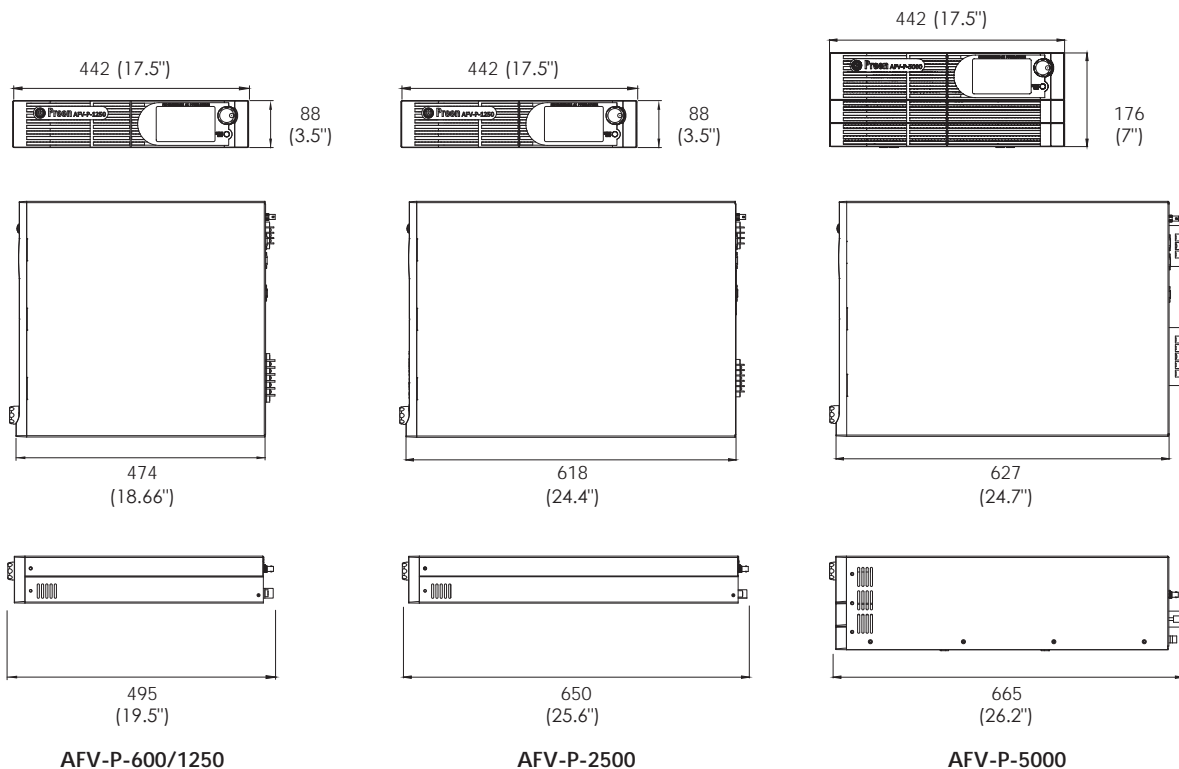
THD  
**< 0.3%**

Output Frequency  
**15-1000HZ**

AFV-P series is a high performance AC 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.

## DIMENSIONS

Unit : mm ( inch )



## PANEL DESCRIPTION

1. Power Switch
2. Touch Screen HMI
3. Rotary Knob
4. Output / Reset
5. AC Output Socket
6. Output Terminals
7. Remote Sense
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. Signal 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	Single				
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 time 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%		≤ 0.24%		
<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		Hi: 0.01A		
Peak Current Range	0 - 45A		0 - 90A		
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 ) @ 40 - 500Hz, ± ( 2% of reading + 15 counts ) @ 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 , UVP , 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		31.3kg		
	35.3lbs		69lbs		
	20kg		61.5kg		
	44.1lbs		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/310VAC/15-1000Hz )
AFV-P-1250A	High Performance Programmable AC Power Source( 1250VA/310VAC/15-1000Hz )
AFV-P-2500A	High Performance Programmable AC Power Source( 2500VA/310VAC/15-1000Hz )
AFV-P-5000A	High Performance Programmable AC Power Source( 5000VA/310VAC/15-1000Hz )
AFV-P-600B	High Performance Programmable AC Power Source( 600VA/310VAC/40-500Hz )
AFV-P-1250B	High Performance Programmable AC Power Source( 1250VA/310VAC/40-500Hz )
AFV-P-2500B	High Performance Programmable AC Power Source( 2500VA/310VAC/40-500Hz )
AFV-P-5000B	High Performance Programmable AC Power Source( 5000VA/310VAC/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-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% )