

AFV-P series

Preen®

High Performance Programmable AC Power Source

only in
2U/5U



▼ Output Frequency up to
15-1000Hz

▼ Transient Generation for
Disturbance Tests

▼ 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: $\leq 0.3\% - 0.8\%$

▼ Multiple Simulation
Functions

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

▼ Intuitive Touch Screen HMI

High Performance Programmable AC Power Source

Preen's AFV-P Series is a programmable AC power source with DC output and precision measurements. 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. The AFV-P series can deliver output voltage from 0 to 310VAC and frequency from 40 to 500Hz (Opt. 15 to 1000Hz). It is ideal for commercial, defense and aerospace test applications from design verification, quality assurance, ATE to mass production.

Total 1200 test steps in 50 built-in memories and transient generation functions provide simulation of voltage variations, surges, drops and frequency disturbances. With the state-of-the-art PWM technology, the AFV-P series is capable delivering up to 4.5 times of peak current from its max. rated current that makes it ideal for inrush current test. Users can also set up 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 4.3" 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**

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

- **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 type testing

- **Wide Output Voltage & Frequency**

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

- **Current Foldback Feature**

CC Current foldback feature will have output current maintain constant based on the load while output voltage varies

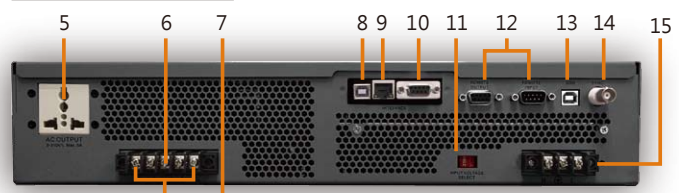
PANEL DESCRIPTION

- | | |
|-----------------------|-------------------------------|
| 1. Power Switch | 10. RS232 / RS485 |
| 2. Touch Screen HMI | 11. Input Range Selector |
| 3. Rotary Knob | 12. PLC Remote In/Out |
| 4. Output / Reset | 13. USB for System (not used) |
| 5. AC Output Terminal | 14. Sync. Singal I/O |
| 6. Output Terminal | 15. Input Terminal |
| 7. Remote Sense | |
| 8. USB Interface | |
| 9. Ethernet Interface | |

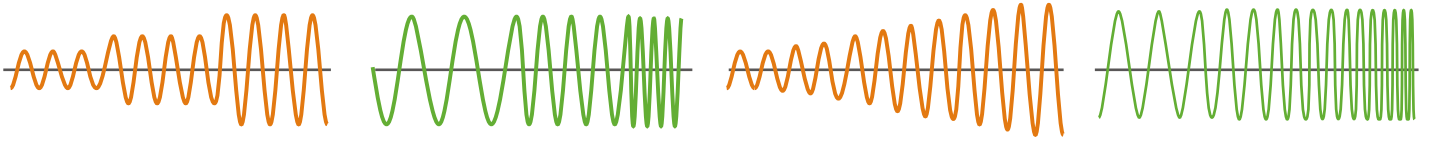
Front Panel Overview



Rear Panel Overview



Sweep & Ramp Test



The AFV-P series offers an easy and convenient method to execute a single step or continuous output changes. The sweep function is ideal for voltage and frequency variation tests. The response time of voltage and frequency changes are within one cycle. User can also use the ramp function to adjust slew rate of voltage and frequency changes. Ramp function can also effectively reduce the inrush current during motor startup. There are up to 50 memories can be stored and recalled; each memory has 24 steps for user to set up.

Transient Generation



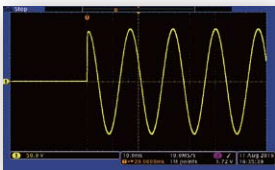
Transient generation is an extended feature that provides the users an easy setup for power line disturbance simulation. Common waveform disturbances such as surge, sag, spikes, and dropouts can be generated for application like immunity test.

Intuitive Touch Panel

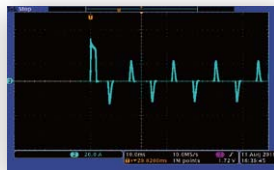


Users can quickly select the parameters via 4.3 inches touch panel or rotary knob, which provides an easy operation and measurement display.

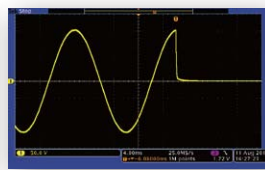
Start/End Angle & High Peak Current for Inrush Current



90° Start Angle



Inrush Current for 90° Start Angle



90° End Angle

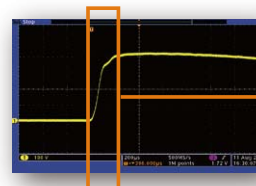
AFV-P Series is capable of providing high output peak current (max. 4.5 peak/rms), and this feature makes it ideal for inrush current happened in motor testing. Users can also define the start and end phase angle from 0° to 360°, which is suitable for switching power inrush testing.

Control Software



AFV-P series provides control software and Labview driver that allow users to easily setup the remote control for the power source without further need of programming.

Fast Slew Rate



Measurement
<300 μs

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 μs from 0~90% output voltage. It allows users to do pre-compliance test such as IEC-61000-4-11 or MIL-STD-704F.

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 | | | | | | | | |
| 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 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 | | | | | | | | |
| 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 | | | | | | | | |
| 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 | ≥ 80% at max. power | | | | | | | | |
| Protection | OVP, OCP, LVP, OPP, OTP, RCP, Fan Fail | | | | | | | | |
| Remote Interface | Standard: RS232 / RS485 / Ethernet / USB / PLC Remote In&Out, Option: 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 | | |

* All specifications are subject to change without notice.

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