# AFV-P series

# High Performance Programmable AC Power Source

## Interfaces

Standard RS-232 RS-485 Ethernet USB

Option GPIB Analog

## QR Code

Product Info.

Product Video


## Output Power

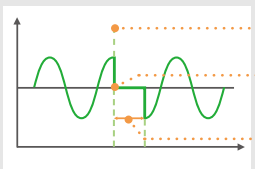
**800VA~6kVA**

TAIWAN EXCELLENCE RoHS Compliant CE

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 5-100Hz and it delivers output voltage of 0-350V and frequency of 15-1000Hz (opt. 5-2000Hz). 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 start and end phase angle among 0-359 degrees, and remotely control AFV-P series via standard interfaces. Free control software and LabVIEW driver are available for easy programming and remote control.

## Power Line Disturbance Simulation (Transient Simulation)



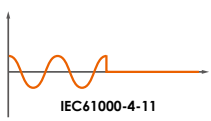
**Transient Site:**
The transient site can be set from 0° to 359°

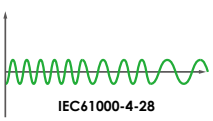
**Transient Voltage:**
The Transient voltage can be set from 0V to 350V

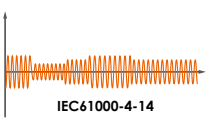
**Transient Time:**
Transient dwell time options from 0.5ms to 999.9ms

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.

## KEY FEATURE AC&DC Power Simulation for IEC-61000 Pre-Compliance Testing


IEC61000-4-11

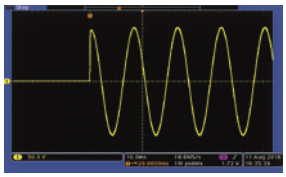

IEC61000-4-28


IEC61000-4-14

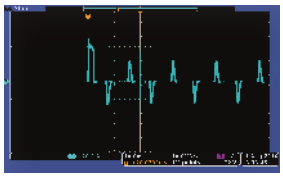
The AFV-P series is a high-performance AC source designed to streamline product development process. With its ability to precisely simulate a wide range of power quality disturbances defined in IEC standards, such as IEC-61000-4-11, IEC-61000-4-14, and IEC-61000-4-28, the AFV-P series ensures products meet regulatory requirements. Its fast response, high accuracy, and low THD make it the ideal choice for pre-compliance testing.

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

Switching Power Supply



90° Start Angle



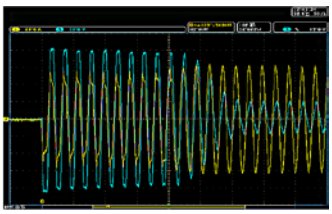
Inrush Current for 90° Start Angle

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-1500 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.*

*Available at Q4 2025

## Motor Type Testing

Motor



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

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.

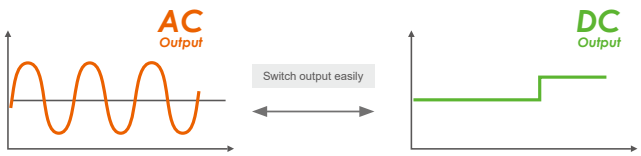
*Available at Q4 2025

## Multiple Communication Interfaces & Control Software

The AFV-P series is equipped with communication interfaces of RS232, RS485, Ethernet and USB, and 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.

## AC + DC Output

AFV-P series not only provide AC output to simulate real 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.




## High Input Power Factor

The AFV-P series is equipped with an active Power Factor Correction (PFC) circuit, raising the input power factor up to 0.98, which significantly reduces reactive current and harmonic distortion. This minimizes interference to the power grid and other connected equipment.

The PFC function not only improves energy utilization efficiency but also helps maintain a stable and clean power supply, ensuring reliable test results and measurement accuracy.

PF up to 0.98

### Input Power (Apparent Power) Comparison

PF= 0.98 vs. PF = 0.7

Conventional AC Sources

10.7kVA 46.5A

PF = 0.7, η = 0.8

NEW AFV-P

7.2kVA 31.3A

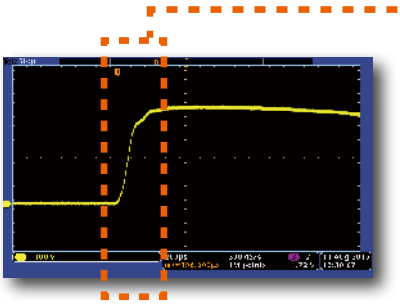
3.5kVA

PF = 0.98, η = 0.85

SAVE 32.7% Apparent power

For a 6 kVA AFV-P model (single-phase + neutral + ground, 230 V input), when the power factor (PF) improves from 0.7 to 0.98 and efficiency rises from 0.8 to 0.85, the input power demand can be reduced by up to 32.7%, achieving substantial energy-saving benefits.

## Fast Response & High Stability



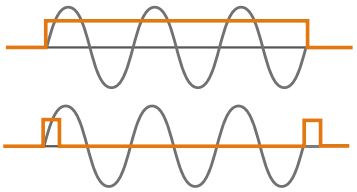
**Response Time**
**< 300 µs**

**THD**
**< 0.3%**

**Output Frequency**
**5-2000HZ**

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.

## Synchronized Signal

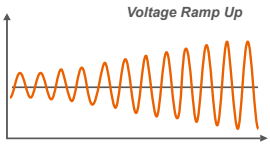


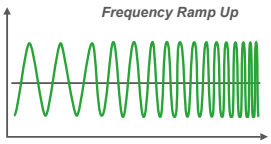
**5V DC Synchronized Signal**

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.

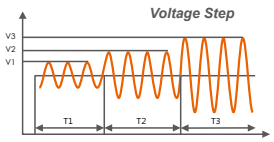
## Programmable Simulation Functions: Step & Ramp Features

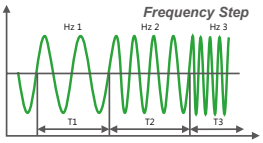
**Ramp Feature**



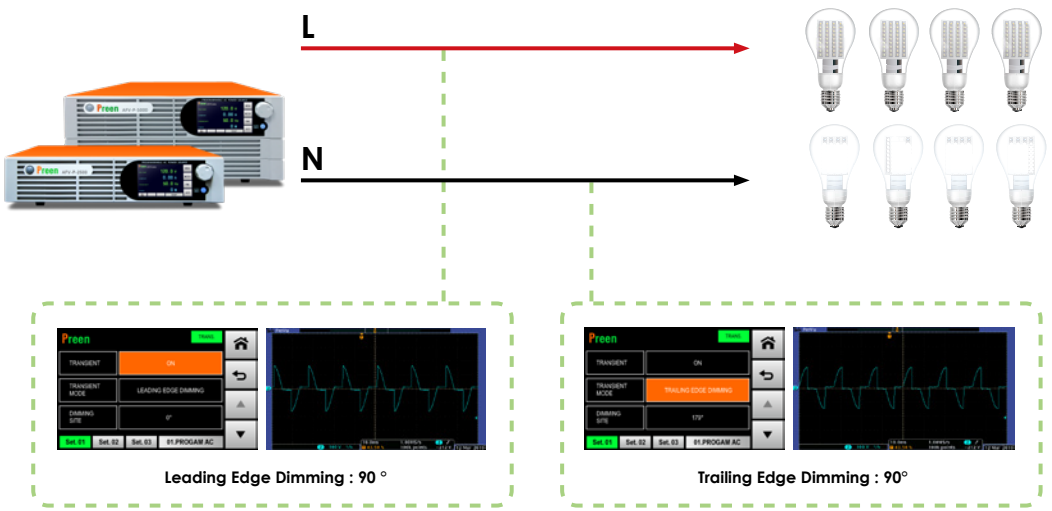

**Step Feature**




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.

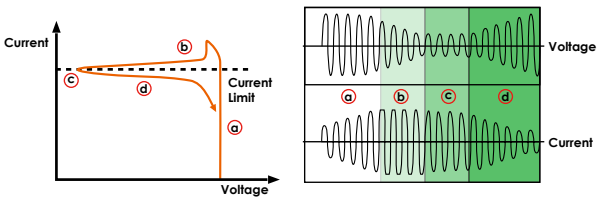
## LED TRIAC Dimmer (Opt.)




Video

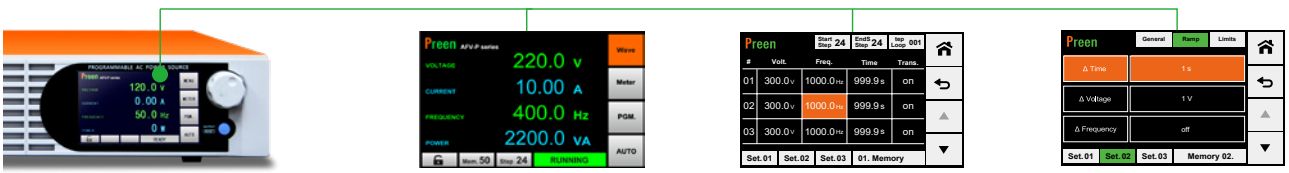
AFV-P series provides optional LED TRIAC Dimmer function, which can simulate output of TRIAC dimmer. The user can select whether to perform LEADING EDGE DIMMING or TRAILING EDGE DIMMING via HMI. Compared with traditional TRIAC dimming, the output waveform can be controlled more accurately and effectively.

## 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.

## Intuitive Touch Screen Control




To create a complex sequence on the HMI is not 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.

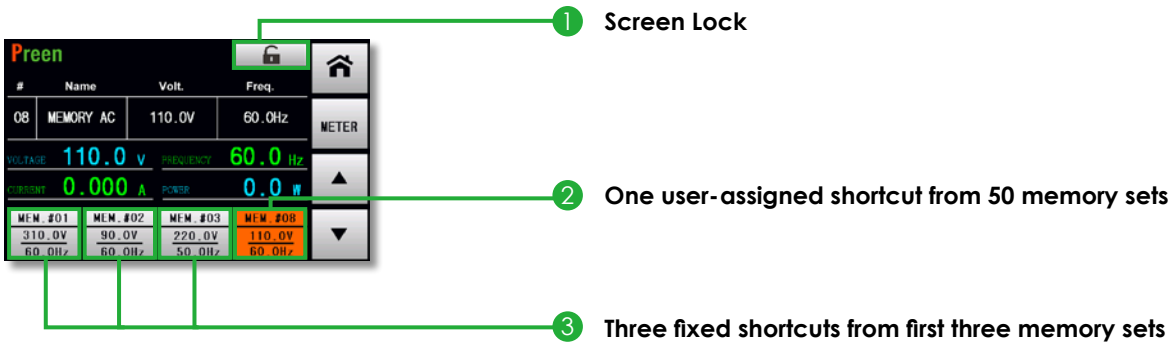
## Light Weight Design


Conventional 6kVA
AC Source

AFV-P Series 6kVA

The new generation of AFV-P features a lightweight design, reducing its weight significantly from 61.5 kg to just 31.3 kg. And industry-leading power density and rack-mount type design for easy system integration. 3000VA only comes in 2U and 6000VA is only in 4U.

## Shortcuts of Output Memory Set (BASIC Mode)




AFV-P series can display 3 shortcuts of Memory Sets in BASIC Mode, 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. Also, the Screen Lock function is provided for preventing operators from accidentally changing shortcuts during output and causing DUT damage.

## SPECIFICATIONS

### AFV-P Series Single-Phase Output (800VA-6kVA)

| Model | AFV-P-800 | AFV-P-1500 | AFV-P-3000 | AFV-P-6000 |
|---|---|---|---|---|
| **INPUT** | | | | |
| Phase | 1Ø / 2 Wire + G | | | |
| Voltage | 90-264VAC | | 180-264VAC | |
| Frequency | 47-63 Hz | | | |
| Max. Current | 12A | 20A | 20A | 40A |
| Power Factor | ≥ 0.98 (Max. Power) | | | |
| **OUTPUT** | | | | |
| Power W | 800W | 1500W | 3000W | 6000W |
| Phase | 1Ø / 2 Wire + G | | | |
| Voltage Ranges | 0-175Vrms / 0-350Vrms, user selectable | | | |
| Voltage Accuracy | ± ( 0.5 % of setting + 0.1% F.S.) | | | |
| Voltage Resolution | 0.1Vrms | | | |
| Frequency[*1] | A : 5-2000Hz , B : 15-1000Hz | | | |
| Frequency Accuracy | ±0.02% | | | |
| Frequency Resolution | 0.1Hz, 1Hz | | | |
| Max. Current (RMS)[*3] | 6.4A/3.2A | 12A/6A | 24A/12A | 48A/24A |
| Max. Current (Peak) | 28.8A/14.4A | 54A/27A | 108A/54A | 216A/108A |
| Total Harmonic Distortion (THD) | ≤ 0.3% at 5-500Hz , ≤ 0.6% at 501-1000Hz<br>≤ 1.5% at 1001-1500Hz, ≤ 2% at 1501-2000Hz (Resistive Load) | | ≤ 0.3% at 5-100Hz , ≤ 0.5% at 101-500Hz ,<br>≤ 0.6% at 501-1000Hz≤ 1.5% at 1001-1500Hz,<br>≤ 2% at 1501-2000Hz (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 ( RMS ) | | | |
| **DC OUTPUT** | | | | |
| Power | 768W | 1440W | 2880W | 5760W |
| Voltage Ranges | 0 - 240V / 0 – 480V | | | |
| Max. Current | 3.2A/1.6A | 6A/3A | 12A/6A | 24A/12A |
| Ripple & Noise (RMS) | ≤ 0.15% | | | ≤ 0.24% |
| **MEASUREMENT** | | | | |
| Voltage Range | 0-480Vrms | | | |
| Voltage Accuracy | ±(0.2% of reading + 5 counts) | | | |
| Voltage Resolution | 0.1V | | | |
| Frequency Range | 5-2000Hz | | | |
| Frequency Accuracy | ±0.1Hz at 5.0-500Hz, ±0.2Hz at 501-2000Hz | | | |
| 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[*2] | ±(1% of reading + 5 counts) at 5.0-500Hz, ±(1% of reading + 10 counts) at 501-2000Hz | | | |
| Current Resolution | Hi: 0.01A / Lo: 0.001A | | | Hi: 0.01A |
| Peak Current Range | 0-54A | | 0-108A | 0-216A |
| Peak Current Accuracy | ±(1% of reading + 5 counts) at 5.0-500Hz,<br>±(1% of reading + 10 counts) at 501-2000Hz | | | ± ( 1% F.S.+ 5 counts ) |
| Peak Current Resolution | 0.1A | | | |
| Power Range | Hi: 100-1500W / Lo: 0-120W | | Hi: 200-3000W/<br>Lo: 0-240W | Hi: 0-6000W |
| Power Accuracy | ±(2% of reading + 10 counts) @ 5-500Hz, ±(2% of reading + 15 counts) @ 501-2000Hz | | | |
| Power Resolution | Hi: 1W / Lo: 0.1W | | | Hi: 1W |
| **GENERAL** | | | | |
| Efficiency | ≥ 80% at max. power | ≥ 82% at max. power | ≥ 85% at max. power | |
| Protection | OVP, OCP, LVP, OPP, OTP, RCP, Fan Fail and AMP Fail, VIN error, PFC error, DCB error, PWR OTP | | | |
| Remote Interface | Standard: RS232 / RS485 / Ethernet / USB / PLC Remote In&Out, Option:GPIB / Analog | | | |
| 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)<br>50 Memories, 4 Shortcuts (BASIC Mode) | | | |
| Operating Temperature | 0˚C~40˚C | | | |
| Dimensions(HxWxD) | 89 x 442 x 495mm | | 89 x 442 x 650mm | 176 x 442 x 665mm |
| | 3.5 x 17.4 x 19.5inch | | 3.5 x 17.4 x 25.6inch | 6.9 x 17.4 x 26.2inch |
| Weight | approx. 12.9kg | approx. 13.2kg | approx. 17.2kg | approx. 31.3kg |
| | approx. 28.44lbs | approx. 29.1lbs | approx. 37.92lbs | approx. 69lbs |

* 1 For type A: 5-2000Hz, please contact us for output power characteristic curve. * 2 AFV-P-3000 is ±(1% F.S. + 5 counts)
* 3 Reference voltage 125Vac/250Vac. For output higher than 125Vac/250Vac, output current is calculated by P=VI.
* 4 Reference voltage 240Vdc/480Vdc. *All specifications are subject to change without notice.

# SPECIFICATIONS

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

| Model | | AFV-P-600 | AFV-P-1250 | AFV-P-2500 | AFV-P-5000 |
|---|---|---|---|---|---|
| **INPUT** | | | | | |
| Phase | | 1Ø / 2 Wire + G | | | |
| Voltage | | 98-132VAC / 196-264VAC | | 196-264VAC( opt. 175-235VAC ) | |
| Frequency | | 47-63 Hz (opt. 400Hz[*3]) | | | |
| 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 Accuracy | | ± ( 0.5 % of setting + 0.1% F.S.) | | | |
| Voltage Resolution | | 0.1Vrms | | | |
| Frequency[*1] | | A : 5-2000Hz , B : 15-1000Hz | | | |
| 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 5-100Hz , ≤ 0.5% at 101-500Hz , ≤ 0.8% at 501-1000Hz, ≤ 1.5% at 1001-1500Hz, ≤ 2% at 1501-2000Hz (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 ( RMS ) | | | |
| **DC OUTPUT** | | | | | |
| Power | | 500W | 1000W | 2000W | 4000W |
| 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 | | 5-2000Hz | | | |
| Frequency Accuracy | | ±0.1Hz at 5.0-500Hz, ±0.2Hz at 501-2000Hz | | | |
| 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[*2] | | ±(1% of reading + 5 counts) at 5.0-500Hz, ±(1% of reading + 10 counts) at 501-2000Hz | | | |
| 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 5.0-500Hz, ±(1% of reading + 10 counts) at 501-2000Hz | | | ± ( 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) @ 5-500Hz, ±(2% of reading + 15 counts) @ 501-2000Hz | | | |
| 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 and AMP Fail | | | |
| Remote Interface | | Standard: RS232 / RS485 / Ethernet / USB / PLC Remote In&Out, Option:GPIB / Analog | | | |
| 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)<br>50 Memories, 4 Shortcuts (BASIC Mode) | | | |
| Operating Temperature | | 0˚C~40˚C | | | |
| Dimensions(HxWxD) | | 89 x 442 x 495mm | | 89 x 442 x 650mm | 176 x 442 x 665mm |
| | | 3.5 x 17.4 x 19.5inch | | 3.5 x 17.4 x 25.6inch | 6.9 x 17.4 x 26.2inch |
| Weight | | 16kg | 20kg | 31.3kg | 61.5kg |
| | | 35.3lbs | 44.1lbs | 69lbs | 135.6lbs |

* 1 For type A: 5-2000Hz, please contact us for output power characteristic curve. * 2 AFV-P-2500 is ±(1% F.S. + 5 counts) * 3 Please contact us for specifications.

* All specifications are subject to change without notice.

## ORDERING INFORMATION

### AFV-P Series Single-Phase Output (800VA-6kVA)

| Model Number | Description |
|---|---|
| AFV-P-800A | High Performance Programmable AC Power Source( 800VA/350VAC/ 5-2000Hz ) |
| AFV-P-1500A | High Performance Programmable AC Power Source( 1500VA/350VAC/5-2000Hz ) |
| AFV-P-3000A | High Performance Programmable AC Power Source( 3000VA/350VAC/5-2000Hz ) |
| AFV-P-6000A | High Performance Programmable AC Power Source( 6000VA/350VAC/5-2000Hz ) |
| AFV-P-800B | High Performance Programmable AC Power Source( 800VA/350VAC/15-1000Hz) |
| AFV-P-1500B | High Performance Programmable AC Power Source( 1500VA/350VAC/15-1000Hz) |
| AFV-P-3000B | High Performance Programmable AC Power Source( 3000VA/350VAC/15-1000Hz) |
| AFV-P-6000B | High Performance Programmable AC Power Source( 6000VA/350VAC/15-1000Hz) |

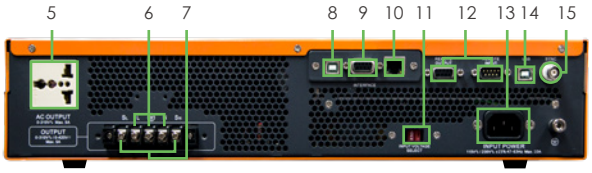
* Please contact us for specifications.

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

| Model Number | Description |
|---|---|
| AFV-P-600A | High Performance Programmable AC Power Source( 600VA/310V/5-2000Hz ) |
| AFV-P-1250A | High Performance Programmable AC Power Source( 1.25kVA/310V/5-2000Hz ) |
| AFV-P-2500A | High Performance Programmable AC Power Source( 2.5kVA/310V/5-2000Hz ) |
| AFV-P-5000A | High Performance Programmable AC Power Source( 5kVA/310V/5-2000Hz ) |
| AFV-P-600B | High Performance Programmable AC Power Source( 600VA/310V/15-1000Hz ) |
| AFV-P-1250B | High Performance Programmable AC Power Source( 1.25kVA/310V15-1000Hz ) |
| AFV-P-2500B | High Performance Programmable AC Power Source( 2.5kVA/310V/15-1000Hz ) |
| AFV-P-5000B | High Performance Programmable AC Power Source( 5kVA/310V/15-1000Hz ) |
| 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 | Interface Card (Ethernet/RS-232&RS-485/USB) |
| 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 115V/230V ±10% ) |
| AFV-P-012 | Output 320V (at input 115V/230V ±10% )* |
| AFV-P-013 | LED TRIAC Dimmer Simulation |
| AFV-P-014 | Output 9 Times of Inrush Current (AFV-P-600 & AFV-P-1250) |
| AFV-P-015 | IEC-61000-4-11 Simulation |
| AFV-P-016 | Remote Control Box |
| ACCS-001 | USB to RS-485 converter +RS-232/RS-485 Cable M-F type (2M) |
| ACCS-003 | RS-232/RS-485 Cable M-F type (2M) |

* Please contact us for specifications.

## PANEL DESCRIPTION

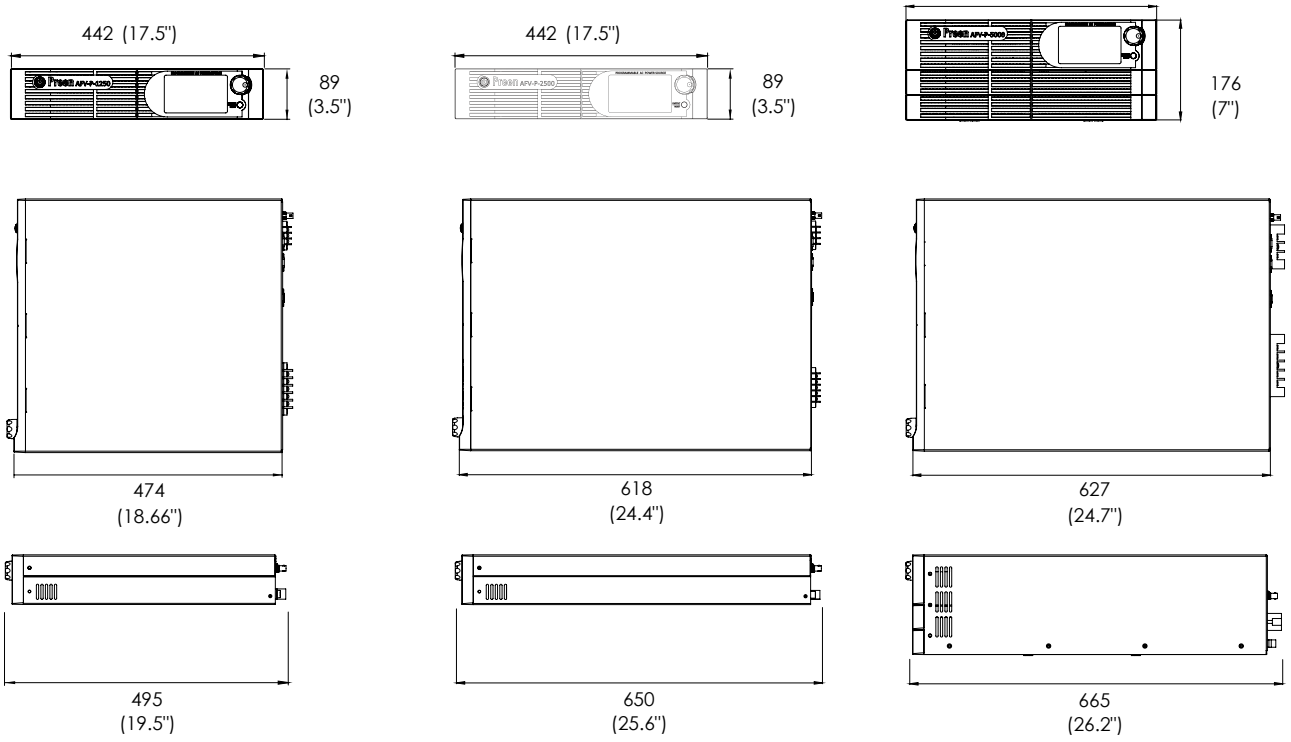




1. Power Switch
2. Touch Screen HMI
3. Rotary Knob
4. Output / Reset Button
5. AC Output Socket
6. Output Terminals
7. Remote Sense Terminal
8. USB Interface
9. RS-232 / RS-485
10. Ethernet Interface
11. Input Voltage Selector
12. PLC Remote In/Out
13. Input Socket *
14. USB Interface (for firmware update)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

* AFV-P-1250, AFV-P-1500, AFV-P-2500, AFV-P-3000, AFV-P-5000, AFV-P-6000 have input terminals.

## DIMENSIONS

Unit : mm ( inch )




**AFV-P-600/800/1250/1500**

**AFV-P-2500/3000**

**AFV-P-5000/6000**