

AFV⁺ series

High Power Programmable AC Power Source

10kVA~2000kVA

CE RoHS Compliant



- Wide Output Power Range: 10kVA~2000kVA.
- 0~300V output voltage and 45~65Hz output frequency (opt. 45~500Hz)
- The built-in STEP and RAMP functions are ideal to simulate different types of power line disturbances.
- The SOFT START feature can effectively reduce inrush current caused by motor startup.
- Via the Three Phase Independent Adjustment function, the AFV⁺ series can deliver each phase voltage differently to multiple single-phase DUTs.
- User can simulate phase shift with the optional Phase Angle Control function.
- The 7" touch screen shows parameters of voltage, current, frequency, real power, apparent power and sum of each phase's parameters.
- Complete protections include UVP, OVP, OCP, input UVP/OVP, OTP and other 29 protections. The built-in Error Log can record up to 255 error messages for easier trouble shooting.
- CE & RoHS certified.
- Optional remote sensing feature is available to improve precision.

Interfaces

RS-232

RS-422

RS-485

GPIB

Ethernet

● Standard

● Option

Applications

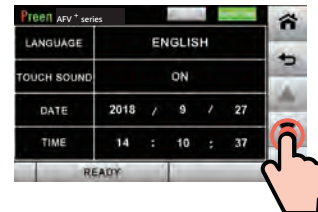
- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- Electric Vehicles
- Motor & Compressor
- IT / SMT Production Line
- Renewable Energy
- Medical Industry
- Transportation

AFV⁺ Series

The AFV⁺ series is a high power programmable AC power source utilizing advanced PWM technology to deliver power with THD $\leq 0.5\%$ and up to 2000kVA. The output frequency is 45~65Hz with accuracy of $\pm 0.02\%$, and user can select 45~500Hz option to expand the frequency. The AFV⁺ series is ideal to simulate different region's voltage and frequency conditions, and can cover applications for home appliance, motor, medical equipment, lighting and EMC laboratory.

The AFV⁺ series features STEP and RAMP programmable functions to easily simulate single or continuous output changes. Three phase independent adjustment, optional remote sensing and optional phase angle adjustment all provide convenient control to simulate different kinds of line disturbance. These features are ideal for test applications of R&D design verification, quality assurance and production checks. For remote control, the AFV⁺ series has standard RS-232/RS-485/RS-422 interface card and optional GPIB and Ethernet interfaces for easy setup and programming.

Intuitive 7" Touch Screen



The AFV+ series employs 7" touch screen to provide intuitive and easy-to-use control and display. Users can quickly access output settings and measurements, including voltage, current, frequency, real power, apparent power, PF and sum of each phase's parameters. Complex sequences and system configurations can also be easily done via the touch screen.

Three Phase Independent Adjustment & Phase Angle Control



3-Phase Independent Adjustment



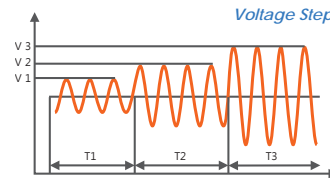
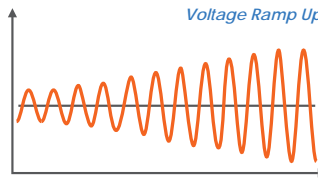
Phase Angle Control (Opt.)

The Three Phase Independent Adjustment feature of the AFV+ series can simulate advanced power line disturbance, such as three-phase voltage unbalanced. User can press the icon on the main page of the touch screen to quickly switch from balanced voltage setting to independent voltage adjustment setting . Optional Angle Control is also available to simulate phase shift for different power conditions.

RAMP and STEP programming features

STEP	VOLTAGGIO (V)	FREQ (Hz)	TIME (s)
1	220.0	50.0	0 : 0 : 10
2	220.0	50.0	0 : 0 : 10
3	220.0	50.0	0 : 0 : 10
4	220.0	50.0	0 : 0 : 10
5	220.0	50.0	0 : 0 : 10
6	220.0	50.0	0 : 0 : 10

STEP Setting (24 sequences)



The AFV+ series' RAMP feature has up to 12 sequences available with parameters of voltage, frequency and time, and the STEP feature has up to 24 sequences available with parameters of voltage, frequency and time. These features provide an easy method to simulate different kinds of power line disturbance.

Remote Control Software: Preen Program



The AFV+ series offers complimentary remote control software, Preen Program. This graphical user interface provides easy settings and user-friendly configurations for users to fully control the unit. The Preen Program includes GENERAL mode or PROGRAMMABLE mode with STEP and RAMP features available. The preview waveform and report functions also greatly enhance convenience for on review parameters and results before or after testing.

Remote Interfaces



For easy setup and programming, the AFV+ series has standard RS-232/RS-485/RS-422 interface card. User also can select optional GPIB and Ethernet interfaces for different remote control requirements.

SPECIFICATIONS

AFV+ Series Single-Phase Output (10kVA - 150kVA)

Model	AFV-PLUS -31010	AFV-PLUS -31015	AFV-PLUS -31020	AFV-PLUS -31030	AFV-PLUS -31045	AFV-PLUS -31060	AFV-PLUS -31075	AFV-PLUS -31100	AFV-PLUS -31150	
INPUT										
Phase	3Ø / 4 Wire + G									
Voltage ^{*1}	220V/380V±15%									
Frequency	47 - 63Hz									
Max. Current ^{*2}	18.7A	28.1A	37.4A	56.1A	84.2A	112.2A	140.3A	209.7A	314.6A	
Power Factor	≥ 0.9 (Max. Power)							≥ 0.85 (Max. Power)		
OUTPUT										
Power	10kVA	15kVA	20kVA	30kVA	45kVA	60kVA	75kVA	100kVA	150kVA	
Phase	1Ø / 2 Wire + G									
Voltage Ranges	Low(V) 0V~150.0V (L-N)									
	High(V) 0V~300.0V (L-N)									
Voltage Resolution	0.1V									
Voltage Accuracy	0.5% F.S.+4 counts									
Frequency Range	Standard : 45-65Hz Option : 45-500Hz									
Frequency Resolution	0.1Hz									
Frequency Accuracy	±0.02% F.S.									
Max. Current (RMS)	83.3A	125A	166.7A	250A	375A	500A	625A	833.3A	1250A	
	41.7A	62.5A	83.3A	125A	187.5A	250A	312.5A	416.7A	625A	
Line Regulation	< 0.5%									
Load Regulation	≤ 0.5% (Resistive Load)									
Total Harmonic Distortion (THD) ^{*3}	≤ 0.5% (Resistive Load)									
Response Time	≤ 1ms									
Crest Factor	≥ 3									
MEASUREMENT										
Voltage Range	0V~300.0V									
Voltage Resolution	0.1V									
Voltage Accuracy	0.5% F.S.+4 counts									
Frequency Range	45.0~500.0Hz									
Frequency Resolution	0.01Hz									
Frequency Accuracy	±0.02% F.S.									
Current Range (RMS)	0-83.3A	0-125A	0-166.7A	0-250A	0-375A	0-500A	0-625A	0-833.3A	0-1250A	
Current Resolution (RMS)	0.1A									
Current Accuracy (RMS)	0.5% F.S.+4 counts									
Power Range	0-10kW	0-15kW	0-20kW	0-30kW	0-45kW	0-60kW	0-75kW	0-100kW	0-150kW	
Power Resolution	0.1kW									
Power Accuracy	1% F.S.+6 counts									
GENERAL										
Efficiency	≥90% at Max. Power							≥85% at Max. Power		
HMI	Touch Screen, 7" Color TFT LCD									
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) RAMP : 12 sets / 255 cycles. (Volt./Freq./Time)									
Soft Start	Setting : Rated Volt. / Rated Freq. / Start Volt. / Start Freq. / Delay Time / Ramp Time									
Protection	Input : Input N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Reverse Current, Over Temperature and machine will display the error code and give a warning sound.									
Remote Interface	Standard : RS-232/RS-422/RS-485 Option : GPIB, Ethernet									
Operational Temperature	0°C ~45°C									
Humidity	0~90% (Non condensing)									
Altitude	< 1,500m									
Dimensions (H x W x D)	945 x 600 x 850mm		1340 x 600 x 850mm		1545 x 800 x 860mm		1900 x 1150 x 1240mm			
	37.2 x 23.62 x 33.46inch		52.75 x 23.62 x 33.46inch		60.82 x 31.49 x 33.85inch		74.8 x 45.27 x 48.81inch			
Weight	230kg	280kg	320kg	450kg	580kg	670kg	710kg	980kg	1415kg	
	507.2lbs	617.4lbs	705.6lbs	992.3lbs	1279lbs	1477.4lbs	1565.6lbs	2161lbs	3120.1lbs	

*1 Please contact for other voltage specification.

*2 The rated input voltage is 220V/380V.

*3 Low : 90 - 140V or High 180 - 280V.

* all specifications are subject to change without notice.

SPECIFICATIONS

AFV + Series three-Phase Output (10kVA - 100kVA)

Model	AFV-PLUS -33010	AFV-PLUS -33015	AFV-PLUS -33020	AFV-PLUS -33030	AFV-PLUS -33045	AFV-PLUS -33060	AFV-PLUS -33075	AFV-PLUS -33100
INPUT								
Phase	3Ø / 4 Wire + G							
Voltage ¹	220V/380V±15%							
Frequency	47 - 63Hz							
Max. Current ²	18.7A	28.1A	37.4A	56.1A	84.2A	112.2A	140.3A	209.7A
Power Factor	≥ 0.9 (Max. Power)							
OUTPUT								
Power	10kVA	15kVA	20kVA	30kVA	45kVA	60kVA	75kVA	100kVA
Phase	3Ø / 4 Wire + G							
Voltage Ranges	Low(V) 0V~150.0V (L-N)							
	High(V) 0V~300.0V (L-N)							
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+4 counts							
Frequency Range	Standard :45-65Hz Option :45-500Hz							
Frequency Resolution	0.1Hz							
Frequency Accuracy	±0.02% F.S.							
Max. Current (RMS)	27.8A	41.7A	55.6A	83.3A	125A	166.7A	208.3A	277.8A
	13.9A	20.8A	27.8A	41.7A	62.5A	83.3A	104.2A	138.9A
Line Regulation	< 0.5%							
Load Regulation	≤ 0.5% (Resistive Load)							
Total Harmonic Distortion(THD) ³	≤ 0.5% (Resistive Load)							
Response Time	≤ 1ms							
Crest Factor	≥ 3							
MEASUREMENT								
Voltage Range	0V~300.0V							
Voltage Resolution	0.1V							
Voltage Accuracy	0.5% F.S.+4 counts							
Frequency Range	45.0-500.0Hz							
Frequency Resolution	0.01Hz							
Frequency Accuracy	±0.02% F.S.							
Current Range (RMS)	0 - 27.8A	0 - 41.7A	0 - 55.6A	0 - 83.3A	0 - 125A	0 - 166.7A	0 - 208.3A	0 - 277.8A
Current Resolution (RMS)	0.1A							
Current Accuracy (RMS)	0.5% F.S.+4 counts							
Power Range	0 - 10kW	0 - 15kW	0 - 20kW	0 - 30kW	0 - 45kW	0 - 60kW	0 - 75kW	0 - 100kW
Power Resolution	0.1kW							
Power Accuracy	1% F.S.+6 counts							
GENERAL								
Efficiency	≥90% at Max. Power							≥85% at Max. Power
HMI	Touch Screen, 7" Color TFT LCD							
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) RAMP : 12 sets / 255 cycles. (Volt./Freq./Time)							
Soft Start	Setting : Rated Volt. / Rated Freq. / Start Volt. / Start Freq. / Delay Time / Ramp Time							
Three Phase Independent Adjustment	U-N/V-N/W-N, Adjustment 0-300V							
Protection	Input : Input N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Reverse Current, Over Temperature and machine will display the error code and give a warning sound.							
Remote Interface	Standard :RS-232/RS-422/RS-485 Option :GPIB, Ethernet							
Operational Temperature	0°C ~45°C							
Humidity	0~90% (Non condensing)							
Altitude	< 1,500m							
Dimensions (H x W x D)	945 x 600 x 850mm	1340 x 600 x 850mm			1545 x 800 x 860mm		1900 x 1150 x 1240mm	
	37.2 x 23.62 x 33.46inch	52.75 x 23.62 x 33.46inch			60.82 x 31.49 x 33.85inch		74.8 x 45.27 x 48.81inch	
Weight	280kg	305kg	360kg	400kg	560kg	670kg	960kg	1170kg
	617.4lbs	672.5lbs	793.8lbs	882lbs	1234.8lbs	1477.35lbs	2116.8lbs	2579.9lbs

*1 Please contact for other voltage specification.

*2 The rated input voltage is 220V/380V.

*3 Low : 90 - 140V or High 180 - 280V.

* all specifications are subject to change without notice.

SPECIFICATIONS

AFV+ Series three-Phase Output (150kVA - 2000kVA)

Model	AFV-PLUS-33150	AFV-PLUS-33200	AFV-PLUS-33300	AFV-PLUS-33400	AFV-PLUS-33500	AFV-PLUS-33600	AFV-PLUS-33800	AFV-PLUS-331000	AFV-PLUS-331200	AFV-PLUS-331500	AFV-PLUS-332000
INPUT											
Phase	3Ø / 4 Wire + G										
Voltage ¹	220V/380V±15%										
Frequency	47 - 63Hz										
Max. Current ²	314.6A	419.4A	629.1A	838.8A	1048.5A	1258.3A	1677.7A	2097.1A	2516.5A	3145.6A	4194.2A
Power Factor	≥0.9 (Max. Power)										
OUTPUT											
Power	150kVA	200kVA	300kVA	400kVA	500kVA	600kVA	800kVA	1000kVA	1200kVA	1500kVA	2000kVA
Phase	3Ø / 4 Wire + G										
Voltage Ranges	0V~150.0V (L-N)										
	0V~300.0V (L-N)										
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+4 counts										
Frequency Range	Standard :45-65Hz Option :45-500Hz										
Frequency Resolution	0.1Hz										
Frequency Accuracy	±0.02% F.S.										
Max. Current (RMS)	416.7A	555.6A	833.3A	1111.1A	1388.9A	1666.7A	2222.2A	2777.8A	3333.3A	4166.7A	5555.6A
	208.3A	277.8A	416.7A	555.6A	694.4A	833.3A	1111.1A	1388.9A	1666.7A	2083.3A	2777.8A
Line Regulation	< 0.5%										
Load Regulation	≤ 0.5% (Resistive Load)										
Total Harmonic Distortion(THD) ³	≤ 0.5% (Resistive Load)										
Response Time	≤ 1ms										
Crest Factor	≥3										
MEASUREMENT											
Voltage Range	0V~300.0V										
Voltage Resolution	0.1V										
Voltage Accuracy	0.5% F.S.+4 counts										
Frequency Range	45.0-500.0Hz										
Frequency Resolution	0.01Hz										
Frequency Accuracy	±0.02% F.S.										
Current Range(RMS)	0 - 416.7A	0 - 555.6A	0 - 833.3A	0 - 1111.1A	0 - 1388.9A	0 - 1666.7A	0 - 2222.2A	0 - 2777.8A	0 - 3333.3A	0 - 4166.7A	0 - 5555.6A
Current Resolution(RMS)	0.1A										
Current Accuracy(RMS)	0.5% F.S.+4 counts										
Power Range	0 - 150kW	0 - 200kW	0 - 300kW	0 - 400kW	0 - 500kW	0 - 600kW	0 - 800kW	0 - 1000kW	0 - 1200kW	0 - 1500kW	0 - 2000kW
Power Resolution	0.1kW										
Power Accuracy	1% F.S.+6 counts										
GENERAL											
Efficiency	≥85% at Max. Power										
HMI	Touch Screen , 7" Color TFT LCD										
Program Mode	STEP : 24 sets / 255 cycles. (Volt./Freq./Time) RAMP : 12 sets / 255 cycles. (Volt./Freq./Time)										
Soft Start	Setting : Rated Volt. / Rated Freq. / Start Volt. / Start Freq. / Delay Time / Ramp Time										
Three Phase Independent Adjustment	U-N/V-N/W-N, Adjustment 0-300V										
Protection	Input : Input N.F.B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Reverse Current, Over Temperature and machine will display the error code and give a warning sound.										
Remote Interface	Standard :RS-232/RS-422/RS-485 Option :GPIB, Ethernet										
Operational Temperature	0°C ~45°C										
Humidity	0~90% (Non condensing)										
Altitude	< 1,500m										
Dimensions (H x W x D) ⁴	1900 x 1150 x 1240 mm	2050 x 3881 x 1539mm			2050 x 4716 x 1520 mm	2050 x6003 x 1520mm	2200 x 10827 x 1590mm		2200 x 12990x 1590mm		
	74.8 x 45.27 x 48.82 inch	80.7 x 152.8 x 60.6inch			80.7 x 152.7 x 59.8 inch	80.7 x 236.3 x 59.8inch	86.6 x 426.2 x 62.6 inch		86.61 x 511.4 x 62.5 inch		
Weight	1835kg	2415kg	3620kg	4670kg	5820kg	7720kg	9240kg	11080kg	16800kg	18270kg	19950kg
	4046lbs	5325lbs	7982lbs	10297lbs	12833lbs	17022lbs	20374lbs	24431lbs	37044lbs	40285lbs	43989.75lbs

*1 Please contact for other voltage specification.

*2 The rated input voltage is 220V/380V.

*3 Low : 90 - 140V or High 180 - 280V.

*4 for AFV+ series over 400kVA, please contact us for details.

* all specifications are subject to change without notice.

ORDERING INFORMATION

AFV⁺ Series Single-Phase Output (10kVA - 150kVA)

Model Number	Description
AFV-PLUS-31010	High Power Programmable AC Power Source (10kVA/300V/45-65Hz)
AFV-PLUS-31015	High Power Programmable AC Power Source (15kVA/300V/45-65Hz)
AFV-PLUS-31020	High Power Programmable AC Power Source (20kVA/300V/45-65Hz)
AFV-PLUS-31030	High Power Programmable AC Power Source (30kVA/300V/45-65Hz)
AFV-PLUS-31045	High Power Programmable AC Power Source (45kVA/300V/45-65Hz)
AFV-PLUS-31060	High Power Programmable AC Power Source (60kVA/300V/45-65Hz)
AFV-PLUS-31075	High Power Programmable AC Power Source (75kVA/300V/45-65Hz)
AFV-PLUS-31100	High Power Programmable AC Power Source (100kVA/300V/45-65Hz)
AFV-PLUS-31150	High Power Programmable AC Power Source (150kVA/300V/45-65Hz)
AFV-PLUS-001	Output Frequency 45Hz-500Hz
AFV-PLUS-002	GPIB Interface
AFV-PLUS-004	Ethernet Interface
AFV-PLUS-005	Remote Senseing

AFV⁺ Series three-Phase Output (10kVA - 2000kVA)

Model Number	Description
AFV-PLUS-33010	High Power Programmable AC Power Source (10kVA/300V/45-65Hz)
AFV-PLUS-33015	High Power Programmable AC Power Source (15kVA/300V/45-65Hz)
AFV-PLUS-33020	High Power Programmable AC Power Source (20kVA/300V/45-65Hz)
AFV-PLUS-33030	High Power Programmable AC Power Source (30kVA/300V/45-65Hz)
AFV-PLUS-33045	High Power Programmable AC Power Source (45kVA/300V/45-65Hz)
AFV-PLUS-33060	High Power Programmable AC Power Source (60kVA/300V/45-65Hz)
AFV-PLUS-33075	High Power Programmable AC Power Source (75kVA/300V/45-65Hz)
AFV-PLUS-33100	High Power Programmable AC Power Source (100kVA/300V/45-65Hz)
AFV-PLUS-33150	High Power Programmable AC Power Source (150kVA/300V/45-65Hz)
AFV-PLUS-33200	High Power Programmable AC Power Source (200kVA/300V/45-65Hz)
AFV-PLUS-33300	High Power Programmable AC Power Source (300kVA/300V/45-65Hz)
AFV-PLUS-33400	High Power Programmable AC Power Source (400kVA/300V/45-65Hz)
AFV-PLUS-33500	High Power Programmable AC Power Source (500kVA/300V/45-65Hz)
AFV-PLUS-33600	High Power Programmable AC Power Source (600kVA/300V/45-65Hz)
AFV-PLUS-33800	High Power Programmable AC Power Source (800kVA/300V/45-65Hz)
AFV-PLUS-331000	High Power Programmable AC Power Source (1000kVA/300V/45-65Hz)
AFV-PLUS-331200	High Power Programmable AC Power Source (1200kVA/300V/45-65Hz)
AFV-PLUS-331500	High Power Programmable AC Power Source (1500kVA/300V/45-65Hz)
AFV-PLUS-332000	High Power Programmable AC Power Source (2000kVA/300V/45-65Hz)
AFV-PLUS-001	Output Frequency 45Hz-500Hz
AFV-PLUS-002	GPIB Interface
AFV-PLUS-003	Three Phase Angle Adjustment
AFV-PLUS-004	Ethernet Interface
AFV-PLUS-005	Remote Sensing