

Specialized Grid-tied Device Test Solution

Over 90% of Energy Regeneration Efficiency 

PAS series is a four-quadrant AC power source which is capable of sinking the power from EUT back to the grid with more than 90% efficiency. This function effectively helps to reduce the electricity cost. The PAS series is suitable for testing distributed generation/Grid-tied EUT with energy feedback feature, for example, solar inverter, PCS (power conditioning system), V2G (vehicle-to-grid).

Harmonics Waveform Synthesis Function



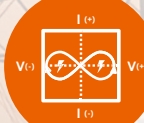
Adjust Voltage and Starting Phases for Each Step to Create Waveform Distortion

HVRT/LVRT Test



Independently Set Three-phase Values to Simulate Voltage Fluctuations

4 Quadrant Regenerative Capability



Allowing DUT's reverse current to feed back into the grid



Interfaces

Standard **RS-232** **RS-485**

Option **Ethernet** **GPIO** **USB**

QR Code



Product Info.



Product Video



Output Power

30kVA~2000kVA

RoHS
Compliant



PAS series is developed for renewable energy related applications. It can simulate the various grid conditions and related test standards. Especially for the voltage and frequency transient simulation test feature, which is very suitable for production, quality verification, research and development. It is also built with Low Voltage Ride Through (LVRT) and High Voltage Ride Through (HVRT) test function and gradual mode programmable capability.

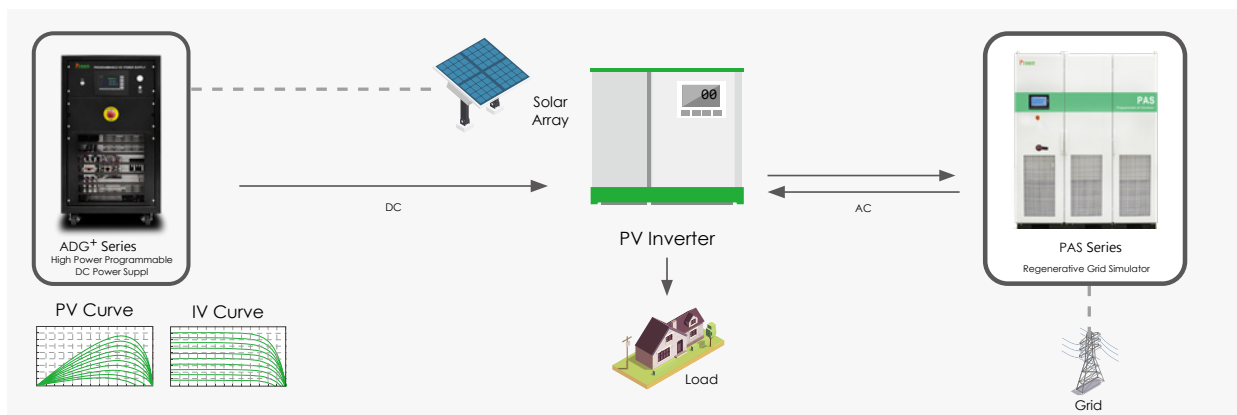
PFV Series is a new generation of programmable AC power supply, with four quadrant energy feedback function. This unit not

only provides power to the EUT, but also sinks the power back to the grid system which is very useful for grid-tied devices testing applications.

The maximum output power for PAS series is up to 2000kVA, and the PFV series is up to 400kVA. The output voltage range is 0-300V(L-N) and the standard output frequency is 45-65Hz continuously adjustable (optional 40-70Hz).

Regenerative Function

PV Inverter Testing Application



PAS series is a four-quadrant AC power source. Even in 2000kVA output power, it is capable to both sink and source over 90% efficiency from the DUT. It is suitable for PV Inverter test, EV charger test or other grid-tied devices test. Build in with Low Voltage Ride Through (LVRT) and High Voltage Ride Through (HVRT) test graph and it is very suitable for IEEE-1547 or BDEW related standards compliance test.

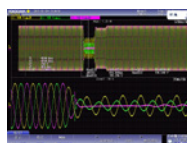
HVRT and LVRT Function

■ Three Phase Independent Output Voltage Setting

Independent setting for three phase high/low voltage ride through to simulate voltage surge and drop.



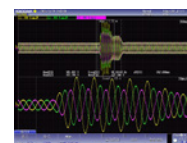
Low Voltage Ride Through Setting



LVRT Output Waveform



High Voltage Ride Through Setting

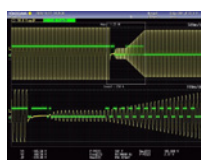


HVRT Output Waveform

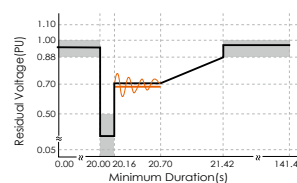
■ Low Voltage Ride Through Test-IEEE Std 1547.1-2020



Setting for LVRT



LVRT Output Waveform

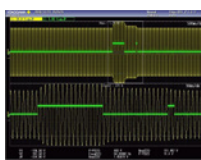


LVRT Test Standard IEEE Std 1547.1-2020

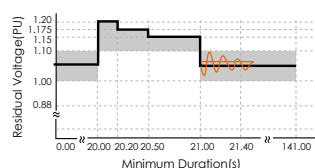
■ High Voltage Ride Through Test-IEEE Std 1547.1-2020



Setting for HVRT



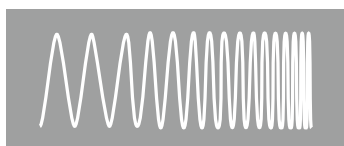
HVRT Output Waveform



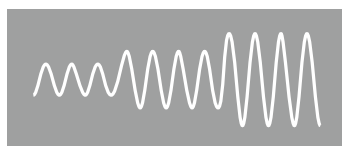
HVRT Test Standard IEEE Std 1547.1-2020

PAS built-in HVRT/LVRT function can simulate the situation when the abnormality is ruled out from on the main AC grid. Simulations such as voltage drop, voltage restore or rising time and remaining time can all be programmed.

GRADUAL and STEP Function



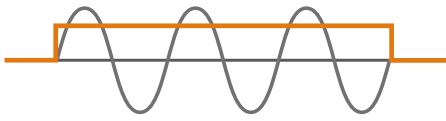
Frequency Gradual Function



Voltage Step Function

PAS / PFV series have multiple programmable functions to precisely and effectively simulate various power line disturbances such as voltage or frequency ramp up or ramp down, transient and step changes.

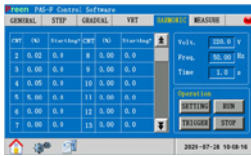
Synchronized Signal



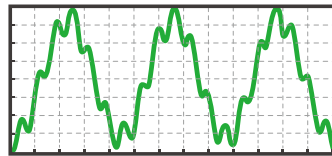
5V DC Synchronized Signal

The PAS series offers synchronized signal output, providing a stable 5V DC signal throughout operation. This feature makes it an ideal AC source for automated test systems that require precise timing and synchronization.

Harmonics Waveform Synthesis Function (Opt.)



Harmonics Waveform Synthesis Function Setting

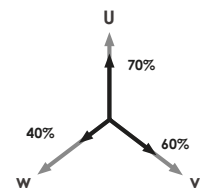
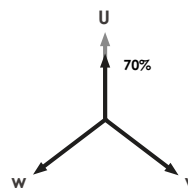
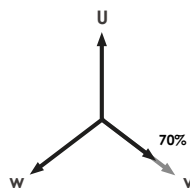
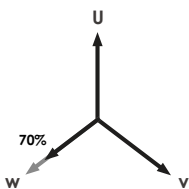


Simulating Harmonics Waveform

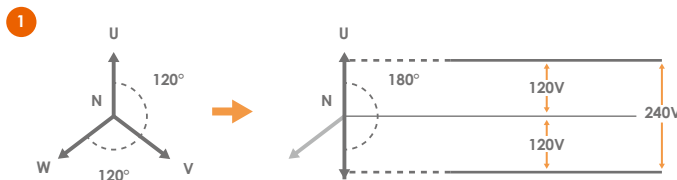
PAS series' harmonics waveform synthesis function can allow user to program multiplex distorted harmonic waveform of up to 25 steps. It can simply set up voltage and adjust start phase of each step base on fundamental frequency 50Hz or 60Hz.

Three Phase Independent Adjustment

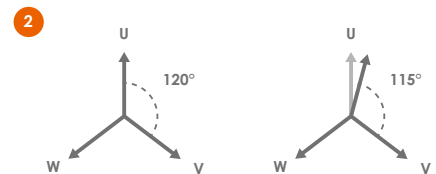
The Three Phase Independent Adjustment function of PAS series can simulate advanced power line disturbance such as three-phase voltage imbalance or lost-phase, which can further meet up with standard of IEC61000-4-34 and GB/T 17626-34. To set output voltage of each phase independently, user can simply press the screen icon to switch between imbalance or unbalanced voltage setting for three phase independent voltage adjustment.



Three Phase Angle Adjustment



JP	100V/200V
TW	110V/220V
USA	120V/240V
CA	120V/240V
MX	120V/240V



The PAS series offers advanced functionality with the ability to independently set the voltage for each phase and adjust the phase angle between them through the optional Phase Angle Adjustment feature. This allows users to simulate phase shifting, replicating various power conditions. With a single unit, users can conveniently simulate single-phase three-wire or single-phase two-wire power systems, providing versatile testing capabilities for diverse applications.

SPECIFICATIONS

PAS Series & PFV Series Three-Phase Output (30kVA-1000kVA)

Model	PAS-F-33030	PAS-F-33045	PAS-F-33060	PAS-F-33075	PAS-F-33100	PAS-F-33120	PAS-F-33150	PAS-F-33200	PAS-F-33300	PAS-F-33400	PAS-F-33600	PAS-F-33800	PAS-F-331000
	PFV-33030	PFV-33045	PFV-33060	PFV-33075	PFV-33100	PFV-33120	PFV-33150	PFV-33200	PFV-33300	PFV-33400	-	-	-
INPUT													
Phase	3Ø / 3 Wire + G												
Voltage ^{*1}	380V±15%												
Frequency	47-63Hz												
Max. Current ^{*2}	58.7A	88.1A	117.4A	146.8A	195.7A	234.9A	293.6A	391.4A	587.1A	782.8A	1174.3A	1565.7A	1957.1A
Power Factor	≥ 0.99(Max. Power)												
OUTPUT													
Power (VA)	30kVA	45kVA	60kVA	75kVA	100kVA	120kVA	150kVA	200kVA	300kVA	400kVA	600kVA	800kVA	1000kVA
Phase	3Ø / 4 Wire + G												
Voltage Ranges	Low(V)	0V-150.0V(L-N)											
PFV Series	High(V)	0V-300.0V(L-N)											
Voltage Ranges PAS- F Series	0V-300.0V(L-N)												
Voltage Resolution	0.1V												
Voltage Accuracy	0.5% F.S.+4 counts												
Frequency Range	Standard : 45-65Hz Option : 40-70Hz												
Frequency Resolution	0.1Hz												
Frequency Accuracy	±0.02% F.S												
Max.Current(RMS) PAS- F Series	41.6A	62.5A	83.3A	104.1A	138.9A	166.6A	208.3A	277.8A	416.7A	555.6A	833.3A	1111.1A	1388.8A
Max. Current (RMS)	Low(A)	83.3A	125A	166.7A	208.3A	277.8A	333.3A	416.7A	555.6A	833.3A	1111.1A	-	-
PFV Series	High(A)	41.6A	62.5A	83.3A	104.1A	138.9A	166.6A	208.3A	277.8A	416.7A	555.6A	-	-
Line Regulation	≤ 1%												
Load Regulation	≤ 1% (Resistive Load)												
Total Harmonic Distortion(THD)	≤ 2% (Resistive Load)												
Response Time	≤ 2ms												
Crest Factor	≥ 3												
MEASUREMENT													
Voltage Range	0V-300.0V												
Voltage Resolution	0.1V												
Voltage Accuracy	0.5%F.S.+4counts												
Frequency Range	Standard : 45-65Hz Option : 40-70Hz												
Frequency Resolution	0.01Hz												
Frequency Accuracy	±0.02% F.S												
Current Range(RMS)	0-9999A												
Current Resolution(RMS)	0.1A												
Current Accuracy(RMS)	0.5% F.S.+4counts												
Power Range	0-1000kW												
Power Resolution	0.1kW												
Power Accuracy	1% F.S.+6 counts												
GENERAL													
Regenerative Function	YES												
Voltage Ride Through (VRT)	PAS Series : YES , PFV Series : NO												
Three-phase independent adjustment	YES												
Phase Angle Setting	YES												
Efficiency	≥ 92% at Max. Power												
HMI	Touch Screen												
Protection	Input : Input N.F.B, Over Voltage, Under Voltage Output : Over Voltage, Over Current, Reverse Current, Over Temperature												
Harmonics Editor	2-25 times (PAS series optional)												
Remote Interface	Standard : RS-485, RS-232 Option : GPIB, Ethernet, USB												
Operating Temperature	0°C ~45°C												
Humidity	0-90% (Non condensing)												
Altitude	< 1,500m												
Dimensions (H x W x D) ^{*3}	1920 x 1200 x 800 mm /75.59 x 47.24 x 31.49 inch		2120 x 1200 x 800 mm /83.46 x 47.24 x 31.49 inch		2120 x 1600 x 800 mm / 83.46 x 62.99 x 31.49 inch				2050 x 3530 x 1520mm / 82.67 x 129.92 x 49.21 inch		2050 x 4664 x 1520mm / 82.67 x 183.62 x 49.21 inch		2050 x 5635x 1520mm / 80.71 x 221.85 x 59.84 inch
Weight ^{*4}	860kg	1000kg	1150kg	1315kg	1415kg	1495kg	1585kg	1895kg	2685kg	3485kg	5270kg	6640kg	8530kg
	1892 lbs	2200 lbs	2530 lbs	2893 lbs	3113 lbs	3289 lbs	3487 lbs	4169 lbs	5907 lbs	7667 lbs	11594 lbs	14608 lbs	18766 lbs

*1 Please contact for other voltage specification. *2 The max. current is based on a rated input voltage of 380V minus 15%. *3 Please contact us for detailed dimensions.

*4 The weight of certain models is estimated. For detailed specifications, please contact us. * All specifications are subject to change without notice.

ORDERING INFORMATION

PAS-F Series Three-Phase Output (30kVA-1000kVA)

Model Number	Description
PAS-F 33030	Regenerative Grid Simulator (30kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33045	Regenerative Grid Simulator (45kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33060	Regenerative Grid Simulator (60kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33075	Regenerative Grid Simulator (75kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33100	Regenerative Grid Simulator (100kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33120	Regenerative Grid Simulator (120kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33150	Regenerative Grid Simulator (150kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33200	Regenerative Grid Simulator (200kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33300	Regenerative Grid Simulator (300kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33400	Regenerative Grid Simulator (400kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33600	Regenerative Grid Simulator (600kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 33800	Regenerative Grid Simulator (800kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 331000	Regenerative Grid Simulator (1000kVA/300V/45-65Hz, Including LVRT Testing)
PAS-F 001	Soft Start Function
PAS-F 002	GPIO Interface
PAS-F 003	Ethernet Interface
PAS-F 004	USB Interface
PAS-F 005	Output Frequency 40-70Hz
PAS-F 006	Harmonics Editor
PAS-F 007	Output Voltage 0-350V (L-N)
ACCS-001	USB to RS-485 converter +RS-232/RS-485 Cable M-F type (2M)
ACCS-002	USB to RS-232 converter +RS-232/RS-485 Cable M-F type (2M)
ACCS-003	RS-232/RS-485 Cable M-F type (2M)

PFV Series Three-Phase Output (30kVA-400kVA)

Model Number	Description
PFV-33030	High Power Programmable AC Power Source (30kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33045	High Power Programmable AC Power Source (45kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33060	High Power Programmable AC Power Source (60kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33075	High Power Programmable AC Power Source (75kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33100	High Power Programmable AC Power Source (100kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33120	High Power Programmable AC Power Source (120kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33150	High Power Programmable AC Power Source (150kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33200	High Power Programmable AC Power Source (200kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33300	High Power Programmable AC Power Source (300kVA/300V/45-65Hz, Including Regenerative Function)
PFV-33400	High Power Programmable AC Power Source (400kVA/300V/45-65Hz, Including Regenerative Function)
PFV-001	Soft Start Function
PFV-002	GPIO Interface
PFV-003	Ethernet Interface
PFV-004	USB Interface
ACCS-001	USB to RS-485 converter +RS-232/RS-485 Cable M-F type (2M)
ACCS-002	USB to RS-232 converter +RS-232/RS-485 Cable M-F type (2M)
ACCS-003	RS-232/RS-485 Cable M-F type (2M)