

PAS /PFV Series

Regenerative Grid Simulator

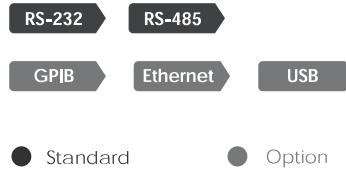
45kVA~2000kVA

CE RoHS
Compliant



- PAS has built-in low voltage ride through (LVRT) mode, which can be easily used for simulating the voltage drop test according to different test standards.
- PAS/PFV equip with energy feedback feature that feeds energy back into the grid system for saving energy and sinking the power from grid tie devices.
- PAS series is suitable for standard verification. For example: UL1741, IEEE 1547, BDEW, and CE10-16 etc.
- Three phase independent voltage adjustment is suitable for three phase unbalance testing or multiple single phase test units. It also equips with phase angle adjustment.
- Standard RS-232, RS-485 communication interface, optional GPIB, Ethernet and USB.
- With 7 inch LCD touch screen display, it can display output voltage, current, frequency, active/apparent power, power factor, test information at the same time.
- More protection mechanism, detect output undervoltage/overvoltage, overcurrent, over load, input undervoltage/overvoltage, over temperature... etc 20 fault conditions and record 255 operation and alarm information for troubleshooting and analysis.
- Step or gradual mode programmable memories can be used for simulate abnormal power condition and run in automatically sequences, which allows you to setup different voltage and frequency in each steps for your power simulation requirements.

Interfaces



Applications

- Laboratory/Certification Bureau
- Electric Vehicles
- Renewable Energy
- Motor & Compressor

PAS Series

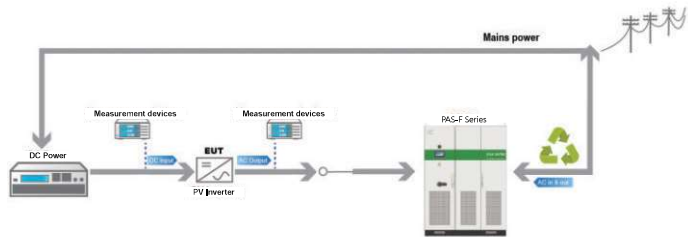
PAS Series product is developed for renewable energy related applications. It can simulate the various grid conditions and related test standards. Especially the voltage or frequency transient simulation test feature, it is very suitable for production, quality verification, research and development. It also builds in with Low Voltage Ride Through Test (LVRT) test function, step mode 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 tie devices testing applications.

The maximum output power for PAS series is up to 2000kVA, and the PFV series is up to 200kVA. The output voltage range is 0~300VL-N and the standard output frequency is 45~65Hz continuously adjustable (optional 40~70Hz).

Regenerative Function



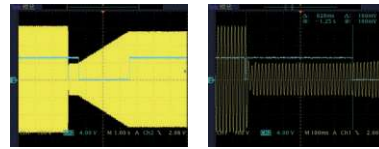
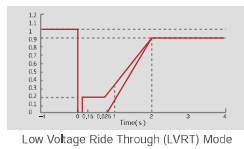
PAS series is a four-quadrant AC power source which is capable to be a power source or sink the power from the EUT back to the grid system with 90% efficiency. It is suitable for PV Inverter test, EV charger test or other grid tie devices test.

Build in with Low Voltage Ride Through (LVRT) test graph and it is very suitable for IEEE-1547 or BDEW related standards compliance test.

Product Features

- 1. Excellent Regulation Rate** Load regulation rate is less than 1%
- 2. High Efficiency** Efficiency up to 92%
- 3. High Output Power quality** Clean output sinewave and low impact to the input grid system.
 - THD (Harmonic distortion) $\leq 2\%$
 - ITHD (input current harmonic) $\leq 5\%$
 - PF (input power factor) 0.99
- 4. Built-in Features** LVRT/HVRT simulations
- 5. Four Quadrant AC Source** Capable to regenerate and recycle the power

Low Voltage Ride Through (LVRT)



Built-in Low Voltage Ride Through (LVRT) mode can simulate the grid in abnormal conditions.

The settings include rated voltage, frequency, drop voltage, recovery voltage, rise time and drop time to simulate various grid conditions.

A Variety of Built-in Programmable Features

Step Mode

Gradual Mode

Phase Angle Adjustment

Low Voltage Ride Through

PAS/PFV series has a number of programmable features that can effectively and accurately simulate a variety of power abnormal conditions or disturbance. Through the built-in step and gradual mode, users can simulate voltage and frequency single-step or continuously changes, such as voltage and frequency ramp up/ ramp down, instantaneous changes, and so on. Phase angle and three phase independent adjustment function can be used for simulating three phase imbalance and further test the reliability of the EUT. With low voltage ride through and regenerative function, PAS series is suitable for PV Inverter, Bi-directional EV charger, Energy Storage System as an all purpose grid system simulator.

Model Comparison

Model series	PAS	PFV	AFV
General Mode	○	○	○
Step Mode	○	○	○
Gradual Mode	○	○	○
Soft Start Function	△	△	△
Three-phase independent adjustment	○	○	△
Phase Angle Setting	○	○	△
Low Voltage Ride Through (LVRT)	○	-	-
Regenerative Function	○	○	-

○ Standard △ Optional - N/A

SPECIFICATIONS

PFV Series & PAS-F Series three-Phase Output (45kVA - 200kVA)

Model	PFV-33045	PFV-33060	PFV-33075	PFV-33100	PFV-33120	PFV-33150	PFV-33200	
	PAS-F-33045	PAS-F-33060	PAS-F-33075	PAS-F-33100	PAS-F-33120	PAS-F-33150	PAS-F-33200	
INPUT								
Phase	3Ø / 4 Wire + G							
Voltage ¹	380V±15%							
Frequency	47 - 63Hz							
Max. Current ²	86A	115A	150A	200A	240A	300A	400A	
Power Factor	≥ 0.99 (Max. Power)							
OUTPUT								
Power	VA	45kVA	60kVA	75kVA	100kVA	120kVA	150kVA	200kVA
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		0.15% F.S.+4 counts						
Frequency Range		Standard : 45 ~ 65Hz Option : 40-70Hz						
Frequency Resolution		0.1Hz						
Frequency Accuracy		±0.1% F.S						
Max. Current(RMS)	Low(A)	125A	166.7A	208.3A	277.8A	333.3A	416.7A	555.6A
PFV Series	High(A)	62.5A	83.3A	104.1A	138.9A	166.6A	208.3A	277.8A
Max. Current(RMS) PAS-F Series		62,5A	83,3A	104,1A	138,9A	166,6A	208,3A	277,8A
Line Regulation		< 1%						
Load Regulation		< 1% (Resistive Load)						
Total Harmonic Distortion (THD)		≤ 2% (Resistive Load)						
Response Time		≤ 2ms						
MEASUREMENT								
Voltage Range		0V-300.0V						
Voltage Resolution		0.1V						
Voltage Accuracy		0.1%F.S.+2 counts						
Frequency Range		Standard : 45 ~ 65Hz Option : 40-70Hz						
Frequency Resolution		0.01Hz						
Frequency Accuracy		±0.01% F.S.						
Current Range (RMS)		0 ~ 9999A						
Current Resolution (RMS)		0.1A						
Current Accuracy (RMS)		0.1% F.S.+2 counts						
Power Range		0-400kW						
Power Resolution		0.1kW						
Power Accuracy		0.2% F.S.+2 counts						
GENERAL								
Regenerative Function		YES						
Low Voltage Ride Through (LVRT)		PAS Series : YES , PFV Series : NO						
Three-phase independent adjustment		YES						
Phase Angle Setting		YES						
Efficiency		≥ 92% at Max. Power						
HMI		Touch Screen, 7" Color TFT LCD						
Protection		Input : Input N,F,B, Over Voltage, Under Voltage, Output : Over Voltage, Over Current, Reverse Current, Over Temperature						
Remote Interface		Standard : RS-485, RS-232 Option : GPIB , USB , Ethernet						
Operational Temperature		0°C ~45°C						
Humidity		0-90% (Non condensing)						
Altitude		< 1,500 m						
Dimensions (H x W x D)		2100 x 1200 x 800mm			2100 x 1600 x 800mm			
		82.67 x 47.24 x 31.49inch			82.67 x 62.99 x 31.49inch			
Weight		1050kg	1185kg	1485kg	1919kg	2300kg	2700kg	3400kg
		2314.9lbs	2612.5lbs	3273.9lbs	4230.7lbs	5070.6lbs	5952.5lbs	7495.7lbs

*1 Please contact for other voltage specification.

*2 The rated input voltage is 380V.

* all specifications are subject to change without notice.

ORDERING INFORMATION :

PAS-F Series three-Phase Output (45kVA - 200kVA)

Model Number	Description
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/45-65H, 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 001	Soft Start Function
PAS-F 002	GPIB Interface
PAS-F 003	Ethernet Interface
PAS-F 004	USB Interface
PAS-F 005	Output Frequency 40-70Hz

PFV Series three-Phase Output (45kVA - 200kVA)

Model Number	Description
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-001	Soft Start Function
PFV-002	GPIB Interface
PFV-003	Ethernet Interface
PFV-004	USB Interface