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

PAS/PFV series

Regenerative Grid Simulator

Interfaces

Standard RS-232 RS-485

Option Ethernet GBIP USB

QR Code

Product Info.

Product Video

Output Power

30kVA~2000kVA

RoHS Compliant CE

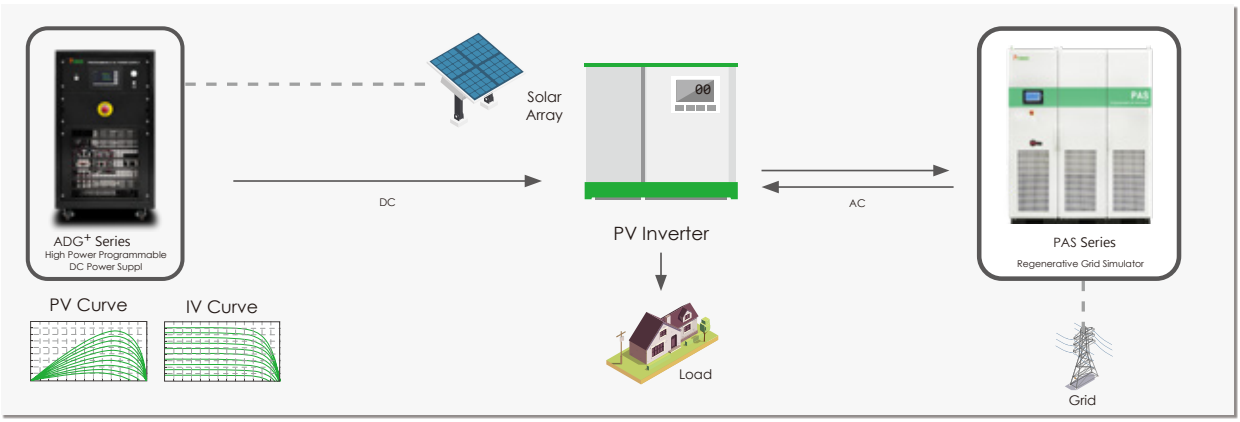
PAS series is developed for renewable energy related applications. It can simulate the various grid conditions and related test standards. Especially for the voltage and frequency transient simulation test feature, which is very suitable for production, quality verification, research and development. 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



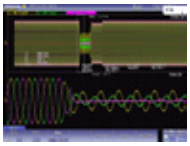
PAS series is a four-quadrant AC power source. Even in 2000kVA output power, it is capable to both sink and source over 90% efficiency from the DUT. It is suitable for PV Inverter test, EV charger test or other grid-tied devices test. Build in with Low Voltage Ride Through (LVRT) and High Voltage Ride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

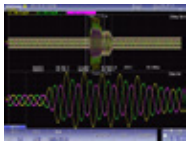
Independent setting for three phase high/low voltage ride through to simulate voltage surge and drop.

Low Voltage Ride Through Setting



LVRT Output Waveform

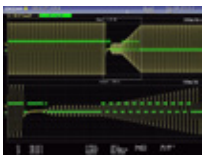
High Voltage Ride Through Setting



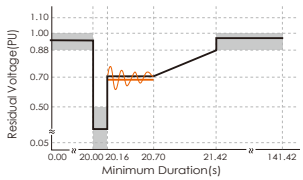
HVRT Output Waveform

Low Voltage Ride Through Test-IEEE Std 1547.1-2020

Setting for LVRT



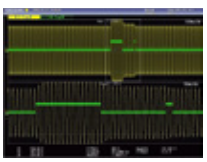
LVRT Output Waveform



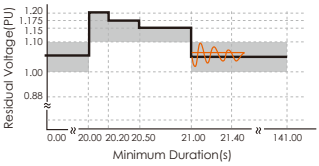
LVRT Test Standard IEEE Std 1547.1-2020

High Voltage Ride Through Test-IEEE Std 1547.1-2020

Setting for HVRT



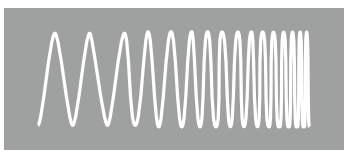
HVRT Output Waveform



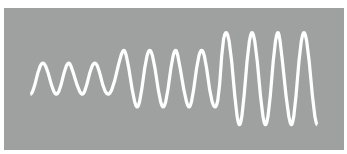
HVRT Test Standard IEEE Std 1547.1-2020

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



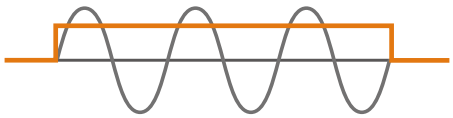
Frequency Gradual Function



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

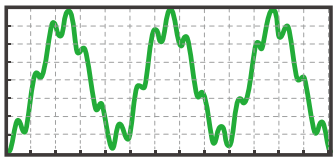


5V DC Synchronized Signal

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



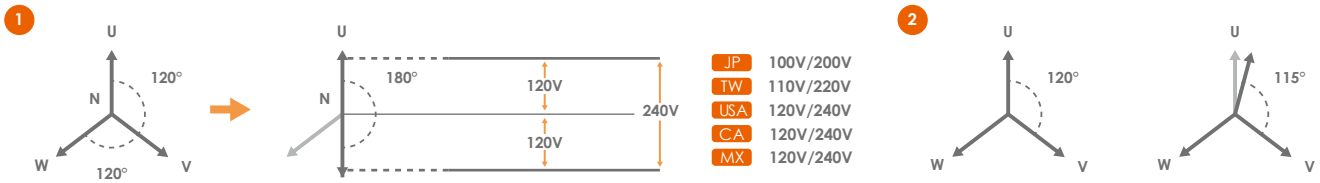
Simulating Harmonics Waveform

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



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 / PFV-33030	PAS-F-33045 / PFV-33045	PAS-F-33060 / PFV-33060	PAS-F-33075 / PFV-33075	PAS-F-33100 / PFV-33100	PAS-F-33120 / PFV-33120	PAS-F-33150 / PFV-33150	PAS-F-33200 / PFV-33200	PAS-F-33300 / PFV-33300	PAS-F-33400 / PFV-33400	PAS-F-33600 / -	PAS-F-33800 / -	PAS-F-331000 / -
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 PFV Series	Low(V)	0V-150.0V(L-N)												
	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) PFV Series	Low(A)	83.3A	125A	166.7A	208.3A	277.8A	333.3A	416.7A	555.6A	833.3A	1111.1A	-	-	-
	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℃ ~45℃												
Humidity		0-90% (Non condensing)												
Altitude		< 1,500m												
Dimensions (H x W x D)[*3]		2000 x 1200 x 800 mm /78.74x 47.24 x 31.49 inch		2200 x 1200 x 800 mm /86.61x 47.24 x 31.49 inch		2200 x 1600 x 800 mm / 86.61 x 62.99 x 31.49 inch				2050 x 3530 x 1520mm / 80.71 x 138.97 x 59.84 inch			2050 x 5635x 1520mm / 80.71 x 221.85 x 59.84 inch	
Weight[*4]		942kg	1050kg	1185kg	1485kg	1919kg	2300kg	2700kg	3400kg	4500kg	5600kg	6000kg	6638kg	7500kg
		2076.8 lbs	2314.9 lbs	2612.5 lbs	3273.9 lbs	4230.7 lbs	5070.6 lbs	5952.5 lbs	7495.7 lbs	9920.8 lbs	12345.8 lbs	13227.7 lbs	14634.2 lbs	16534.6 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/45-65H, 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 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	GPIB 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	GPIB 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)