APS-7000 Series

500/1000 VA Programmable AC Power Source

FEATURES

- 4.3” large LCD Display
- Measurement Function :
  Voltage, Current, Power, Frequency, Power Factor,
  Crest Factor, Apparent Power, Ipeak, Ipk hold
- Surge/Dip Control Mode
- Frequency : 45.0 ~ 500.0Hz(Std); 45.0 ~ 999.9Hz(Opt)
- Voltage Range(RMS) : 155V(Std)/310V(Std)/600V(Opt)
- OVP/OCP/OTP Protection
- Simulate Mode, Sequence Mode, Program Mode
- Ramp Control Function
- ARB (Function Waveform) Mode
- Standard Interface : USB/LAN
- Optional Interface : RS-232 & USB CDC/GPIB

GW INSTEK
Simply Reliable

High Precision Output AC Power Source
Satisfy Low-Power Consumption Measurements

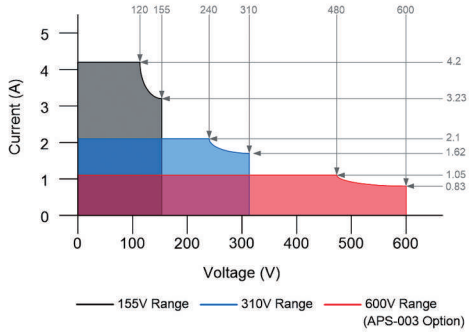
The APS-7000 Series is an AC power source, containing abundant features for the testing and characteristic analysis of power supplies, electronic devices, components and modules. The APS-7000 Series is fully programmable to simulate different power outputs. All parameters and values as well as measurement results are displayed simultaneously on the 4.3 inch TFT-LCD screen.

The APS-7000 Series comprises nine measurement functions (Vrms, Irms, F, Ipk, W, VA, PF, Ipk hold, CF), and provides user interface similar to that of AC Power Meter. The APS-7000 Series, internal circuit design 4 sets of current range to improve measurement resolution, is ideal for the LED industry and standby mode power consumption test. Under the ARB (function waveform) mode, the APS-7000 Series provides waveforms, including SINE waveform, Triangle waveform, Staircase waveform, Clipped Sinewave, Crest factor waveform, Surge waveform, and Fourier series to meet the requirement of simulating abnormal input power waveform test of different industry.

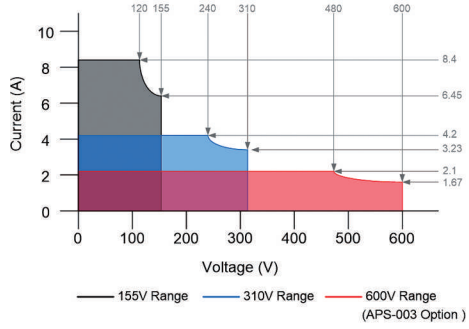
Ten sets of Preset allow users to store ten settings; Power ON Output setting allows Sequence, Simulate, and Program to automatically execute output after the equipment power is on.

The APS-7000 Series features five methods to cope with special purpose or abnormal voltage, frequency, and phase; ten sets of the Simulate mode simulate power outage, voltage rise, and voltage fall; ten sets of the Sequence mode allow users to define parameters and produce sine wave by editing steps; Ramp Control allows users to set the variation speed for output voltage rise and fall; Surge/Dip Control simulates DUT's input power producing a Surge or Dip voltage overlapping with output voltage waveform at a specific time. Ethernet Port, on the rear panel of the series, can be used for remote program control; Sync Output Socket provides external 10V sync output; Signal Output Connector provides monitor of Program execution results. the APS-7000 Series also provides Trigger In/Out and Output on/off remote control functions from J1 connector on the rear panel.

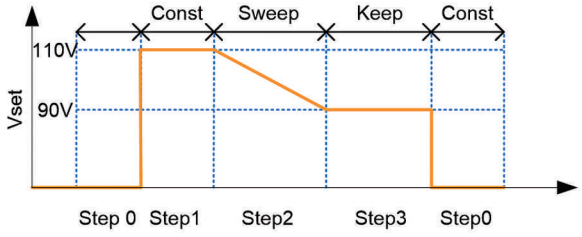
APS-7050/7050E Output Operating Area



APS-7100/7100E Output Operating Area



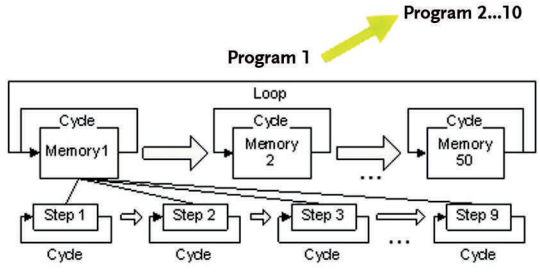
A. SEQUENCE MODE



Sequence Waveform

There are ten sets of Sequence mode and each set has 0 ~ 255 steps. The time setting range for each step is 0.01 ~ 99.99 seconds. Combining many sets of steps to edit required waveforms satisfies users' requirement of highly complicated waveforms.

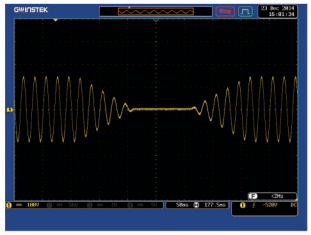
B. PROGRAM MODE



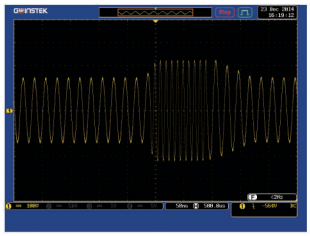
Program Mode

This mode allows users to set ceiling and floor specifications to produce PASS/FAIL result after the measurement is done. It can also show test results for each test procedure or only show the last result. There are ten sets of Program mode and each set has 50 sets of memories. Each memory comprises 9 steps. Each Program will perform according to memories sequence, self-defined loops or designated steps to stop.

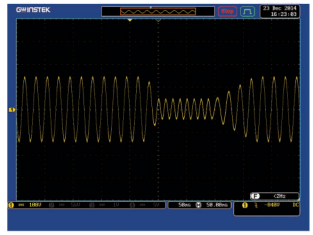
C. SIMULATE MODE



Power Outage



Voltage Rise

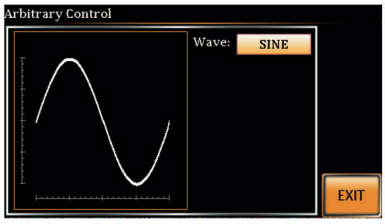


Voltage Fall

This mode can rapidly produce different simulated input transient waveforms such as power outage; voltage rise and voltage fall etc. for engineers to evaluate the impact on DUT posed by the transient phenomena. For instance, capacitor endurance test.

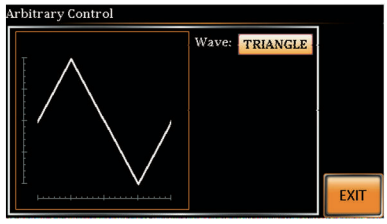
D. ARB MODE

This mode provides more than 50 different waveforms in 7 major categories to rapidly simulate distorted AC voltage waveforms.



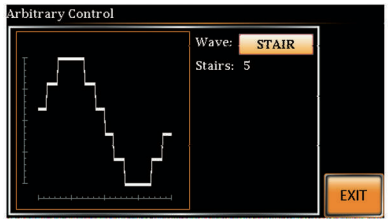
Sine Waveform

Standard AC Waveform



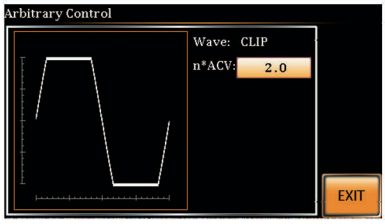
Triangle Waveform

Power harmonic output simulation is triangle waveform



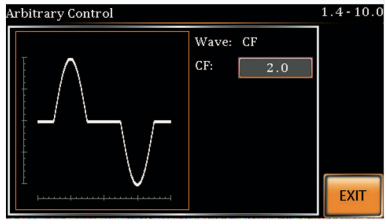
Staircase Waveform

Simulate square waveform and staircase waveform for commercial UPS



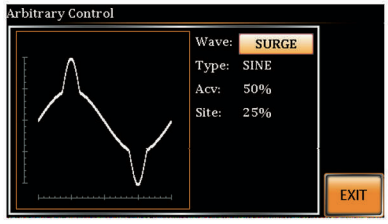
Clipped Sinewave

Simulate grid power supply heavy load waveform



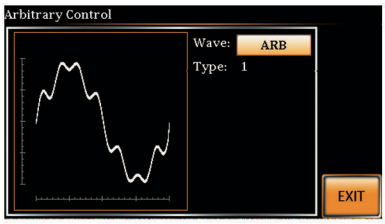
Crest Factor Waveform

Simulate rectified filter current waveform by capacitor input



Surge Waveform

Simulate grid power supply's peak over-voltage

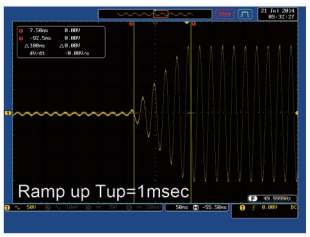


Fourier Series Synthesized Waveform

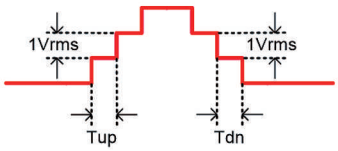
Simulate real output power waveform. Distorted power waveform is produced due to output impedance and non-linear effect such as inductance, capacitance, and parasitic capacitance effect.
For example : motor.

E. RAMP CONTROL

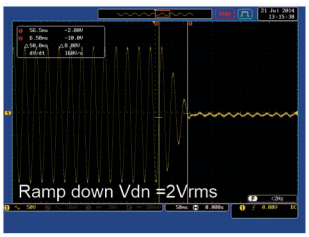
Ramp control allows users to set output voltage rise or fall speed which is based on time (1ms) or voltage (1Vrms) unit.



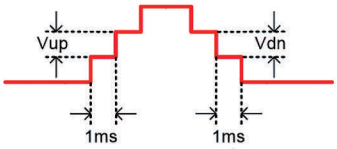
Mode=Time, Tup=1 msec, VAC=100V,
Freq=50Hz, Ramp output=on.



Tup-> 0.1 ~ 999.9ms
Tdn-> 0.1 ~ 999.9ms

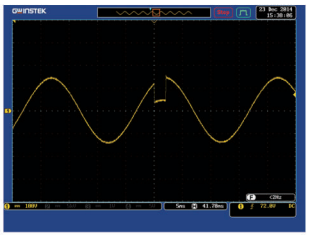


Mode=Voltage, Vdn=2Vrms, VAC=100V,
Freq=50Hz, Ramp output=off.

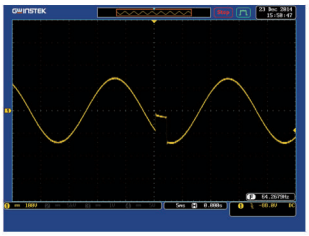


Vup-> 0.01 ~ 99.99 Vrms
Vdn-> 0.01 ~ 99.99 Vrms

F. SURGE/DIP CONTROL



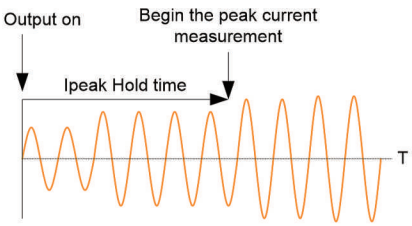
Dip



Surge

Overlapping a Surge/Dip voltage on a normal voltage as the input power for DUT allows users to simulate Surge/Dip situation and evaluate DUT characteristics.

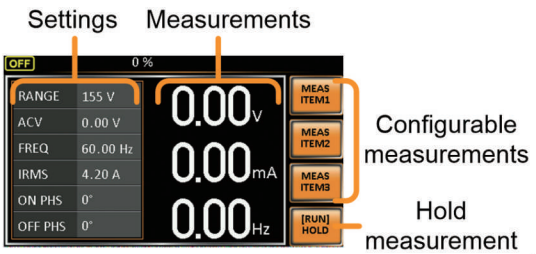
G. T IPEAK, HOLD FUNCTION



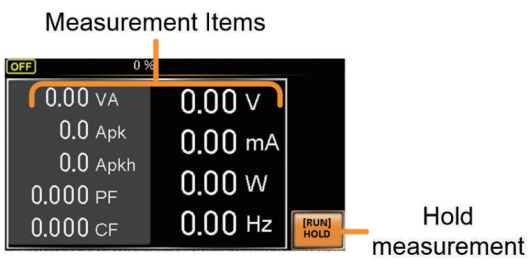
Ipeak Measurement

T, Ipk Hold sets delay time (1ms~60 seconds) for measurement after the output of Ipeak value and the maximum value will be retrieved. Update will be preceded only if measured value is greater than the original value. Ipk Hold is for measuring transient inrush current as soon as the equipment power is on that is usually done by oscilloscope and current probe. T, Ipk Hold delay time setting can be applied to measure inrush current of sequentially activated DUT.

H. CONTROL PANEL CHARACTERISTICS



Standard Mode



Simple Mode

There are two control panel modes : Standard mode and Simple mode. Both modes are shown as above. Standard mode combines settings and AC Power Meter measurement window display. Users apply Function key (F1~F3) to select required measurement items. There are nine items for selection. Simple mode shows all measurement items on the display.

PANEL INTRODUCTION

CE USB GPIB LAN RS-232

1. AC Power Switch
2. Universal Regional Plug
3. USB A Port
4. Display 4.3 inch TFT
5. Function Keys
6. Scroll Wheel
7. Line Voltage Input
8. Ethernet Port
9. Remote Control -J1 Connector
10. Signal Output Connector
11. Sync Output
12. GPIB
13. Rear Panel Output Terminal

SELECTION GUIDE

Model Name		APS-7050/APS-7100	APS-7050E/APS-7100E
FUNCTION	Surge / Dip Control	✓	–
	ON / OFF Phase	✓	–
	Ramp Control	✓	–
	Arbitrary (Function Waveform) Mode	✓	–
	Simulate Mode	✓	V (Test mode)
	Sequence Mode	✓	–
	Program Mode	✓	–
	T Ipeak, hold function	✓	–
	Power ON Output function	✓	–
	SCPI Emulation	✓	–
	Preset Settings	✓	✓
MEASUREMENT	Vrms, Irms, F, W, PF, Ipeak	✓	✓
	Ipeak Hold	✓	–
	VA,CF	✓	–
	High Resolution	✓	✓
TERMINAL	Sync Output Socket	✓	–
	Signal Output Terminal	✓	–
	Remote Control Terminal	✓	–
INTERFACE	LAN	✓	–
	GPIB Option	✓	–
	RS-232 / USB Option	✓	–
FRONT PANEL	USB A Port	✓	✓
	Display	4.3 inch LCD	4.3 inch LCD
	Function Keys	✓	✓
	Menu Key	✓	✓
	Test Key	✓	✓
	Preset Key	✓	✓
	Keypad	✓	✓
	Scroll wheel	✓	✓
	Output Socket Universal	✓	✓
	Euro Type	✓	✓

SPECIFICATIONS

Model		APS-7050	APS-7100	APS-7050E	APS-7100E
Power Rating		500VA	1000VA	500VA	1000VA
Output Voltage		0 ~ 310.0 Vrms	0 ~ 310.0 Vrms	0 ~ 310.0 Vrms	0 ~ 310.0 Vrms
Output Frequency		45.00 ~ 500.0 Hz	45.00 ~ 500.0 Hz	45.00 ~ 500.0 Hz	45.00 ~ 500.0 Hz
Maximum Current (r.m.s)	0~155Vrms	4.2A	8.4A	4.2A	8.4A
	0~310Vrms	2.1A	4.2A	2.1A	4.2A
Maximum Current (peak)	0~155Vrms	16.8A	33.6A	16.8A	33.6A
	0~310Vrms	8.4A	16.8A	8.4A	16.8A
OPT. APS-003 (r.m.s)	0~600Vrms	1.05A@480V	2.1A@480V	–	–
OPT. APS-003 (peak)	0~600Vrms	4.2A	8.4A	–	–
Total Harmonic Distoration (THD)		≤0.5% at 45 ~ 500Hz (Resistive Load)			
Crest Factor		≥4			
Line regulation		0.1% (% of full scale)			
Load regulation		0.5% (% of full scale)			
Response time		<100us			
SETTING					
Voltage	Range	155Vrms/310Vrms/Auto			
	Resolution	0.01V at 0.00 ~ 99.99Vrms; 0.1V at 100.0 ~ 310.0Vrms			
	Accuracy	±(0.5% of setting+2 counts)			
Frequency	Range	45 ~ 500Hz			
	Resolution	0.01Hz at 45.00 ~ 99.99Hz/0.1Hz at 100.0 ~ 500.0Hz			
	Accuracy	±0.02% of setting			
Power On/Off Phase Angle	Range	0 ~ 359° (APS-7000 Series)			
	Resolution	1° (APS-7000 Series)			
	Accuracy	±1°(45 ~ 65Hz) (APS-7000 Series)			
MEASUREMENT					
Voltage(RMS)	Range	0.20 ~ 38.75Vrms/38.76 ~ 77.50 Vrms/77.51 ~ 155.0Vrms/155.1 ~ 310.0Vrms			
	Resolution	0.01V at 0.00 ~ 99.99Vrms; 0.1V at 100.0 ~ 310.0Vrms			
	Accuracy	±(0.5% of reading + 2 counts)			
Frequency	Range	45 ~ 500Hz			
	Resolution	0.01Hz (at 45Hz~99.99Hz)/0.1Hz (at 100Hz~500.0Hz)			
	Accuracy	±0.1Hz			
Current(RMS)	Range	2.00 ~ 70.00mA/60.0 ~ 350.0mA/0.300 ~ 3.500A/3.00 ~ 17.5A			
	Resolution	0.01mA, 0.1mA, 0.001A, 0.01A			
	Accuracy	±(0.6% of reading+5 counts); 2.00~350.0mA/±(0.5% of reading+5 counts); 0.350~3.500A/±(0.5% of reading+3 counts);3.500~17.50A			
Current(Peak)	Range	0.0 ~ 70.0A			
	Resolution	0.1A			
	Accuracy	±(1% of reading+1 count)			
Power(W)	Resolution	0.01W, 0.1W, 1W			
	Accuracy	±(0.6% of reading + 5 counts); 0.20~99.99W; ±(0.6% of reading + 5 counts); 100.0 ~ 999.9W ±(0.6% of reading + 2 counts); 1000~9999W			
Apparent(VA)	Resolution	0.01VA, 0.1VA, 1VA (APS-7000 Series)			
	Accuracy	±(1% of reading + 5 counts);0.20~99.99VA/±(1% of reading + 5 counts); 100.0~999.9VA/±(1% of reading + 2 counts);1000~9999VA (APS-7000 Series)			
Power Factor	Range	0.000~1.000			
	Resolution	0.001			
	Accuracy	±(2% of reading + 2 counts)			
GENERAL					
Remote Output Signal		Pass , Fail, Test-in Process, Trigger in, Trigger out , OUT ON/OFF (APS-7000 Series)			
Sync Output Signal		Output Signal 10V, BNC type (APS-7000 Series)			
Number of Preset		10(0~9 Numeric keys)			
Protection		OCP, OPP, OHP and Alarm			
SEQUENCE FUNCTION (for APS-7000 Series)					
Number of Memories		10 (0 ~ 9 Numeric keys)			
Number of Steps		255 max. (For each sequence)			
Step Time Setting		0.01 ~ 99.99S			
Operation Within Step		Constant / Keep / Linear Sweep			
Parameters		Output Range, Frequency, Waveform (Sine Wave Only); On Phase, Off Phase, Term Jump Count (0 ~ 255) jump-to, Branch 1, Branch 2, Trigger Output			
Sequence Control		Start, Stop, Hold, Continue, Branch 1, Branch 2			
ENVIRONMENT CONDITIONS					
Operation Temperature		0 ~ +40°C			
Storage Temperature		-10 ~ +70°C			
Operating Temperature		20 ~ 80% RH (No Condensation)			
Storage Humidity		80% RH or less(No Condensation)			
PC REMOTE CONTROL INTERFACE					
Standard Interface		USB Host/LAN (APS-7000 Series)			
Optional Interface		GPIB/RS232 & USB CDC (APS-7000 Series)			
Input Power Source		1φ AC 115/230Vac ±15%			
DIMENSIONS & WEICHT					
		430(W) x 88(H) x 400(D) mm; Approx. 24Kg	430(W) x 88(H) x 560(D) mm; Approx. 38Kg	430(W) x 88(H) x 400(D) mm; Approx. 24Kg	430(W) x 88(H) x 560(D) mm; Approx. 38Kg

Specifications subject to change without notice. PA-7000ESeriesGD2BH

ORDERING INFORMATION

APS-7050	500VA Programmable AC Power Source
APS-7100	1000VA Programmable AC Power Source
APS-7050E	500VA AC Power Source
APS-7100E	1000VA AC Power Source

ACCESSORIES

CD ROM (User Manual, Programming Manual for APS-7000) x 1,
Power Cord (Region Dependent), Mains Terminal Cover Set, GTL-123 Test Lead

OPTIONAL ASSESSORIES (for APS-7000 Series)

APS-001	GPIB Interface Card
APS-002	RS-232/USB Interface Card
GRA-423	APS-7000 Rack Mount Kit
APS-003	Output Voltage Capacity : 0 ~ 600Vrms
APS-004	Output Frequency Capacity : 45~999.9Hz

OPTIONAL ASSESSORIES (for APS-7000E Series)

GRA-423	APS-7000E Rack Mount Kit

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