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

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.
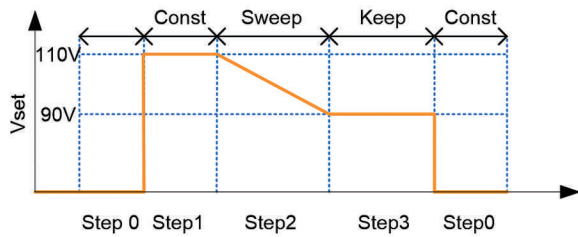
APS-7050 Output Operating Area
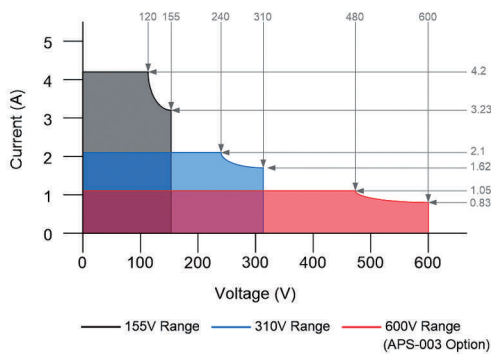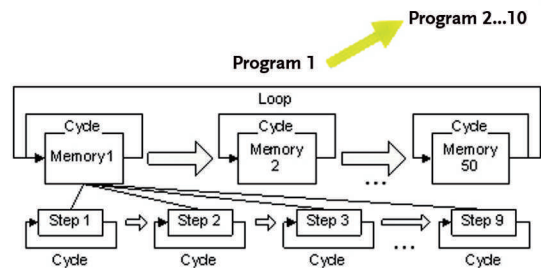
APS-7100 Output Operating Area
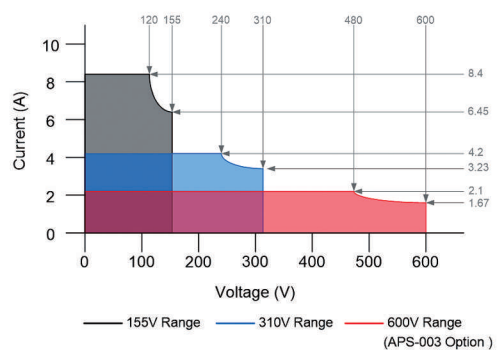
A. SEQUENCE MODE

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.
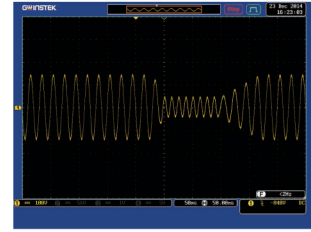
C. SIMULATE MODE
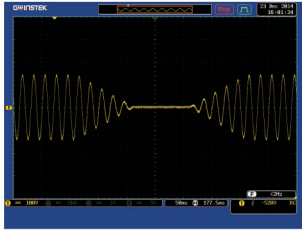


Power Outage
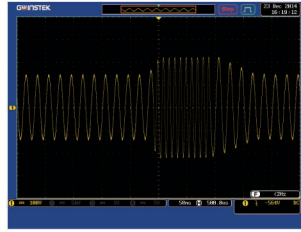
Voltage Rise

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.
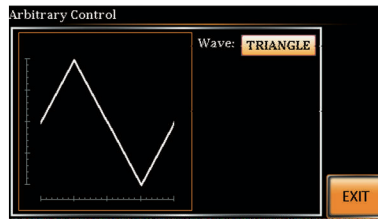
D. ARB MODE

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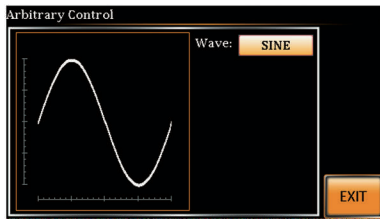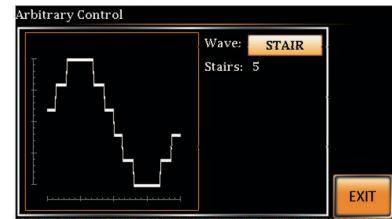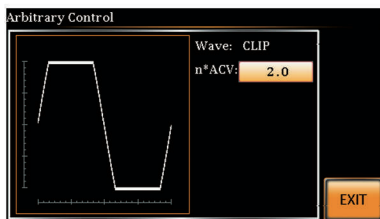

Sine Waveform

Standard AC Waveform

Triangle Waveform

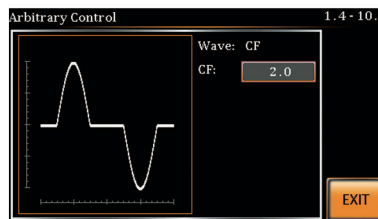Power harmonic output simulation is triangle waveform

Staircase Waveform

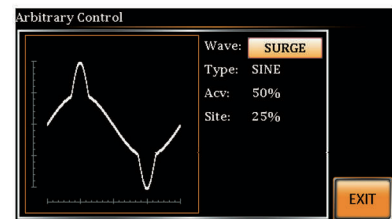Simulate square waveform and staircase waveform for commercial UPS

Clipped Sinewave

Simulate grid power supply heavy load waveform

Crest Factor Waveform
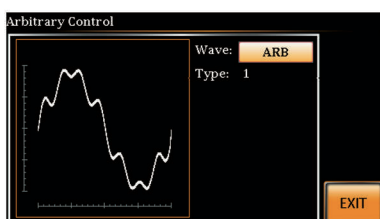
Simulate rectified filter current waveform by capacitor input

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.
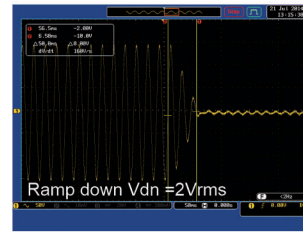For example : motor.

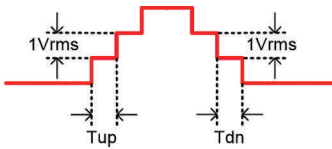Ramp control allows users to set output voltage rise or fall speed which is based on time (1ms) or voltage (1Vrms) unit.

Ramp up Tup=1msec
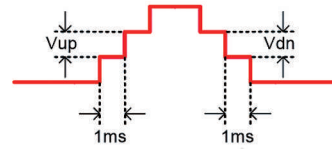

Ramp down Vdn =2Vrms
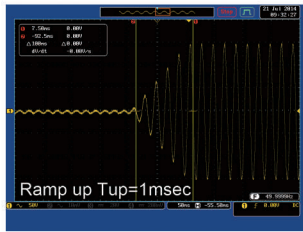
Mode=Time, Tup=1 msec, VAC=100V, Freq=50Hz, Ramp output=on.

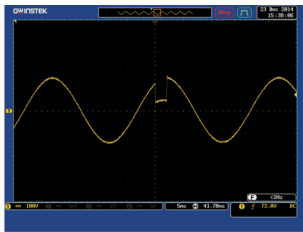Mode=Voltage, Vdn=2Vrms, VAC=100V, Freq=50Hz, Ramp output=off.

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

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

Dip
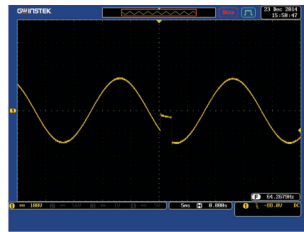
Surge

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.

Output on

Begin the peak current measurement

Ipeak Hold time

T
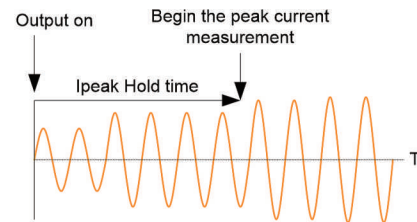
Ipeak Measurement

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.

Settings   Measurements

Configurable measurements

Hold measurement

Standard Mode

Measurement Items
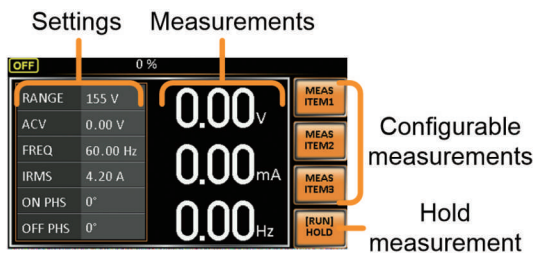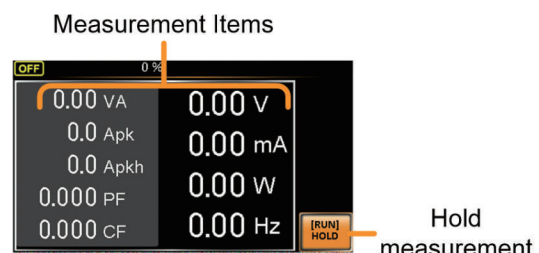
Hold measurement

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.

| 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

APS-7050 Front

APS-7100 Front

APS-7050 (Europe Type Output Outlet)

APS-7100 (Europe Type Output Outlet)

APS-7050 Rear Panel

APS-7100 Rear Panel

SELECTION GUIDE

Model Name	Max. Output Current	Power Rating	Output Voltage
APS-7050	4.2A/2.1A	500VA	0~310.0 Vrms
APS-7100	8.4A/4.2A	1000VA	0~310.0 Vrms

APS-7000 SERIES RACK MOUNT KIT

SPECIFICATIONS

Model		APS-7050	APS-7100
Power Rating		500VA	1000VA
Output Voltage		0 ~ 310.0 Vrms	0 ~ 310.0 Vrms
Output Frequency		45.00 ~ 500.0 Hz	45.00 ~ 500.0 Hz
Maximum Current (r.m.s)	0~155Vrms	4.2A	8.4A
	0~310Vrms	2.1A	4.2A
Maximum Current (peak)	0~155Vrms	16.8A	33.6A
	0~310Vrms	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	Range	0 ~ 359°
Angle	Resolution	1°
	Accuracy	±1°(45 ~ 65Hz)

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,
	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
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
Sync Output Signal	Output Signal 10V, BNC type
Number of Preset	10(0~9 Numeric keys)
Protection	OCP, OPP, OHP and Alarm

SEQUENCE / SIMULATION / FUNCTION

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℃
Storage Temperature	-10 ~ +70℃
Operating Temperature	20 ~ 80% RH (No Condensation)
Storage Humidity	80% RH or less(No Condensation)

PC REMOTE CONTROL INTERFACE

Standard Interface	USB Host/LAN
Optional Interface	GPIB/RS232 & USB CDC
Input Power Source	1φ AC 115/230Vac ±15%

DIMENSIONS

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-7000GD1BH

ORDERING INFORMATION

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

ACCESSORIES

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

OPTIONAL ASSESSORIES

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

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