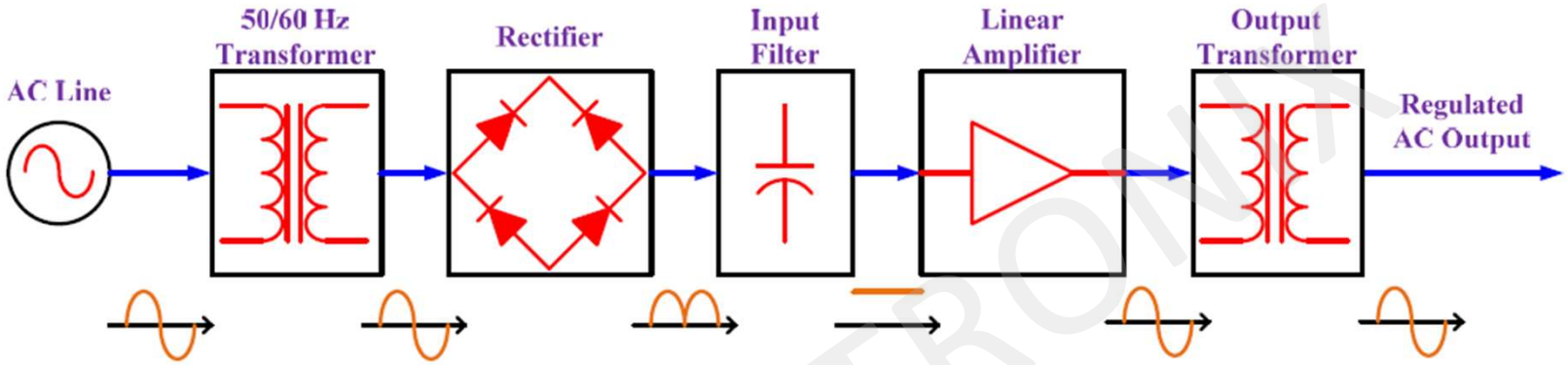
AMETEK®
PROGRAMMABLE POWER

CLEAR VISION SOUND STRATEGIES SOLID PERFORMANCE

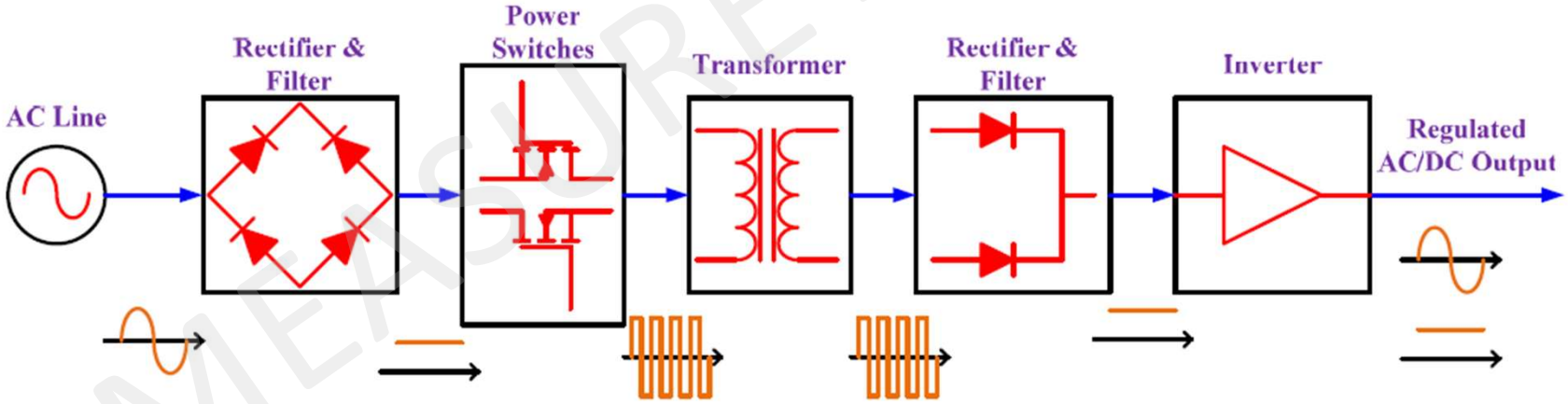
Programmable AC/DC Power Source

AC Power Supply Topologies

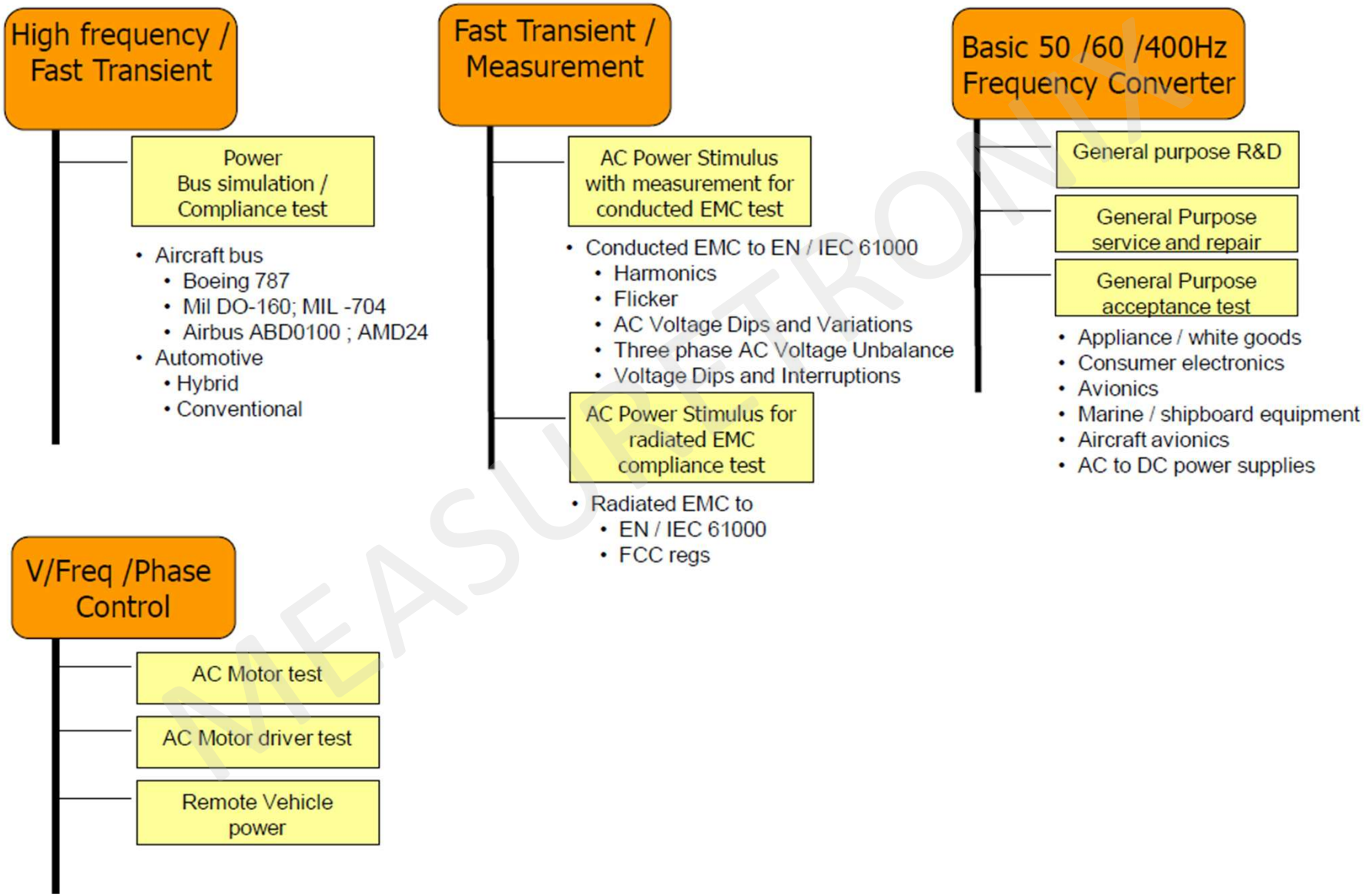
Linear with Output Transformer



Switched Mode

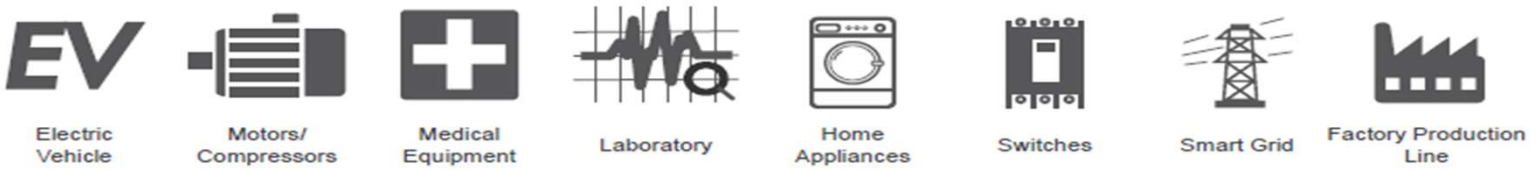


AC Source Key Applications



Applications

- Basic voltage and frequency conversion
- Unique lab power
- Stabilize facility power
- ATE
- Avionics
- IPS
- IEC
- Motor test
- Power supply test
- Tools
- Electronics
- Medical Equipment
- UPS
- Grid tie inverters
- Appliances
- Relay testing
- Watt hour meters
- Life cycle testing
- Wire harness test
- Oil exploration
- Ballast test
- Burn-In
- Product validation
- EMC
- Inverter test



California Instruments i/iX Series II

General purpose AC power sources

- Combination AC and DC Power Source and Power Analyzer
- 3000 VA - 15000 VA of Output Power
- Arbitrary Waveform Generation
- Built-in Digital Power Analyzer
- Scope Capture Capability
- EN61000-3-2 and EN61000-3-3
- Powerful Programing Software
- Constant Power Mode

3000–15000 VA

150–300 V

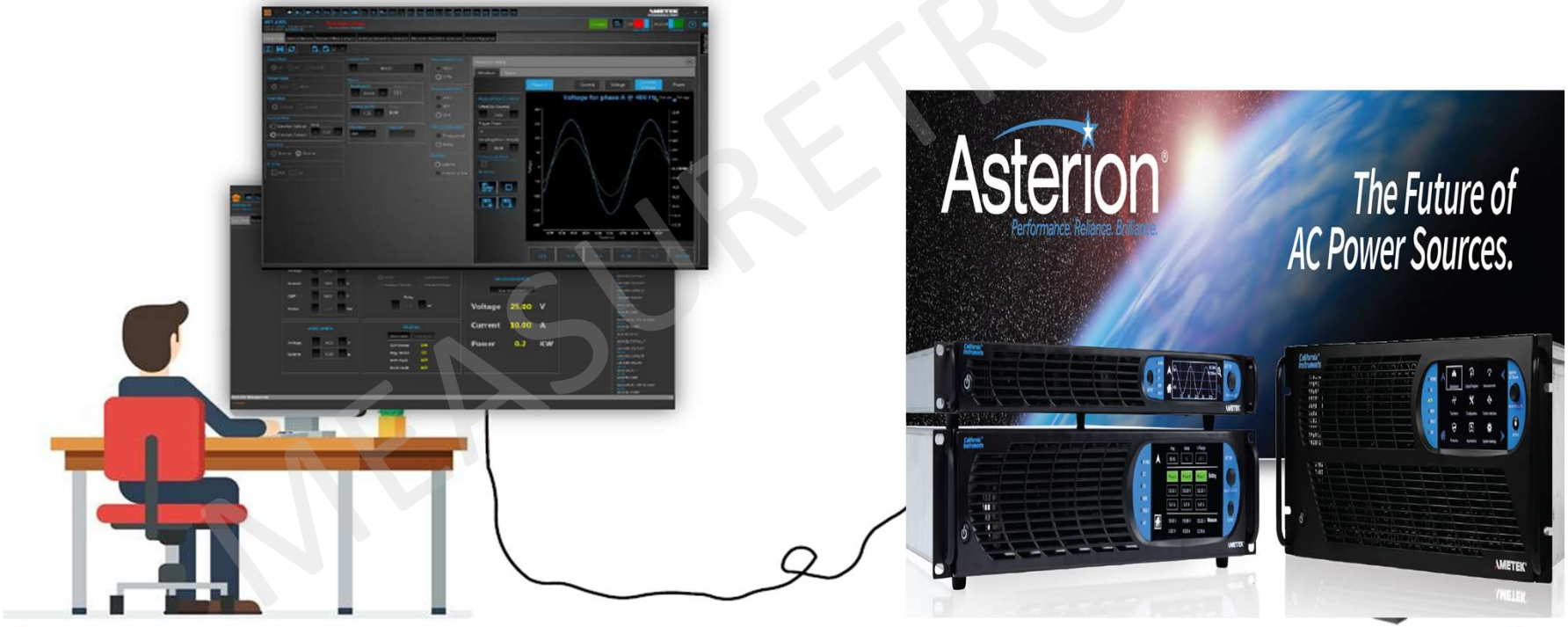
0–120 A

≋	208	230	400
∼	208	230	

ETHERNET USB GPIB RS232

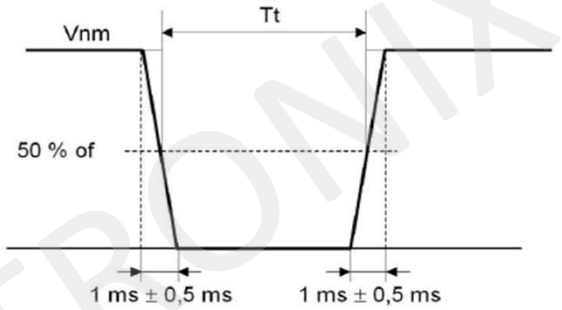
Asterion Customer Advantages – Virtual Panels

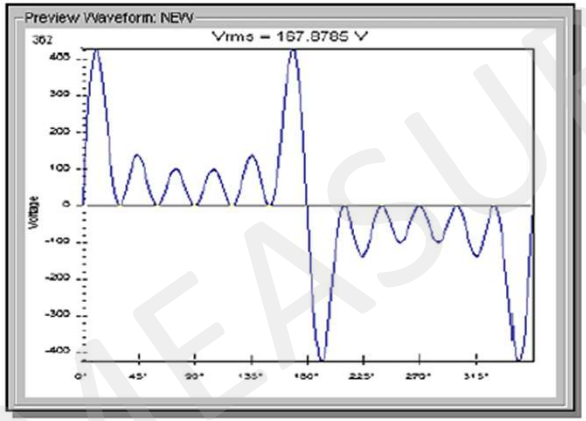
- All of our new products take advantage of our newest Virtual Panels GUI software
  - *Available for both AC & DC power supplies*
- Allows full remote control of the instrument from any pc

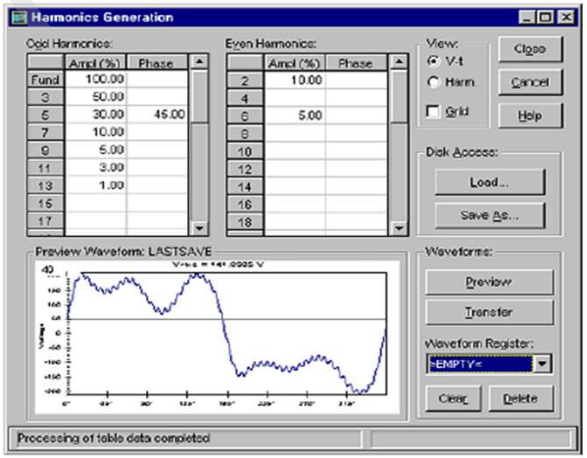


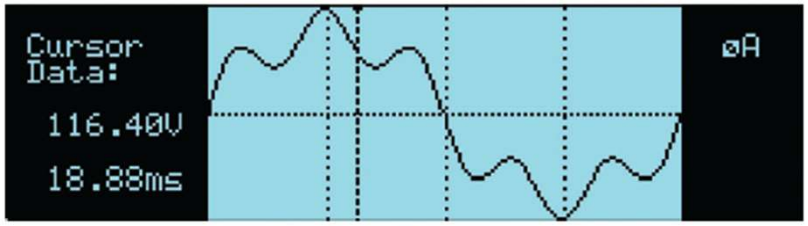
Key Features

- Arbitrary waveform generation
- Harmonic waveform generation
- Transient generation

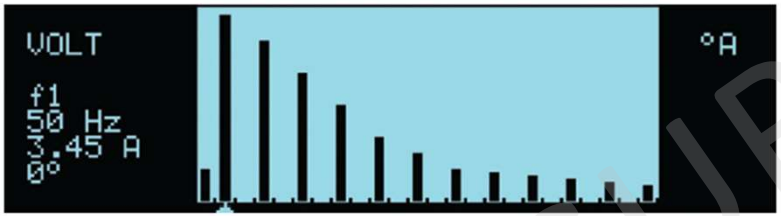




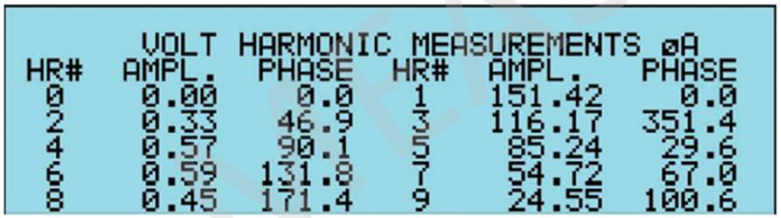




Two hundred user defined waveforms.

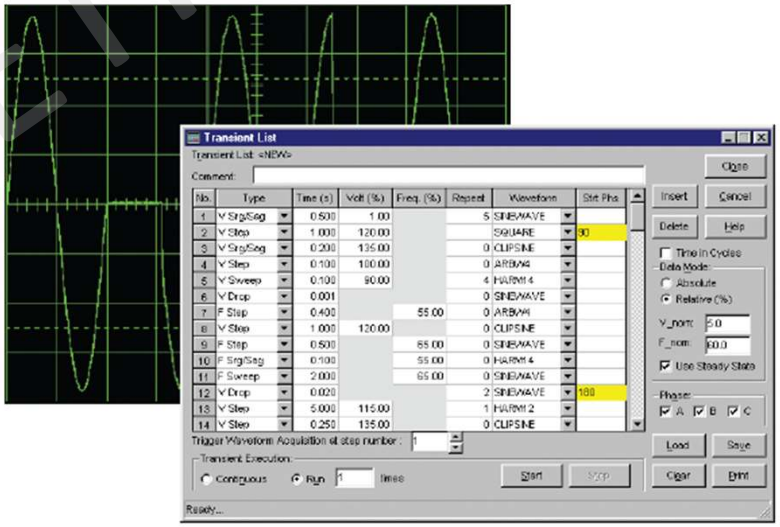


Absolute amplitude bar graph display of current harmonics with cursor positioned at the fundamental (iX Display).



Voltage harmonic measurement table display in absolute values (iX Display).

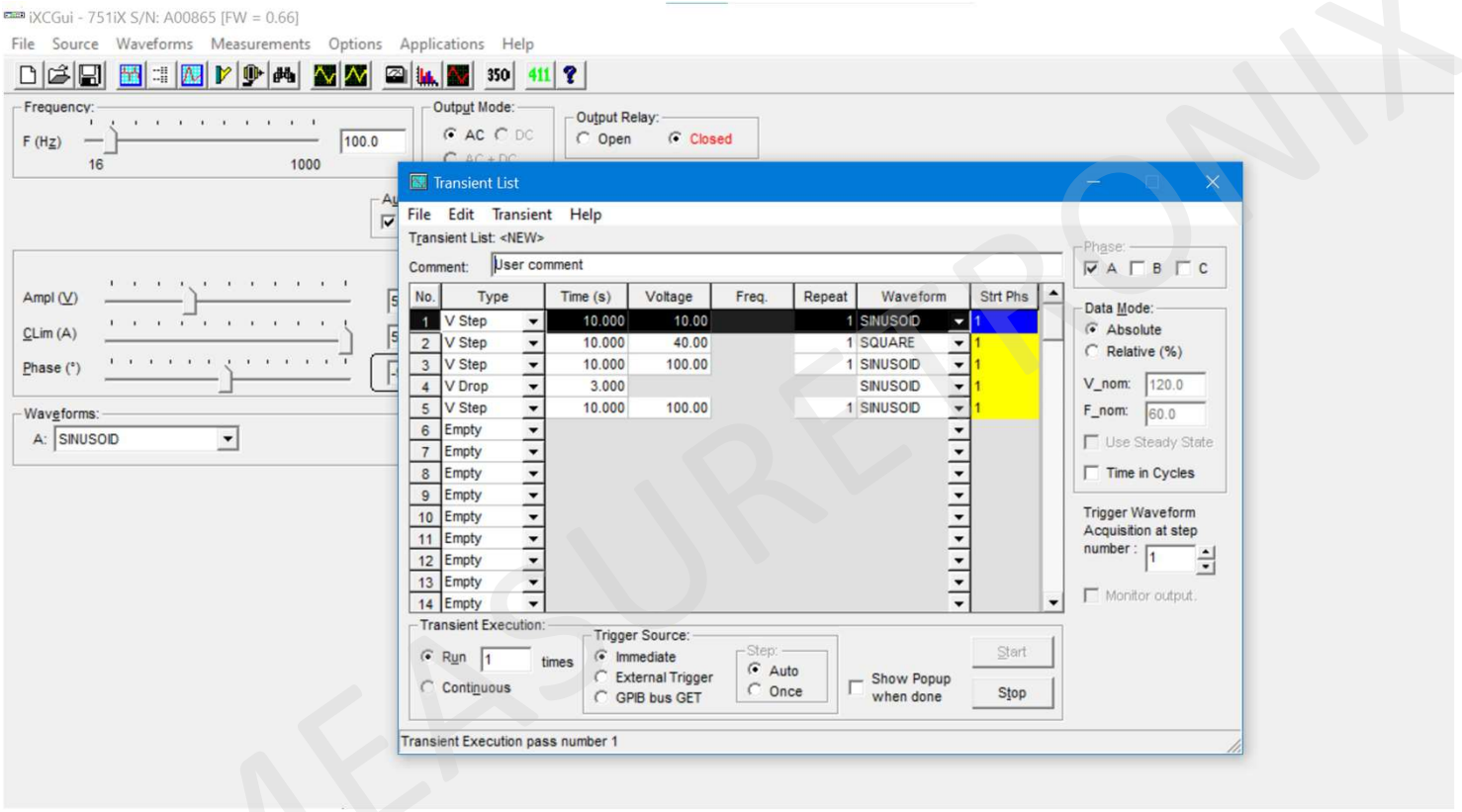
Transient List Data Entry from the front panel



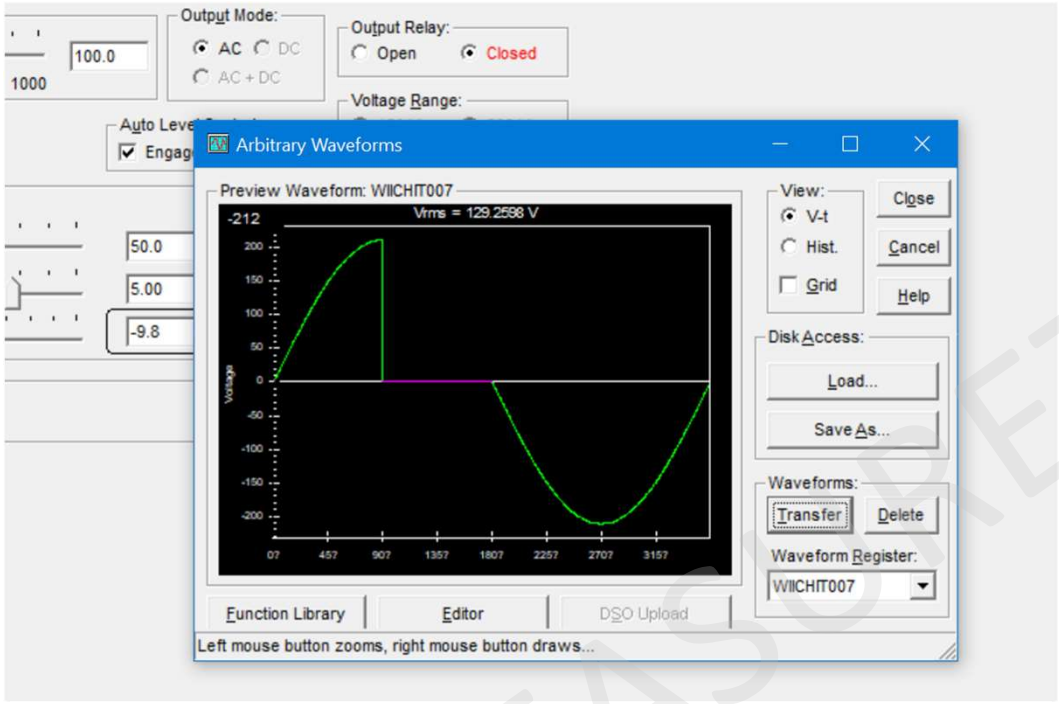
Transient List Data Entry in GUI program.

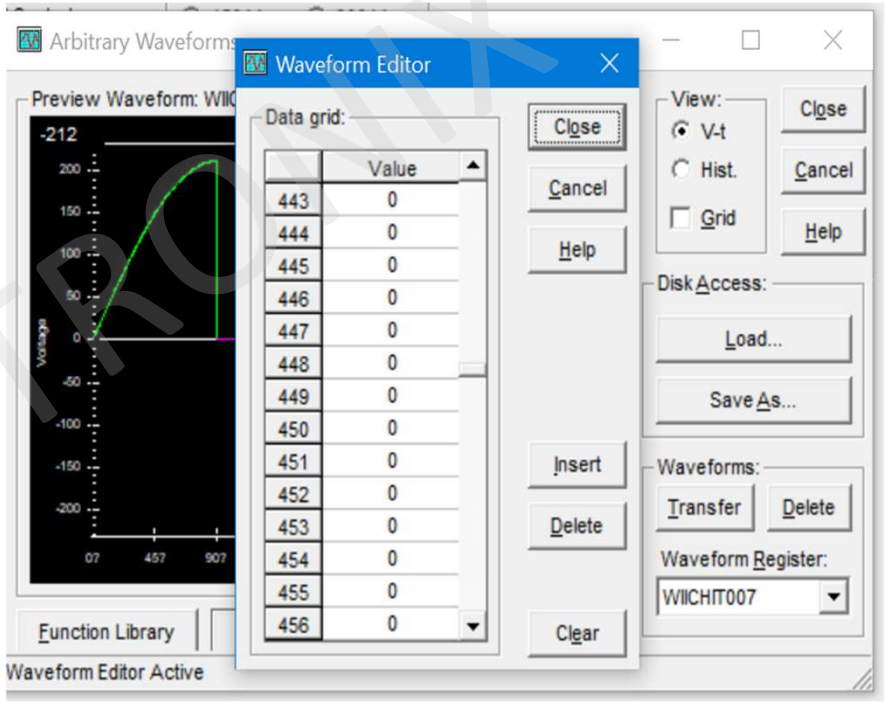
การใช้ software California IX สร้างรูปคลื่น

Transient List Sample

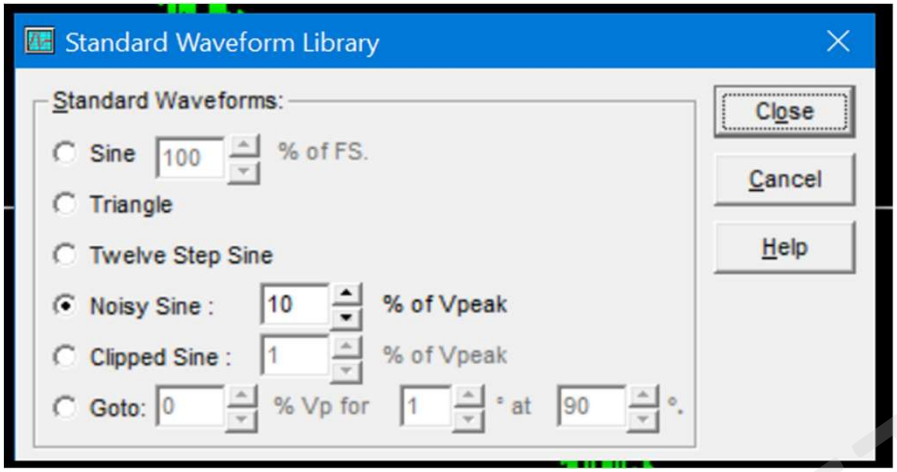


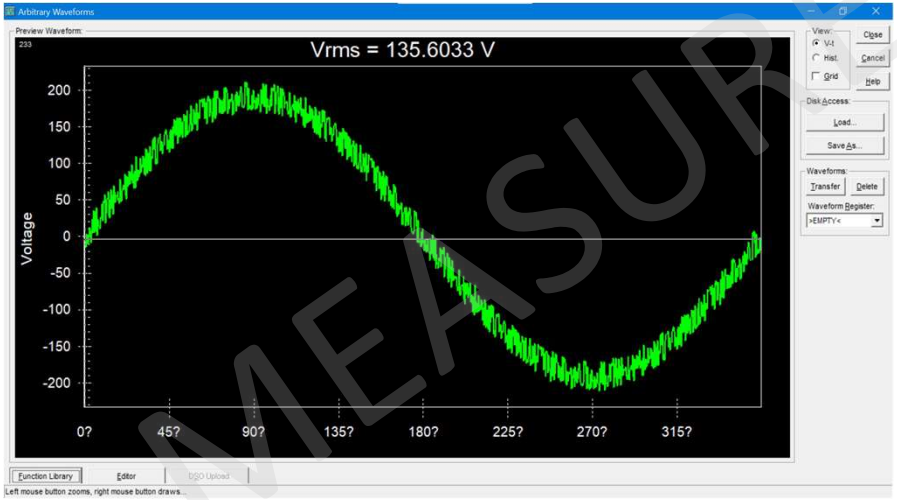
ARBITRARY Mode ทำการตัดแรงดันในช่วงเฟสต่าง ๆ ที่ต้องการ



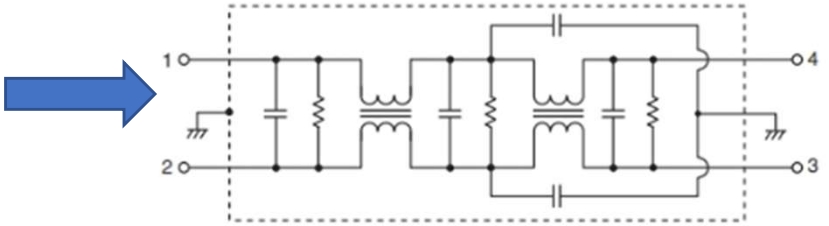


โหมด ARBITRARYการสร้างรูปคลื่นไฟฟ้า และสอดแทรกสัญญาณรบกวน (Noise)

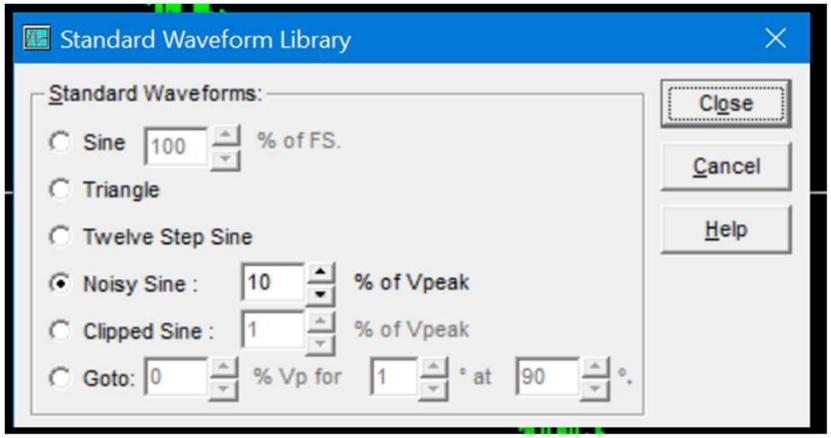


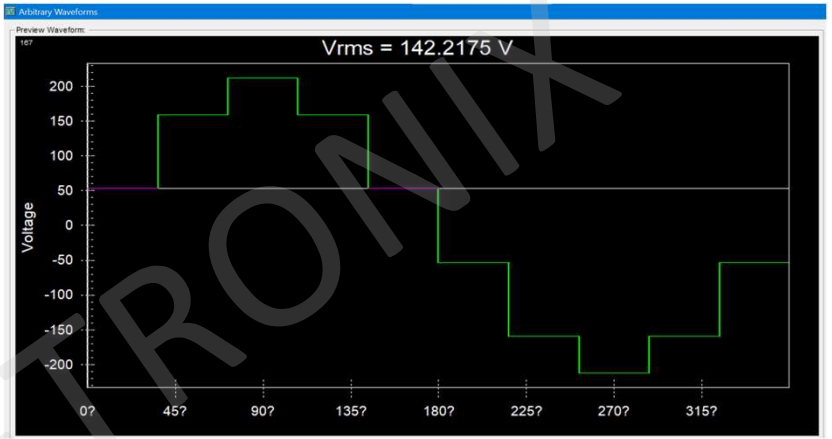


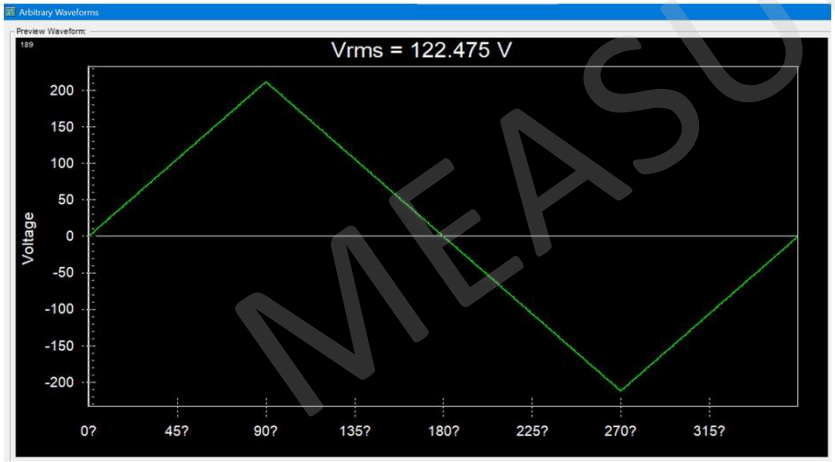
ทดสอบ ออกแบบ AC Line Noise Filter

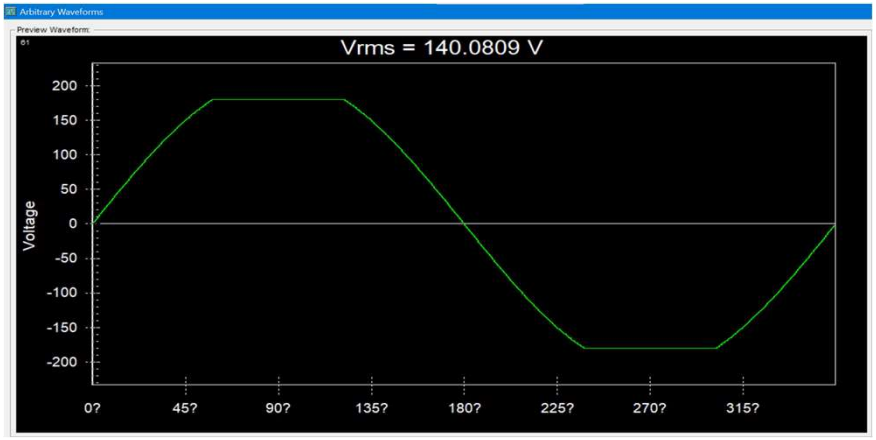


ใน Arbitrary Mode ก็สามารถสร้างรูปคลื่นต่าง ๆ พร้อมนำไปทดสอบได้อย่างง่ายดาย

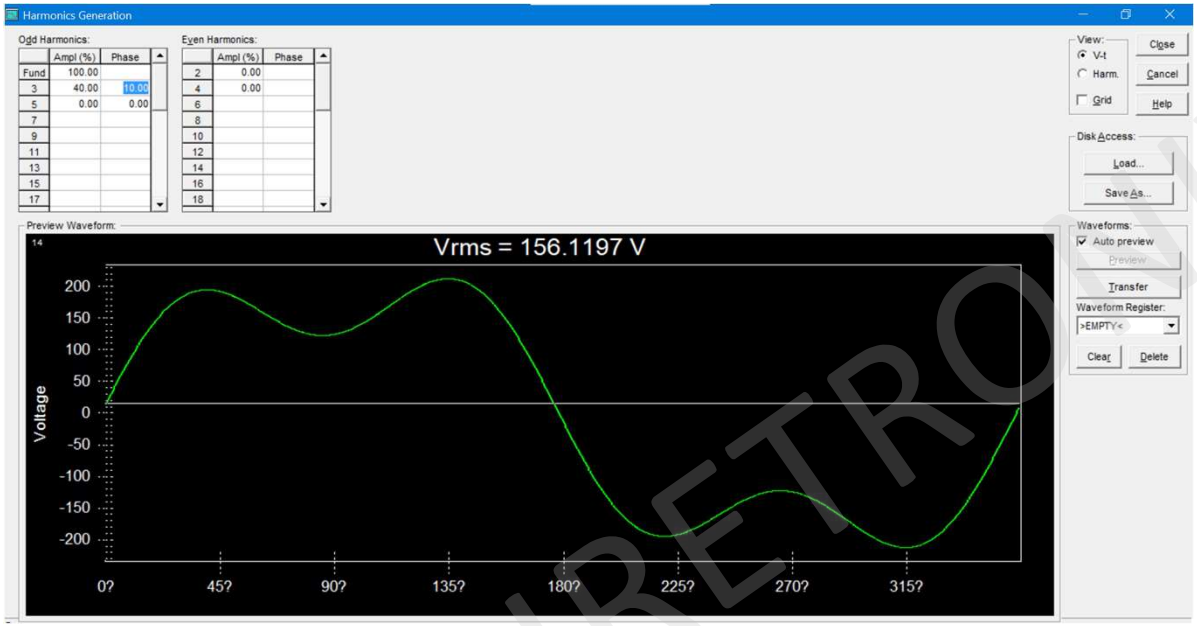


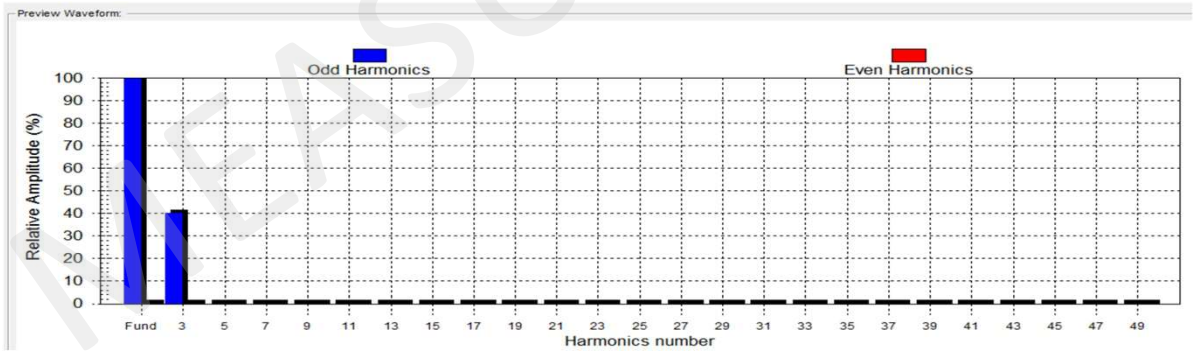




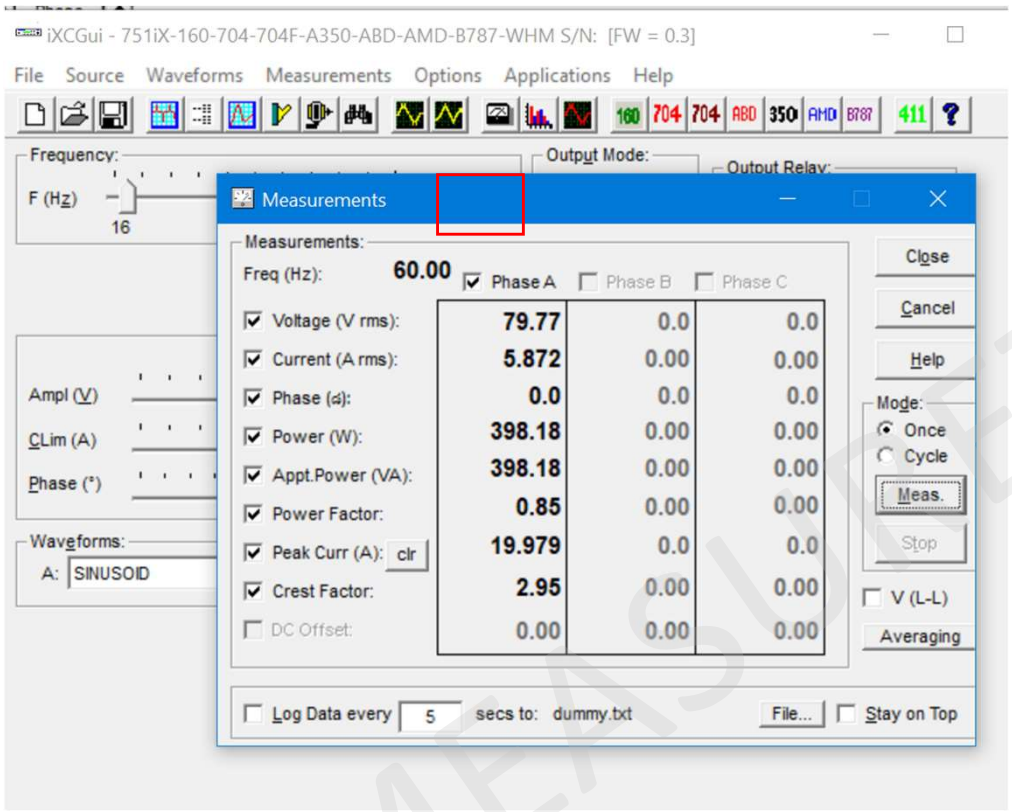


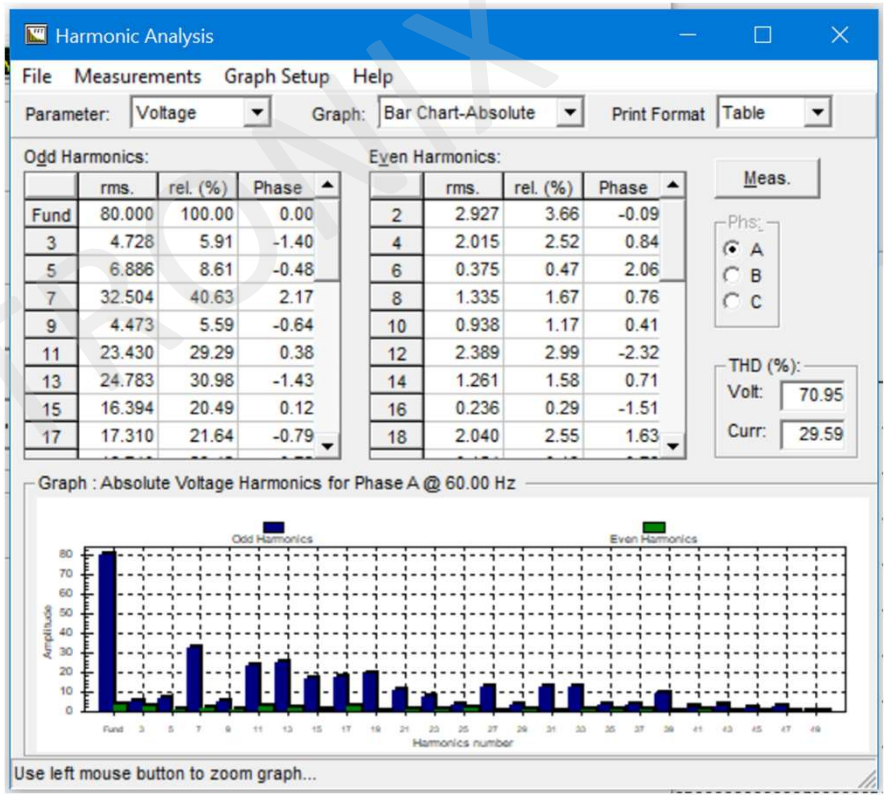
การสร้างรูปสัญญาณ Main + Harmonic ในลำดับต่าง





AC Power Source มีภาคการวัด Measurement มมพร้อมใช้งานได้เลย โดย monitor ผ่าน Software





	rms.	rel. (%)	Phase
Fund	80.000	100.00	0.00
3	4.728	5.91	-1.40
5	6.886	8.61	-0.48
7	32.504	40.63	2.17
9	4.473	5.59	-0.64
11	23.430	29.29	0.38
13	24.783	30.98	-1.43
15	16.394	20.49	0.12
17	17.310	21.64	-0.79

	rms.	rel. (%)	Phase
2	2.927	3.66	-0.09
4	2.015	2.52	0.84
6	0.375	0.47	2.06
8	1.335	1.67	0.76
10	0.938	1.17	0.41
12	2.389	2.99	-2.32
14	1.261	1.58	0.71
16	0.236	0.29	-1.51
18	2.040	2.55	1.63

GW INSTEK

Simply Reliable

APS-7000 Series

500/1000 VA Programmable AC Power Source

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

FEATURES

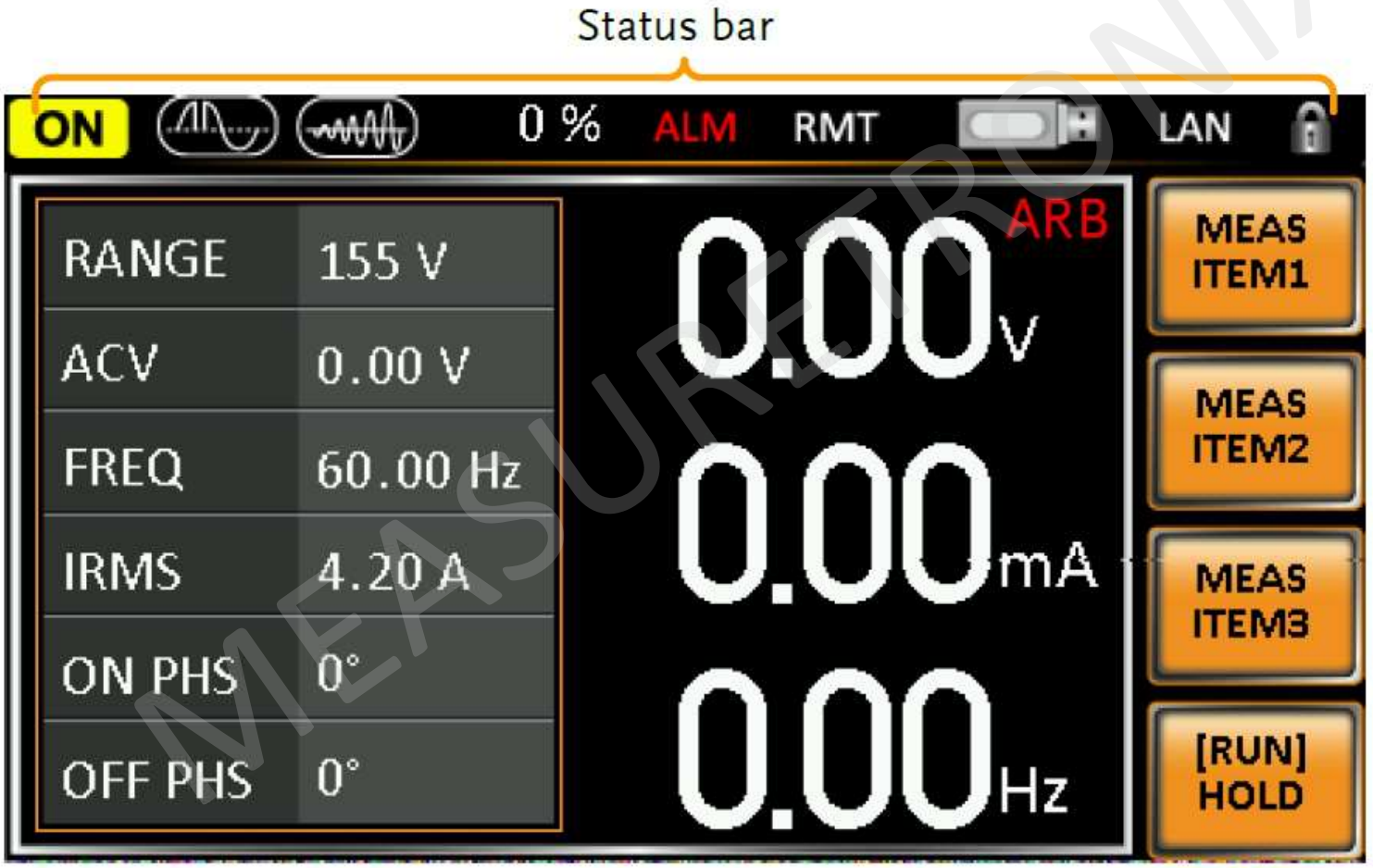
- 4.3" large LCD Display
- Measurement Function :
  Voltage, Current, Power, Frequency, Power Factor, Crest Factor, Apparent Power, Ipeak, Ipk hold
- Surge/Dip Control Mode
- Frequency : 45.0 ~ 500.0Hz (Std); 45.0 ~ 999.9Hz (Opt)
- Voltage Range (RMS) : 155V (Std)/310V (Std)/600V (Opt)
- OVP/OCP/OTP 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

Features

- 4.3-inch TFT-LCD
- Output capacity : APS-7050(500VA、310Vrms、4.2Arms)
  APS-7100 (1000VA、310Vrms、8.4Arms)
  APS-7200(2000VA、310Vrms、16.8Arms)
  APS-7300 (3000VA、310Vrms、25.2Arms)
  Output augmentation by options (0~600Vrms/45~999.9Hz)
- Low Ripple & Noise
- Measurement and test functions include VOLT、CURR、PWR、VA、IPK、IPKH、FREQ、PF、CF
- Support a small AC current measurement 2mA ~ 35A, Min. resolution 0.01mA(APS- 7050& APS-7100)
- Reverse Current Alarm Function
- 10 sets of Sequence function to Edit Output Waveforms/ 10 sets of simulate mode to Rapidly Simulate Transient Power Supply/ 10 sets of Program mode to Define Measurement Sequence
- Automatic Execution of Sequence、Simulate、Program mode when the Power is on
- Standard Interfaces: USB Host, USB Device, LAN
- Optional Interfaces: GPIB (APS-001) ;
  RS-232 / USB CDC(APS-002 for APS-7050& APS-7100 only)
  RS-232(APS-007 for APS-7200& APS-7300 only)

จอแสดง Status ของเครื่อง

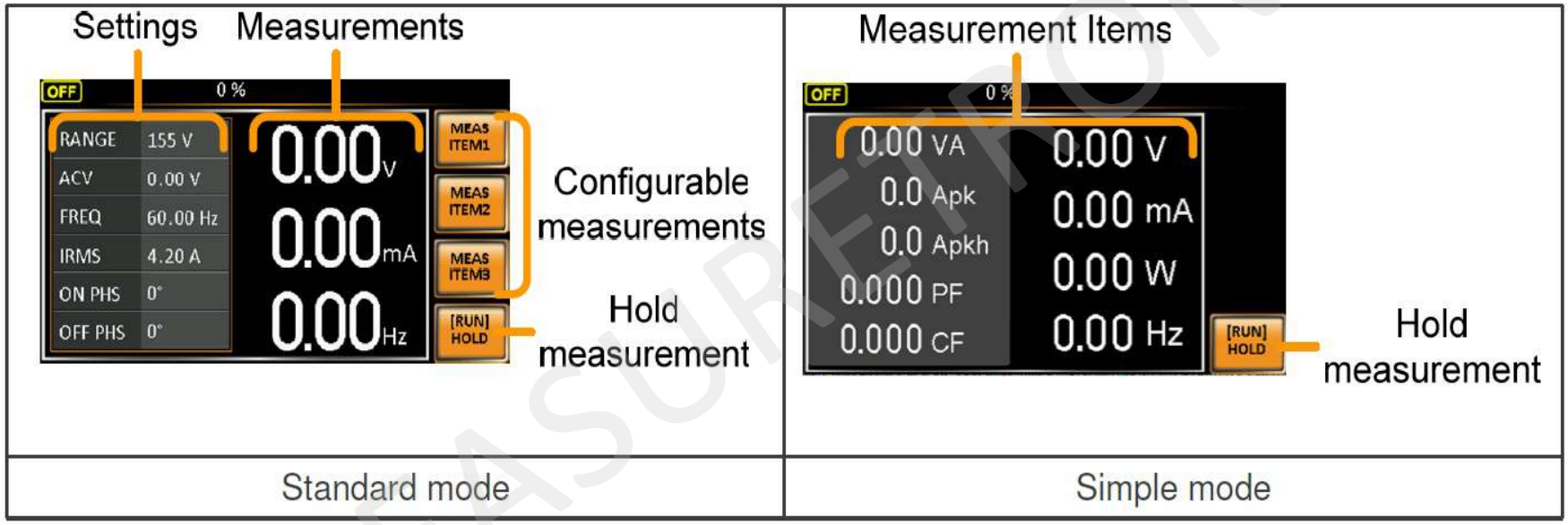
Status Bar Icons



หน้าจอของ Setting Menu / Measurement Display

สามารถแสดงพารามิเตอร์การวัด 9 ชนิด

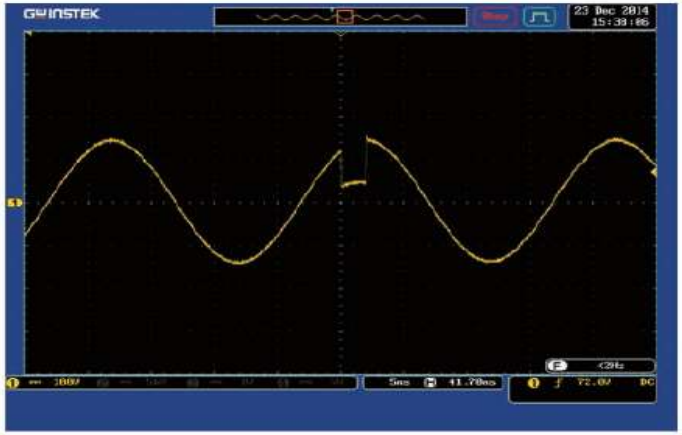
Vrms , Irms , F, Ipk , W , VA , PF, Ipk hold , CF



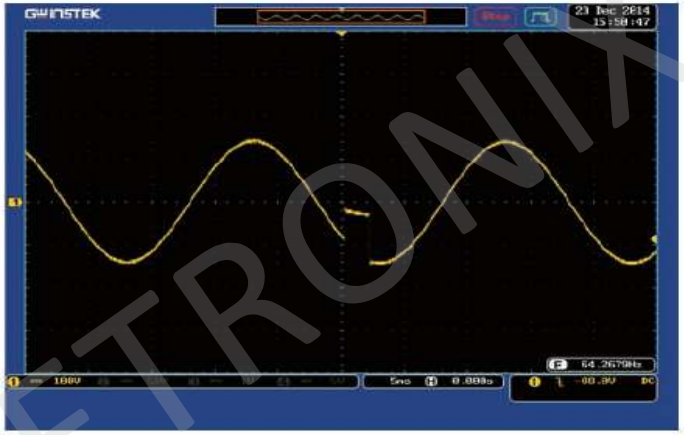
- อุปกรณ์ Switching Supply มีหลากหลายมีระดับกระแสสูงไปจนถึงกระแสต่ำมากๆ ตัว APS7000 มีภาคการวัดที่มีความละเอียดซึ่งเหมาะกับอุตสาหกรรม LED หรือ งานอื่น ๆโดยเฉพาะการทดสอบหา Power Consumption

การจำลองไฟฟ้าเกิดการ Dip /Surge

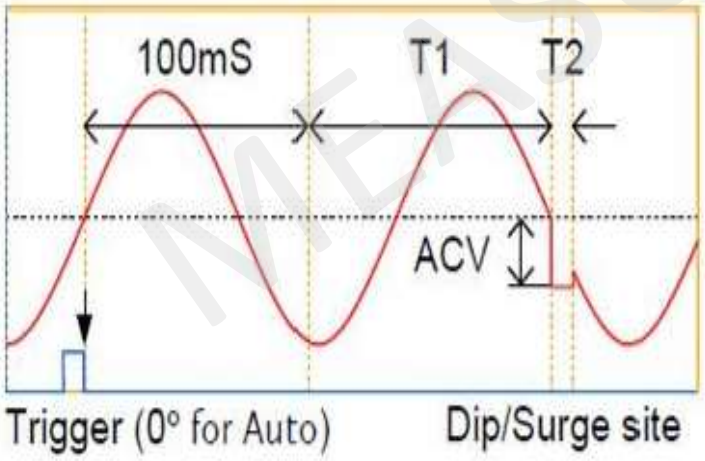
F. SURGE/DIP CONTROL



Dip



Surge



ACV → Sets the ACV surge/ dip level from the 0 volt level.

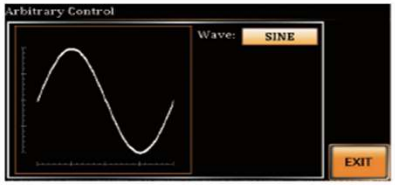
T1→Sets the T1 time

T2→Sets the width of the surge/ dip

* Fixed 100ms delay after triggering.

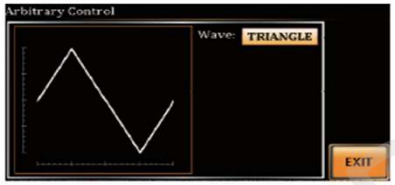
ARBITRARY MODE

APS-7000 ได้เตรียมรูปคลื่นแบ่งเป็น 7 กลุ่ม ซึ่งสร้างสัญญาณมาตรฐานไฟฟ้าจนถึงจำลองความผิดเพี้ยน เพื่อใช้ทดสอบได้อย่างง่ายดาย



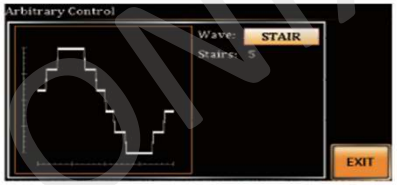
Sine Waveform

Standard AC Waveform



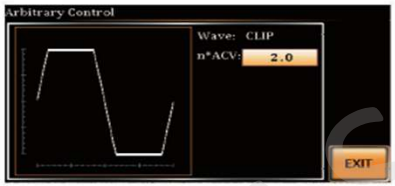
Triangle Waveform

Power harmonic output simulation is triangle waveform



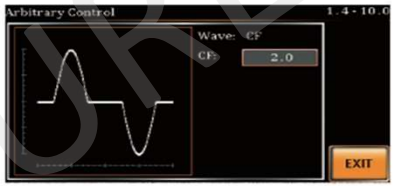
Staircase Waveform

Simulate square waveform and staircase waveform for commercial UPS



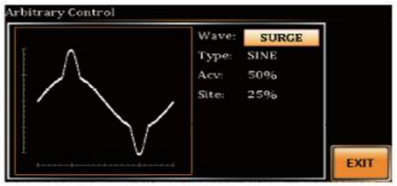
Clipped Sinewave

Simulate grid power supply heavy load waveform



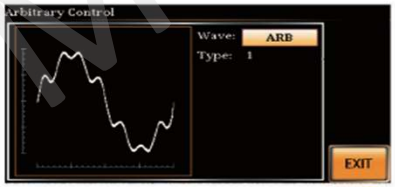
Crest Factor Waveform

Simulate rectified filter current waveform by capacitor input



Surge Waveform

Simulate grid power supply's peak over-voltage

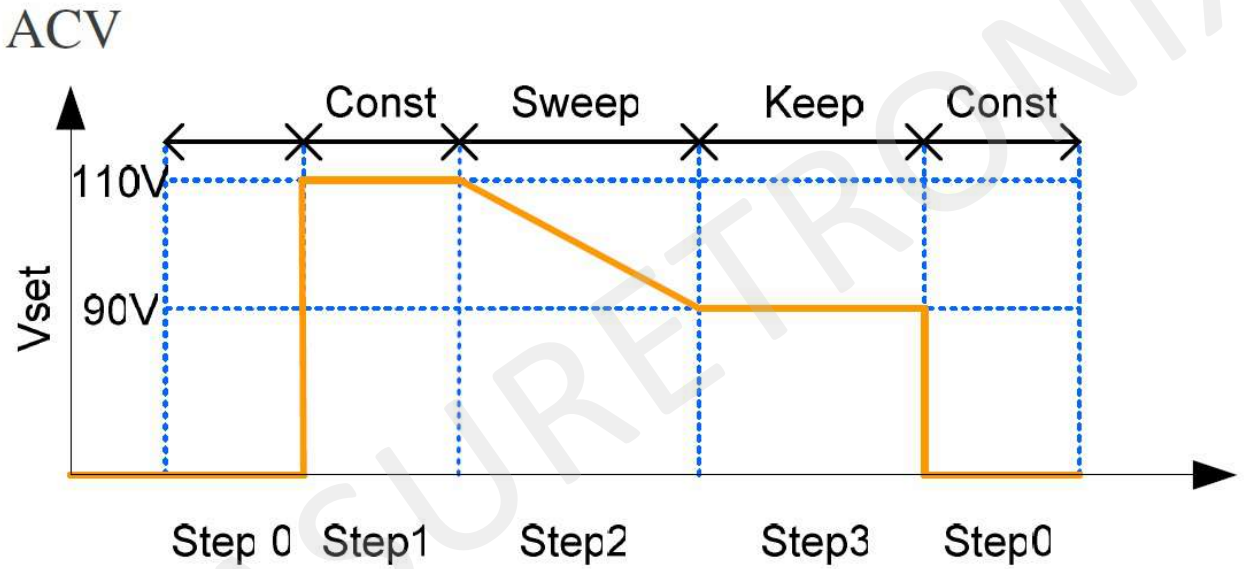


Fourier Series Synthesized Waveform

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.

Sequence mode

ฟังก์ชั่นนี้ใช้รูปคลื่น AC แบบอิสระ (Arbitrary Waveform) โดยการกำหนดแต่ละ Step ได้ตามตัวอย่าง (กำหนดได้สูงสุด 255 steps)



- ตัวอย่างการ Setting ในโหมด Sequence

Step no.	0	1	2	3
Vset (V)	0	110	90	N/A
2nd Setting	CT	CT	SP	KP

โหมด SIMULATE มีทั้งหมด 6 Steps

- เป็นโหมดที่ใช้ทดสอบโหลด เช่นจำลองไฟตก ไฟเกิน เช่นการทดสอบ POWER SUPPLY