



PROGRAMMABLE AC POWER SOURCE MODEL 6400 SERIES

Chroma 6400 Series Programmable AC Power Source uses state of the art PWM technology to deliver pure, instrument grade AC power at very low cost ever achieved before. The 6400 AC power source offers maximum rated power for the output voltage from 0 to 300VAC, at the frequency from 45 to 1kHz. It is not only suitable for commercial applications (47-63Hz), but also for avionics, marine, and military applications at 400Hz.

The 6400 Series Programmable AC Power Source generates very clean output with typical distortion less than 0.3%. With the incorporated of power factor correction circuit, the 6400 AC Power Source yields higher efficiency and delivers more output power than competitive instruments. Furthermore, it is capable of providing high peak repetitive current that is required to drive most electronic products with high crest factor input design.

The 6400 AC Power Source uses advanced DSP circuit to offer precision and high-speed measurement for true RMS voltage, true RMS current, true power, frequency, power factor, and current crest factor.

The 6400 AC Power Source is very easy to operate through the front panel keypad, or the remote controller via GPIB, RS-232 or APG (Analog Programming) interface. The optional interface is designed as a plug-in card to change the unit in seconds into a computer controlled system power source.

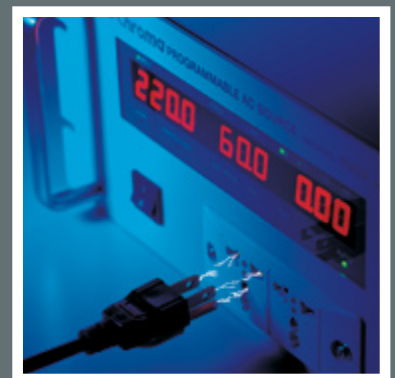
Designed with self-diagnostic routine and protections against over voltage, under voltage, over-power, over current, over temperature and fan fail, the instrument has the qualities and reliability that can suit for the most demanding applications in production tests, R&D design, and QA verification.

Programmable AC Power Source

MODEL 6400 SERIES

Key Features:

- Output Rating:
 - Power: 375VA, 1 ϕ (6404)
 - 800VA, 1 ϕ (6408)
 - 1500VA, 1 ϕ (6415)
 - 2000VA, 1 ϕ (6420)
 - 3000VA, 1 ϕ (6430)
 - 6000VA, 1 ϕ (6460)
 - 1 ϕ or 3 ϕ (6463)
 - 9000VA, 1 ϕ or 3 ϕ (6490)
- Voltage: 0~150V / 0~300V / Auto (6404, 6408, 6415, 6420, 6430)
- 0~150V / 0~300V (parallel) (6460)
- 0~300V / 0~500V (serial) (6460)
- 0~150V / 0~300V (6463, 6490)
- Output distortion less than 0.3%, and peak repetitive current over 2.5 times for rms current (6404, 6408)
- High accuracy measurement for RMS voltage, RMS current, true power, frequency, power factor, and current crest factor
- Built-in power factor correction circuit provides input power factor over 0.98 to meet IEC regulations
- Programmable current limit
- Built-in output isolation relays
- EEPROM storage for user defined voltage and frequency combinatio for instant recall at anytime
- Optional GPIB, RS-232, and Analog Programming Interface
- Over voltage, under voltage, over power, over current, over temperature, and short circuit protection
- Temperature controlled fan speed
- Self-test at power-on
- User-definable power-on state



Chroma



THE COST EFFECTIVE PROGRAMMABLE AC POWER SOURCES

The 6400 Series AC Power Source supplies very clean output with typical output distortion less than 0.3% THD. The output is transformer isolated (6404 & 6408) providing an exceptionally low total harmonic distortion without sacrificing efficiency. Remote sense connections are provided for superb output regulation to compensate for load line losses while keeping the output at a precise level regardless of output load condition.

The 6400 Series incorporates input power factor correction circuitry resulting in high efficiency and lower input line current. The 6400 Series employs advanced DSP circuitry (6404 & 6408) or 16-bit measurement circuit to provide precise high-speed measurement of the output for true RMS voltage, true RMS current, true power, frequency, power factor, and current crest factor. These output measurements can be displayed on the large, easy to read, front panel readout. The 6400 Series are easy to operate using the front panel keypad, (6404 & 6408) with 9-user programmable output voltage, frequency, and current limit combinations for quick and consistent testing. An optional controller can be added for GPIB, RS232 or analog programming for completely automated testing applications. The interface is a plug-in card that can change the 6400 from a manual unit to a computer-controlled system AC power source.



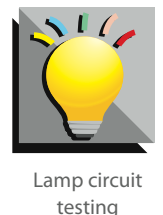
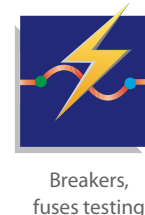
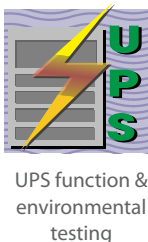
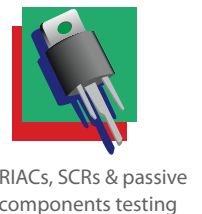
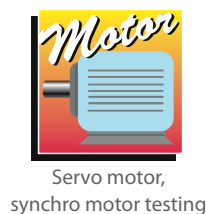
With the small 5.25 inches height packaged (6404 & 6408), and lightweight, the model 6400 is perfectly suitable for bench top applications where space is at a premium. The easy to use and easy to read front panel control/readout system makes setup and quick measurements simple. The front panel receptacles can be used for most line cord plugs without adapters. Rear panel terminals are also provided for hard-wired connections. A temperature controlled fan speed circuit is used to keep fan noise reduced when operating on the bench or in a quiet lab environment. The 6400 Series can also be easily rack-mounted without special mounting kits or modifications.

The wide output voltage range of 0-300 VAC (0-500VAC for Model 6460) can be selected for either 0-150 VAC or 0-300 VAC, or set to auto-ranging output voltage. The 45-1000 Hz output frequency range provides excellent flexibility in a small compact unit with a great performance / cost ratio. The programmable current limit adds to the flexibility while reducing current flow potential for non-destructive testing easily.

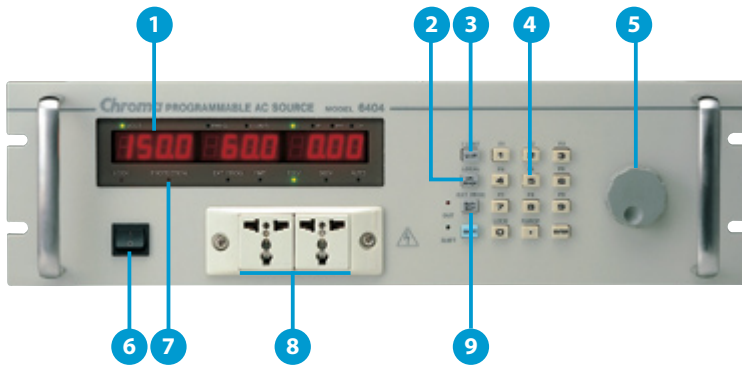
The 6400 Series provides a self-diagnostic routine, easy to set programmable output over voltage limit, input line under voltage protection, output overpower, over current, over temperature, and fan failure protection.

The 6400 Series offers quality, reliability, and flexibility for the most demanding applications in production tests, R&D, and QA verification.

APPLICATIONS



PANEL DESCRIPTION



1. Measurement item indicators
2. Select measurement items of current, power factor, or crest factor
3. Set output voltage, frequency, and current limit
4. Data setting and function keys
5. Rotary knob for adjusting output setting
6. Power switch
7. Status indicators
8. Universal output socket
9. Output enable and disable

SPECIFICATIONS

Model	6404	6408	6415	6420	
Output / Phase	1	1	1	1	
Output Ratings					
Power / Phase	375VA	800VA	1500VA	2000VA	
Voltage					
Range / Phase	150V/300V/Auto				
Accuracy	0.2% F.S. for freq. \leq 200Hz, 0.4% F.S. for freq. > 200Hz		0.2% + 0.2% of F.S.		
Resolution	0.1V	0.1V	0.1V	0.1V	
Distortion	typical. 0.3% for freq. \leq 200Hz, 0.8% for freq. > 200Hz		0.5% for (45-500Hz), 1% for (> 500-1kHz)		
Line Regulation	0.1%	0.1%	0.1%	0.1%	
Load Regulation	0.1%	0.1%	0.1%	0.1%	
Temp. Coefficient	0.02% per °C				
Max. current	rms	2.5A/1.25A	5.33A/2.67A	15A/7.5A	20A/10A
	peak	7A/3.5A \leq 100Hz 5.5A/12.75A > 100Hz	14.92A/7.47A \leq 100Hz 7.47A/5.87A > 100Hz	45A/22.5A \leq 100Hz (45-100Hz) 37.5A/18.75A (>100-1kHz)	60A/30A (45-100Hz) 50A/25A (>100-1kHz)
Frequency					
Range	45-500Hz	45-500Hz	45-1000Hz	45-1000Hz	
Accuracy	0.1%	0.1%	0.1%	0.1%	
Resolution	0.1Hz	0.1Hz	0.1Hz	0.1Hz	
Input Ratings					
Voltage Range	90-132V / 180-250V	90-132V (6408-1), 180-250V (6408-2)	190-250V, 1 ϕ	190-250V, 1 ϕ	
Frequency Range	47-63Hz	47-63Hz	47-63Hz	47-63Hz	
Current	7.5A max.	12A max.(6408-1), 6A max. (6408-2)	12A max.	15A max.	
Power Factor	0.8 typical.	0.98 min.	0.95 min.	0.97 min.	
Measurement					
Voltage / Phase					
Range	0-150V/0-300V	0-150V/0-300V	0-150V/0-300V	0-150V/0-300V	
Accuracy (rms)	0.1% + 0.1% F.S.		0.25% + 0.1% F.S.		
Resolution	0.1V	0.1V	0.1V	0.1V	
Current / Phase					
Range (peak)	0-2A/2-10A	0-4A/4-20A	0-70A	0-100A	
Accuracy (rms)	0.5% + 0.2% F.S.	0.5% + 0.2% F.S.	0.4% + 0.2% F.S.	0.4% + 0.15% F.S.	
Resolution	0.01A	0.01A	0.01A	0.01A	
Power / Phase					
Range	0-375W	0-800W	0-1500W	0-2000W	
Accuracy	0.5% F.S.	0.5% F.S.	1% F.S. (CF<6)	1% F.S. (CF<6)	
Resolution	0.1 W	0.1 W	0.1 W for P<1000W, 1W for P>1000W		
Frequency					
Range	45-500Hz	45-500Hz	45-1000Hz	45-1000Hz	
Accuracy	0.02%	0.02%	0.02%	0.02%	
Resolution	0.1Hz	0.1Hz	0.1Hz	0.1Hz	
Others					
Efficiency	75% typical	80% typical	80% typical	80% typical	
Protection	UVP, OVP, OCP, OPP, OTP, Short				
Safety & EMC	CE (Include LVD and EMC Requirement)				
Dimension (H x W x D)	133.35 x 482.6 x 471.4 mm / 5.25 x 19 x 18.56 inch		221.5 x 425 x 567 mm / 8.72 x 16.73 x 22.32 inch		
Weight	18 kg / 39.65 lbs	23 kg / 50.66 lbs	23 kg / 50.66 lbs	27 kg / 59.47 lbs	

SPECIFICATIONS

Model	6430	6460	6463	6490
Output / Phase	1	1 (parallel or series)	1 or 3 selectable	1 or 3 selectable
Output Ratings				
Power / Phase	3000VA	6000VA	2000VA	3000VA
Voltage				
Range / Phase	150V/300V/Auto	150V/300V(parallel), 300V/500V(series)	150V/300V	150V/300V
Accuracy	0.2% + 0.2% of F.S.	0.2% + 0.2% of F.S.	0.2% + 0.2% of F.S.	0.2% + 0.2% of F.S.
Resolution	0.1V	0.1V	0.1V	0.1V
Distortion	0.5% for (45-500Hz), 1% for (> 500-1KHz)	1%	1%	1%
Line Regulation	0.1%	0.1%	0.1%	0.1%
Load Regulation	0.1%	0.2%(series), 0.8% (parallel)	0.2%(3 phases), 0.8% (1 phase)	0.2%(3 phases), 0.8% (1 phase)
Temp. Coefficient	0.02% per °C	0.02% per °C	0.02% per °C	0.02% per °C
Max. current -rms / Phase	30A/15A	60A/30A/15A (150V/300V/500V)	20A/10A (150V/300V)	30A/15A (150V/300V)
Peak Current/ phase-crest-factor	3(45-100Hz), 2.5(>100-1KHz)	180A/90A/45A (45-100Hz), 150A/75A/38A (>100-1kHz)	60A/30A (45-100Hz), 50A/25A (>100-1kHz)	90A/45A (45-100Hz), 75A/38A (>100-1kHz)
Frequency				
Range	45-1000Hz	45-1000Hz	45-1000Hz	45-1000Hz
Accuracy	0.1%	0.15%	0.15%	0.15%
Resolution	0.1Hz	0.01Hz (45-99.9Hz), 0.1Hz (100-999.9Hz)		
Input Ratings				
Voltage Range	190-250V, 1Ø	190-250V, 3Ø	190-250V, 3Ø	190-250V, 3Ø
Frequency Range	47-63Hz	47-63Hz	47-63Hz	47-63Hz
Current	23A max.	23A max./phase	15A max./phase	23A max./phase
Power Factor	0.98 min.	0.98 min. under full load	0.97 min. under full load	0.98 min. under full load
Measurement				
Voltage / Phase				
Range	0-150V/0-300V	0-150V/0-300V	0-150V/0-300V	0-150V/0-300V
Accuracy (rms)	0.25% + 0.1% F.S.	0.25% + 0.1% F.S.	0.25% + 0.1% F.S.	0.25% + 0.1% F.S.
Resolution	0.1V	0.1V	0.1V	0.1V
Current / Phase				
Range (peak)	0-140A	0-280A	0-100A	0-140A
Accuracy (rms)	0.4% + 0.1% F.S.	0.4% + 0.1% F.S.	0.4% + 0.15% F.S.	0.4% + 0.1% F.S.
Resolution	0.01A	0.01A	0.01A	0.01A
Power / Phase				
Range	0-3000W	0-3000W	0-2000W	0-3000W
Accuracy	1% F.S. (CF<6)	1% F.S. (CF<6)	1% F.S. (CF<6)	1% F.S. (CF<6)
Resolution	0.1 W for P<1000W, 1W for P>1000W	0.01 W	0.01 W	0.01 W
Frequency				
Range	45-1000Hz	45-1000Hz	45-1000Hz	45-1000Hz
Accuracy	0.02%	0.01%+2 count	0.01%+2 count	0.01%+2 count
Resolution	0.1Hz	0.01Hz	0.01Hz	0.01Hz
Others				
Efficiency	80% typical	80% typical	80% typical	80% typical
Protection	UVP, OVP, OCP, OPP, OTP, Short	OPP, OLP, OTP, FAN Fail		
Safety & EMC	CE (Include LVD and EMC Requirement)			
Dimension (H x W x D)	221.5 x 425 x 567 mm / 8.72 x 16.73 x 22.32 inch	765.94 x 546 x 700 mm / 30.16 x 21.5 x 27.56 inch*1	990 x 546 x 700 mm / 38.98 x 21.5 x 27.56 inch*1	990 x 546 x 700 mm / 38.98 x 21.5 x 27.56 inch*1
Weight	27 kg / 59.47 lbs	107 kg / 235.68 lbs	156 kg / 343.61 lbs	156 kg / 343.61 lbs

Note*1 : For dimension including the wheel set, please add 80mm to overall height.

ORDERING INFORMATION

- 6404** : Programmable AC Source 0~300V / 45~500Hz / 375VA
- 6408-1** : Programmable AC Source 0~300V / 45~500Hz / 800VA (input rating 90-132V)
- 6408-2** : Programmable AC Source 0~300V / 45-500Hz / 800VA (input rating 180-250V)
- 6415** : Programmable AC Source 0~300V / 45~1000Hz (1500VA)
- 6420** : Programmable AC Source 0~300V / 45~1000Hz (2000VA)
- 6430** : Programmable AC Source 0~300V / 45~1000Hz (3000VA)
- 6460-2** : Programmable AC Source 0~300V / 45~1000Hz (6000VA), output 1Ø, input 3Ø 220V
- 6460-3** : Programmable AC Source 0~300V / 45~1000Hz (6000VA), output 1Ø, input 3Ø 380V
- 6463-2** : Programmable AC Source 0~300V / 45~1000Hz (6000VA), output 1Ø or 3Ø Selectable, input 3Ø 220V
- 6463-3** : Programmable AC Source 0~300V / 45~1000Hz (6000VA), output 1Ø or 3Ø Selectable, input 3Ø 380V
- 6490-2** : Programmable AC Source 0~300V / 45~1000Hz (9000VA), output 1Ø or 3Ø Selectable, input 3Ø 220V
- 6490-3** : Programmable AC Source 0~300V / 45~1000Hz (9000VA), output 1Ø or 3Ø Selectable, input 3Ø 380V
- A640002** : Remote Interface for Model 6415 / 6420 / 6430 Series (External V Input, RS-232 Interface, GPIB Interface)
- A640003** : Remote Interface for Model 6404 / 6408 Series (External V Input, RS-232 Interface, GPIB Interface)
- A640004** : Softpanel for Model 6400 Series
- A610004** : Universal Socket Center for Model 6415 / 6420 / 6430 Series

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Programmable AC Power Source



PROGRAMMABLE AC POWER SOURCE MODEL 6500 SERIES

The global AC power testing requirements demand more sophisticated AC Power Source that is capable of simulating a wide variety of AC line conditions, harmonic waveforms, accurate power measurements and analysis. Chroma 6500 Series Programmable AC Power Source delivers the right solution to simulate all kinds of normal/abnormal input conditions and measure the critical characteristics of the products under test. It can be utilized in R&D design, production test, and QA verification for commercial, industrial, and aerospace electronic products.

Chroma 6500 Series AC Power Source delivers the maximum rated power for the output voltage up to 300 Vac, and the frequency between 15Hz to 2000Hz. It is suitable for commercial applications (47-63Hz) such as avionics, marine, and military applications at 400Hz or higher frequency ; or for electrical motor, airconditioner test applications at 20Hz. All models generate very clean sine or square waveforms output with typical distortion less than 0.5%.

Chroma 6500 Series has built in Direct Digital Synthesis (DDS) Waveform Generator to provide user programmable high precision waveform. For the product tests under AC line distortion conditions, clipped sine wave can be generated with 0% to 43% distortion and amplitude from 0% to 100%. It also can simulate all kinds of power line disturbances

such as cycle dropout, transient spike, brown out, phase angle, voltage and frequency ramp up (ramp down), etc. Up to 30 harmonic waveforms are factory-installed, and testing for compliance to AC line harmonic immunity standards can be easily achieved in the field.

The 6500 Series has built in 16-bit precision measurement circuit to offer precision and highspeed measurements for Vrms, Irms, Ipk+, Ipk-, power, frequency, crest factor, power factor, inrush current, VA, and VAR, etc. It is designed as an integral part of the PMS power measurement system. By adding the 6630 Power Analyzer it becomes an Automatic Test Equipment (ATE) to perform IEC 61000-3-2 harmonic tests and IEC 61000-3-3 flicker measurements.

The 6500 Series provides easy operation through the front panel keypad, or remote controller via GPIB, RS-232C bus or APG (Analog Programming) interface. Instrument drivers are available to integrate the AC source into the ATE application operations under Labview control.

Designed with self-diagnostic routine and protections against overload, overpower, over temperature, over current and fan fail, the 6500 Series instrument has the qualities and reliability that can suit for the most demanding production line applications.

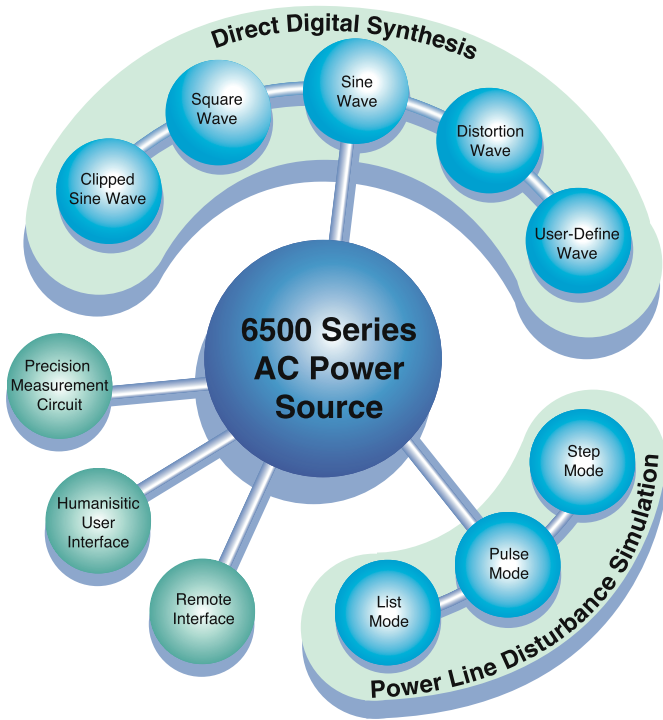
MODEL 6500 SERIES

Key Features:

- Output Rating :
Power : 1200VA, 1 σ (6512)
2000VA, 1 σ (6520)
3000VA, 1 σ (6530)
6000VA, 1 σ (6560)
9000VA, 1 σ or 3 σ (6590)
Voltage : 0-150V / 0-300V / Auto
(6512,6520, 6530)
0-150V /0-300V(parallel)(6560)
0-300V / 0-500V (series)(6560)
0-150V / 0-300V (6590)
- Direct Digital Synthesis (DDS) waveform generation.
- Programmable Sine, Square, or Clipped Sine waveform output
- Programmable voltage, current limit, frequency, phase, and distortion
- Power line disturbances simulation capability
- 30 factory-installed harmonic waveforms in the waveform library
- User programmable harmonic waveforms
- User programmable sequential output waveforms for auto-execution
- Powerful measurement of Vrms, Irms, Ipk+, Ipk-, power, frequency, crest factor, power factor, inrush current, VA, VAR, etc.
- Built-in power factor correction circuit provides input power factor over 0.98 to meet the IEC regulations
- Advanced PWM technology delivers high power output in a light and compact rack-mountable package
- Built-in output isolation relays
- User-definable power-on state
- TTL output to any signal output transition for ATE application
- Analog Programming Interface for external amplitude control
- Option GPIB and RS-232 bus interface
- LIST mode, transient power line disturbances simulation, Voltage Dip & Variation, for precompliance test IEC 61000-4-11
- Easy use graphic user interface : softpanel (Option)



Chroma



1. ADVANCED PWM TECHNOLOGY

The input AC to DC stage in the AC Source incorporates modern power factor correction circuit to increase the input power factor more than 0.98 to meet the IEC regulations. It reduces the input current requirement and raises the efficiency up to over 80%. Using the isolation provided by DC to DC stage, the final DC to AC output stage eliminates the heavy low frequency output transformer, and decreases the weight to 30 Kgs only. The model 6530, packaged in 8 3/4 inches height rack-mountable unit, delivers full 3,000 VA output at 110V or 220V (while many competitors specify 3KVAoutput at 140V or 280V only).

2. STATE-OF-THE-ART DDS WAVEFORM GENERATOR

Chroma 6500 Series AC Power Source has built in powerful Direct Digital Synthesis (DDS) waveform generator to provide low distortion (0.5%) sine or square waveform over a maximum frequency range from 15 to 2000Hz, with 0.01Hz (15 - 99.99Hz) resolution and 0.15% accuracy. For example, a unique clipped sine wave with 0% to 43% distortion and 0 to 100% amplitude can be generated by pressing the front panel keys for testing products under ac line distortion conditions.

3. COMPREHENSIVE WAVEFORM LIBRARY

Up to 30 different distortion waveforms including line conditioner, line filter, triangle wave, pulse wave, and peak spike, etc. are stored in the waveform library for execution. Users can preview the selected waveform on the LCD graphic display by pressing the "WAVE" soft key. To specify the waveform amplitude desired at each specific phase angle can modify the stored waveforms.

Testing for compliance to ac line harmonic immunity standards can be easily achieved. Sine wave with harmonic content specified by IEC 61000 standards can be recalled, downloaded into memory, and generated as needed.

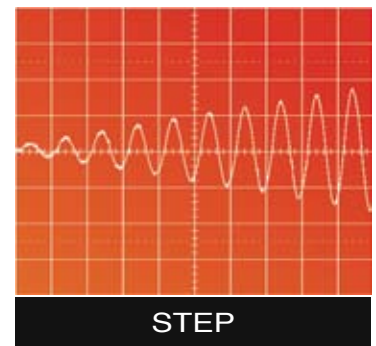
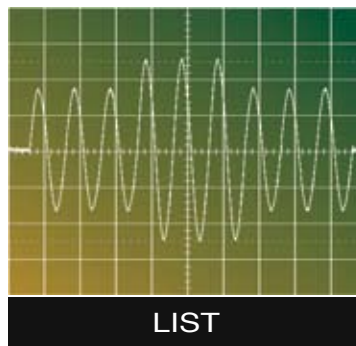
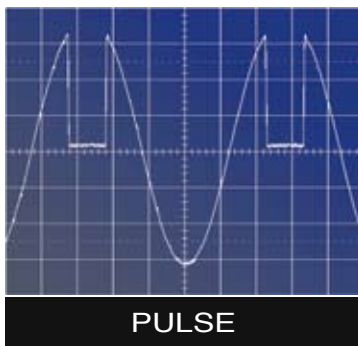
Additionally, Chroma 6500 Series AC Power Source offers six user-defined arbitrary waveform buffers. Users can create the desired waveforms from a host PC and download them to the instrument through IEEE488 or RS-232C interface.

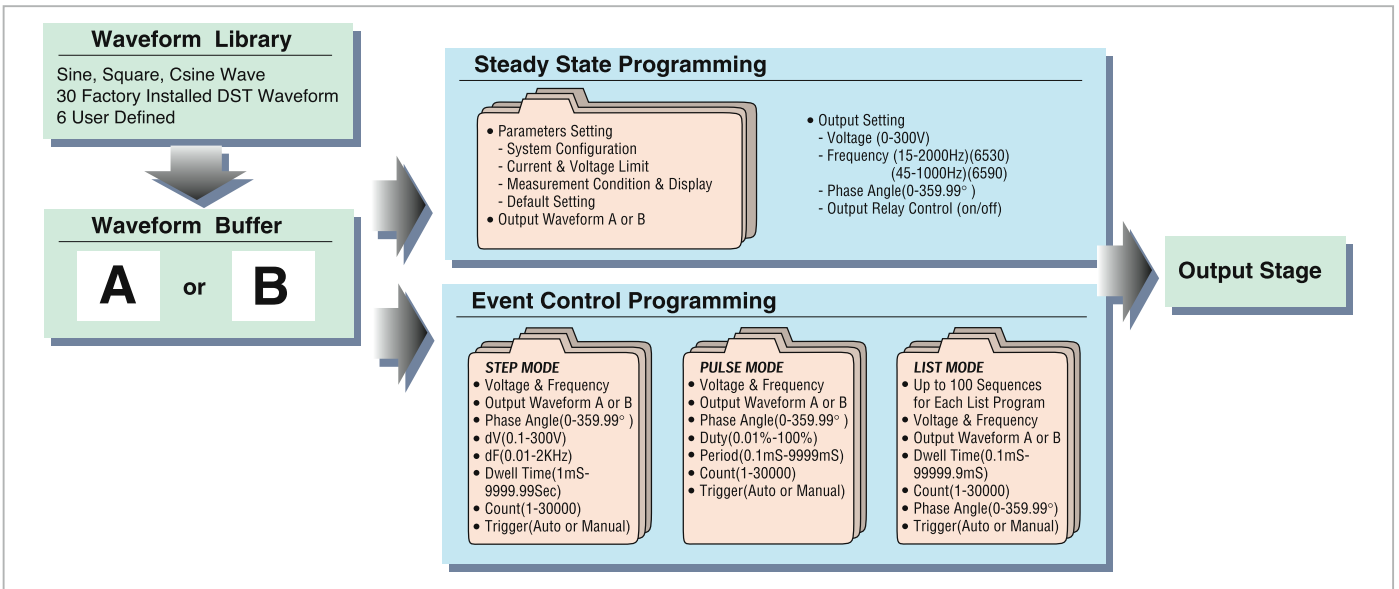


4. TRANSIENT POWER LINE DISTURBANCE SIMULATION

In addition to programming the steady output voltage and frequency, the AC Source provides a powerful tool to simulate all kinds of power line disturbance conditions. The step and pulse modes offer an easy and convenient method to execute single step or continue output changes. The output voltage amplitude, frequency, phase angle, and waveform shape can be controlled in response to input trigger generated from an internal or external event. With this capability, it is easy to simulate power line disturbances such as cycle dropout, transient spike, brown out, and ramp up, etc. This feature is very important for the maximum inrush current test when the UUT is switched on at 90 degrees, so is for the UUT's ride-through effect check when an AC input transient spike is applied.

The List transient mode extends this capability further for more complex waveform generation needs. Up to 40 sequences of output setting can be precisely executed in response to a triggered or paced dwell time programmed in advance without computer intervention. Output triggers can be generated at the beginning and the end of each List loop setup to synchronize external events and to simulate power line disturbances for precompliance test of IEC 61000-4-11 Voltage Dip & Variation.





5. POWERFUL MEASUREMENT

This instrument has 16-bit precision measurement circuit built-in and firmware utilities to measure the steady and transient responses of true RMS voltage, true RMS current, true power, power factor, frequency, peak repetitive current, inrush current, current crest factor, VA (apparent power), and VAR (reactive power). Using the high-speed sampling circuit, it can display the measured voltage and current as a waveform on the LCD display for transient state analysis without the need of a scope.

6. VERSATILE OPERATION

Chroma 6500 Series AC Source is easy to operate using the front panel keypad, or a remote controller. The printer interface is also available for printing out the instrument conditions or measurement readings. In ATE applications, model 6530 is controlled via IEEE 488, RS-232C, or Analog Programming Interface.

The instrument is designed with user friendliness in mind. It uses thermo-control DC Fan and the speed increases only when internal temperature rises and calls for more heat ventilation. This minimizes the acoustic noise from the fan during operation. The large size 320 x 240 LCD shows the test setup and operating status with the most comfortable visual effect possible. The software improves user interface by creating soft-keys to guide users during test execution. The rotary knob input enables users to adjust the voltage, frequency, and parameter setting on the fingertip with maximum speed and control

7. SELF DIAGNOSIS AND PROTECTION

The instrument has built in self-diagnosis routine to calibrate its performance and assist trouble shooting for failure. It is protected against over voltage, overload, over current, overpower, over temperature to ensure the instrument quality and performance for all kinds of applications in R&D, QA, Production, and field services.

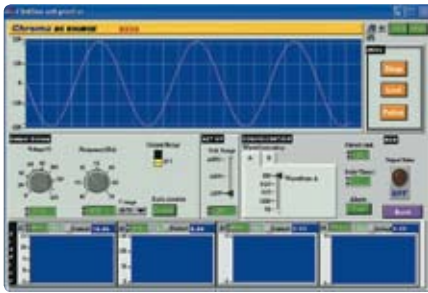


Model : 6560 6KVA

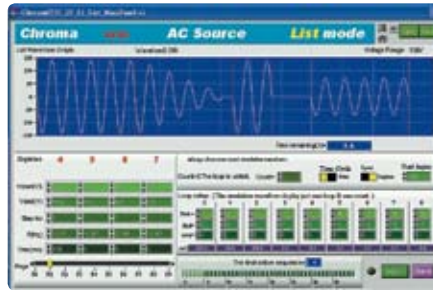
Model : 6590 9KVA

8. THE EASY-USE SOFTWARE : THE 6500 SERIES SOFTPANEL

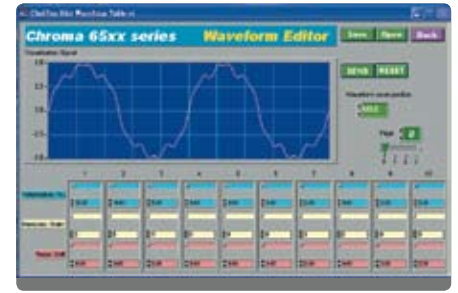
Users can install the software in computer to control the AC source via IEEE488 and RS-232. The easy-use graphic interface help users to program or edit waveforms. All test program can be saved in a file for future recall.



Main Operation Menu



Transient Voltage Programming

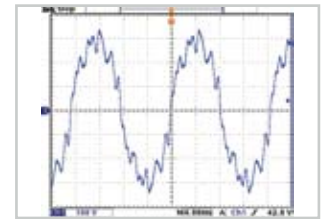


Waveform Editor

9. SIMULATE AC POWER DISTORTION

More and more electronics manufactures have expanded their business to acquire worldwide product distribution. When a problem is identified, sometimes it is necessary to check if the products are susceptible to ac line disturbances. However, precious time would be wasted on gathering and transferring test equipment, man power and other resources to do a simple onsite test. The purpose of this application is to provide a solution using Chroma Power Analyzer 6630 to measure the voltage harmonics of the ac main on site. All recorded data can be sent to the lab. According to the data, users can use waveform editor function of AC Source 6500's softpanel to re-build the original distorted waveform. It can help engineers quickly point out the problem and come up with a solution.

No.	x	ang	No.	x	ang	No.	x	ang
1	100.00	0	35	0.33	22	29	0.50	---
2	1.75	3	36	0.00	---	30	0.00	---
3	0.33	8.7	37	3.54	146	35	0.27	-63
4	0.13	---	38	0.01	---	32	0.00	---
5	0.20	---	39	0.00	---	33	0.00	---
6	0.00	---	40	0.00	---	34	0.00	---
7	0.70	3.1	41	1.52	204	25	0.51	---
8	0.02	---	42	0.00	---	36	0.03	---
9	0.70	---	43	1.15	100	26	0.02	---
10	0.00	---	44	0.00	---	38	0.01	---
11	0.20	---	45	1.07	179	0.00	---	---
12	0.01	---	46	0.00	---	40	0.00	---
13	0.70	---	47	0.99	140	0.00	---	---
14	0.00	---	48	0.00	---	40	0.00	---

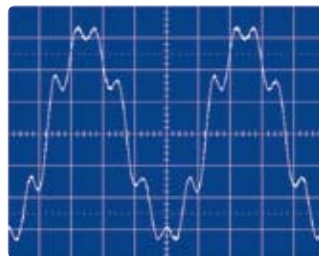


10. WAVEFORM LIBRARY

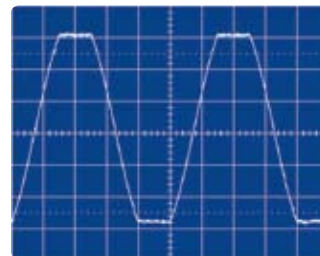
Up to 30 different Distortion Waveforms and 6 user-Define Waveforms are stored in the Waveform Library for user edit and execution.



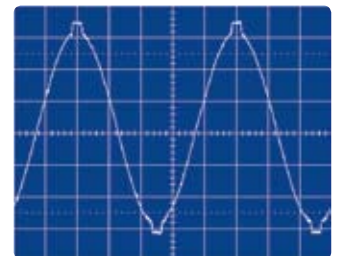
TRIANGLE WAVE



NON-LINEAR



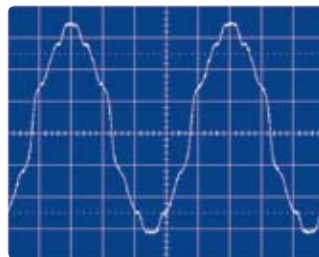
FLAT-TOP SINEWAVE



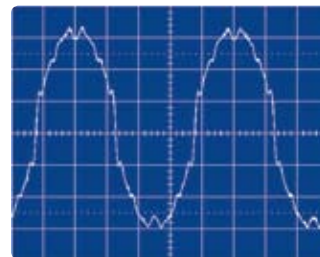
FLAT-TOP SINEWAVE



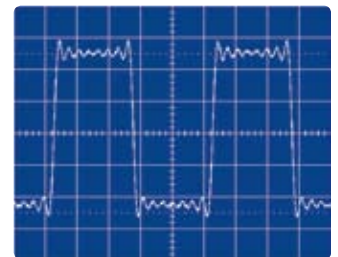
STEP INVERTER



FERRO-RESONANT XFMR



LINE-FILTER

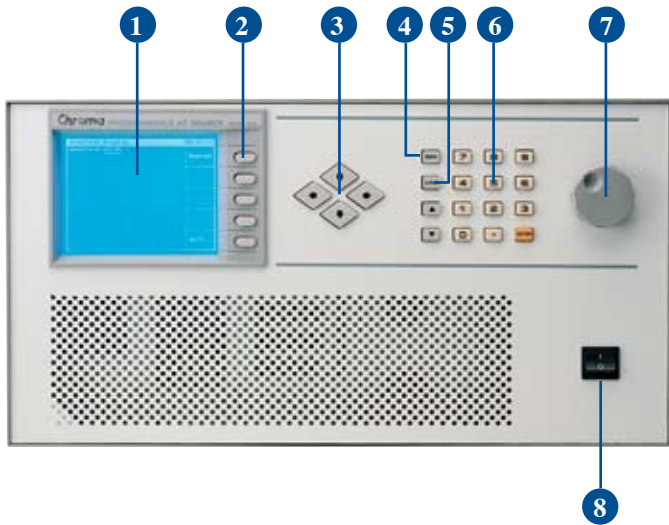


UPS

Please refer to the user's manual for more factory-installed Waveforms and specifications

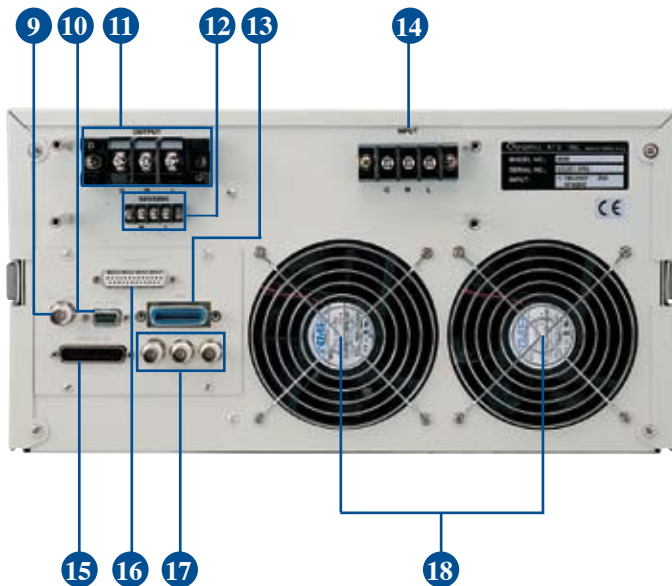
PANEL DESCRIPTION

Model 6530



FRONT PANEL

- 1. LCD Display**
320 x 240 graphic LCD display to show the test set up, operating status, readings and waveforms
- 2. Soft-Key**
5 soft-keys adjacent to the command block display on the LCD that provide users a menu driven interface to control the AC Source operation
- 3. Cursor Key**
For cursor movement
- 4. Edit Key**
To enter into editing mode for real voltage adjustment and frequency setting by pressing Up/ Down keys or Rotary Knob
- 5. Local Key**
Use to switch the system control from Remote Mode to Local Mode
- 6. Numeric Key**
For data setting
- 7. Rotary Knob**
Use to adjust the voltage, frequency and parameter setting
- 8. Power Switch**



REAR PANEL

- 9. External V Reference**
External programming voltage input
- 10. RS-232C Interface**
- 11. Output Terminal**
- 12. Remote Sense**
The remote sense/ feedback circuit guarantees the output accuracy and stability
- 13. GPIB Interface**
- 14. Input Terminal**
- 15. Special I/O Port**
- 16. Printer Interface**
- 17. System I/O Port**
The Sync, Clock, and Vref. ports for system expansion
- 18. Cooling Fan**

ORDERING INFORMATION

- 6512** : Programmable AC Source 0~300V/15~2KHz / 1.2KVA
6520 : Programmable AC Source 0~300V/15~2KHz / 2KVA
6530 : Programmable AC Source 0~300V/15~2KHz / 3KVA
6560-2 : Programmable AC Source 0~500V/45~1KHz / 6KVA I/P 3Ø 220V
6560-3 : Programmable AC Source 0~500V/45~1KHz / 6KVA I/P 3Ø 380V
6590-2 : Programmable AC Source 0~300V/45~1KHz / 9KVA 1Ø or 3Ø, 3000VA per phase, I/P 3Ø 220V
6590-3 : AC Power Source 0~300V/45~1KHz / 9KVA 1Ø or 3Ø, 3000VA per phase, I/P 3Ø 380V

- A650001** : Remote Interface for Model 6500 Series (External V Reference, RS-232 interface, Printer Interface, GPIB Interface, Special I/O Port, System I/O Port)
A650002 : 19" Rack Mounting Kit for Model 6512/6520/6530
A650003 : Softpanel for Model 6500 Series
A610004 : Universal Socket Center for Model 6512/6520/6530/6560 Series
A600009 : GPIB Cable (200cm)
A600010 : GPIB Cable (60cm)

SPECIFICATIONS

Model	6512	6520	6530	6560	6590
Output Phase	1	1	1	1 (parallel or series)	1 or 3 selectable
Output Ratings					
Power	1200VA	2000VA	3000VA	6000VA	3000VA per phase, 9000VA total
Voltage					
Range/phase	150V / 300V / Auto	150V / 300V / Auto	150V / 300V / Auto	150V / 300V (parallel) / 300V / 500V (series)	150V / 300V
Accuracy	0.2% +0.2% of F.S.	0.2% +0.2% of F.S.	0.2% +0.2% of F.S.	0.2% +0.2% of F.S.	0.2% +0.2% of F.S.
Resolution	0.1V	0.1V	0.1V	0.1V	0.1V
Distortion *1	1% (15-45 Hz) 0.5% (> 45-500 Hz) 1% (> 500-1K Hz) 2% (> 1K-2K Hz)	1% (15-45 Hz) 0.5% (> 45-500 Hz) 1% (> 500-1K Hz) 2% (> 1K-2K Hz)	1% (15-45 Hz) 0.5% (> 45-500 Hz) 1% (> 500-1K Hz) 2% (> 1K-2K Hz)	1% (45-1K Hz)	1% (45-1K Hz)
Line Regulation	0.1%	0.1%	0.1%	0.1%	0.1%
Load Regulation *2	0.1%	0.1%	0.1%	0.2% (series), 0.8% (parallel)	0.2%
Temp. Coefficient	0.02% per °C	0.02% per °C	0.02% per °C	0.02% per °C	0.02% per °C
Max. Current/Phase					
rms	12A/6A (150V / 300V)	20A/10A (150V / 300V)	30A/15A (150V / 300V)	60/30/15A (150/300/500V)	30A/15A (150V / 300V) / 90A/45A total
peak	36A/18A (15-100Hz) 30A/15A (>100-1kHz) 24A/12A (>1K-2kHz)	60A/30A (15-100Hz) 50A/25A (>100-1kHz) 40A/20A (>1K-2kHz)	90A/45A (15-100Hz) 75A/38A (>100-1kHz) 60A/30A (>1K-2kHz)	180/90/45A (45-100Hz) 150/75/38A (>100-1kHz)	90A/45A (45-100Hz) 75A/38A (>100-1kHz)
Frequency					
Range	15 ~ 2K Hz	15 ~ 2K Hz	15 ~ 2K Hz	45 ~ 1K Hz	45 ~ 1K Hz
Accuracy	0.15%	0.15%	0.15%	0.15%	0.15%
Resolution	0.01 Hz (15 ~ 99.9 Hz) 0.1 Hz (100 ~ 999.9 Hz) 0.2 Hz (1K ~ 2K Hz)	0.01 Hz (15 ~ 99.9 Hz) 0.1 Hz (100 ~ 999.9 Hz) 0.2 Hz (1K ~ 2K Hz)	0.01 Hz (15 ~ 99.9 Hz) 0.1 Hz (100 ~ 999.9 Hz) 0.2 Hz (1K ~ 2K Hz)	0.01 Hz (45 ~ 99.9 Hz) 0.1 Hz (100 ~ 999.9 Hz)	0.01 Hz (45 ~ 99.9 Hz) 0.1 Hz (100 ~ 999.9 Hz)
Input Ratings					
Voltage Range	190 ~ 250 V, 1Ø	190 ~ 250 V, 1Ø	190 ~ 250 V, 1Ø	190 ~ 250 V, 3Ø	190 ~ 250 V, 3Ø
Frequency Range	47 ~ 63 Hz	47 ~ 63 Hz	47 ~ 63 Hz	47 ~ 63 Hz	47 ~ 63 Hz
Current	10A max.	15A max.	23A max.	23A max./phase	23A max./phase
Power Factor	0.95 min. under full load	0.97 min. under full load	0.98 min. under full load	0.98 min. under full load	0.98 min. under full load
Measurement					
Voltage/Phase					
Range	0 ~ 150V / 0 ~ 300V	0 ~ 150V / 0 ~ 300V	0 ~ 150V / 0 ~ 300V	0 ~ 150V / 0 ~ 300V	0 ~ 150V / 0 ~ 300V
Accuracy (rms)	0.25% + 0.1% F.S.	0.25% + 0.1% F.S.	0.25% + 0.1% F.S.	0.25% + 0.1% F.S.	0.25% + 0.1% F.S.
Resolution	0.1V	0.1V	0.1V	0.1V	0.1V
Current/Phase					
Range (peak)	0 ~ 60 A	0 ~ 100 A	0 ~ 140 A	0 ~ 280 A	0 ~ 140 A
Accuracy (rms)	0.4% + 0.25% F.S.	0.4% + 0.15% F.S.	0.4% + 0.1% F.S.	0.4% + 0.1% F.S.	0.4% + 0.1% F.S.
Accuracy (peak)	0.4% + 0.5% F.S.	0.4% + 0.3% F.S.	0.4% + 0.2% F.S.	0.4% + 0.2% F.S.	0.4% + 0.2% F.S.
Resolution	0.01A	0.01A	0.01A	0.01A	0.01A
Power/Phase					
Accuracy	1% F.S. (CF<6)	1% F.S. (CF<6)	1% F.S. (CF<6)	1% F.S. (CF<6)	1% F.S. (CF<6)
Resolution	0.01W	0.01W	0.01W	0.01W	0.01W
Frequency					
Range	15 ~ 2K Hz	15 ~ 2K Hz	15 ~ 2K Hz	45 ~ 1K Hz	45 ~ 1K Hz
Accuracy	0.01% +2 count	0.01% +2 count	0.01% +2 count	0.01% +2 count	0.01% +2 count
Resolution	0.01Hz	0.01Hz	0.01Hz	0.01Hz	0.01Hz
Others					
Efficiency	80% typical	80% typical	80% typical	80% typical	80% typical
Protection	OPP, OLP, OTP, FAN Fail				
Temperature					
Operating	0 ~ 40°C	0 ~ 40°C	0 ~ 40°C	0 ~ 40°C	0 ~ 40°C
Storage	-40 ~ +85°C	-40 ~ +85°C	-40 ~ +85°C	-40 ~ +85°C	-40 ~ +85°C
Safety & EMC	CE (Include LVD and EMC Requirement)				
Dimension (H x W x D)	221.5 x 425 x 567 mm / 8.72 x 16.73 x 22.32 inch	221.5 x 425 x 567 mm / 8.72 x 16.73 x 22.32 inch	221.5 x 425 x 567 mm / 8.72 x 16.73 x 22.32 inch	765.9 x 546 x 700 mm / 30.16 x 21.5 x 27.56 inch	888.5 x 546 x 700 mm / 34.98 x 21.5 x 27.56 inch
Weight	26.4 kg / 58.15 lbs	26.4 kg / 58.15 lbs	26.4 kg / 58.15 lbs	107 kg / 235.68 lbs	156 kg / 343.61 lbs

All specifications are subject to change without notice. Please visit our website for the most up to date specifications.

Note *1 : Test under output voltage from half to full range.

Note *2 : Test with sinewave & with remote sense.

Developed and Manufactured by :

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