



## PROGRAMMABLE AC POWER SOURCE

### MODEL 61600 SERIES

Chroma Programmable AC Power Source 61600 series delivers pure, instrument grade AC power at very low cost. The 61600 series supplies the output voltage from 0 to 300VAC, and frequency from 15 to 1000Hz. It is suitable for commercial, avionics, and military applications from bench-top testing to mass production.

The 61600 series generates very clean AC output with distortion less than 0.3% at 50/60Hz. With the state-of-the-art PWM technology and power factor correction circuit, the 61600 series yields higher efficiency and delivers more output power. The 61600 series is capable of delivering up to 6 times of peak current compared to its maximum rated current that makes it ideal for inrush current test.

The AC+DC modes extend the applications not only pure AC voltage but also DC component for testing DC offset in laboratory. Users also can use an optional DC noise filter to get low noise and good stability DC voltage for testing. Applying the advanced DSP technology, the 61600 series is able to provide precision and high speed measurements such as RMS voltage, RMS current, true power, frequency, power factor, and current crest factor.

The 61600 series also provides an external analog input to amplify the analog signal from arbitrary signal generator. Thus, it is capable of simulating the unique waveform which observed in the field. Users also can control the amplitude of output voltage by a DC level. It is suitable to integrate Chroma AC source 61600 series into users' system.

For convenience sake, the 61600 series offers versatile front panel operations with LCD display and rotary knob. Users may also control the 61600 series AC source remotely via GPIB, RS232 or APG (Analog Programming) interface. Users can find Labview driver in NI's web site for programming.

The power-on self-diagnosis routine along with the full protections against OPP, OCP, OVP and OTP ensure the quality and reliability for the most demanding engineering tests and ATS applications.

## Programmable AC Power Source

### MODEL 61600 SERIES

#### Key Features:

- Output Rating :  
Power : 500VA (61601), 1000VA (61602)  
1500VA (61603), 2000VA (61604)  
4000VA (61605)
- Voltage range : 0~150V/0~300V/Auto
- Frequency : 15Hz~1000Hz
- Compact size and weight attributable to advance PWM technology
- Built-in PFC, provide input power factor over 0.98 (full load)
- AC+DC output mode for voltage DC offset simulation
- Programmable slew rate setting for changing voltage and frequency
- Programmable voltage, current limit
- One-key recall for 9 different voltage and frequency
- Low output impedance for testing IEC 61000-3-2 (61605)
- Comprehensive measurement capability, V, Irms, Ipk, Inrush, P, Q, S, PF, CF of current and etc.
- High output current crest factor, ideal for inrush current testing
- Turn on, turn off phase angle control
- TTL signal which indicates ON/OFF
- 3 units combined to 3-phase power output
- Easy-use software for operation and ON/OFF test
- Optional analog programming interface
- Optional GPIB and RS-232 interface
- Full protection: OP, OC, OV and OT protection

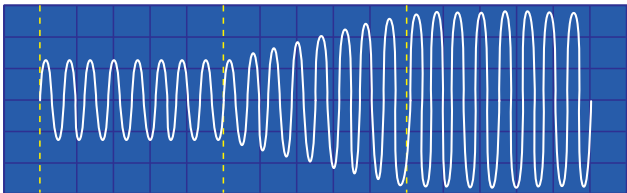
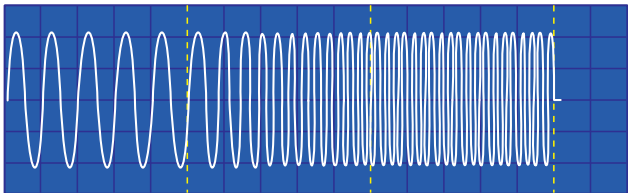


# Chroma



SLEW RATE OF VOLTAGE AND FREQUENCY

Chroma Programmable AC Power Source 61600 Series use DSP technology to program voltage waveform. Users can change the voltage or frequency in only one step. Or users can set the slew rate to get a gradual increase or decrease of voltage and frequency. It can help users easily to test the power input range of their products, for example, 90V-264V/47Hz-63Hz.



ONE-KEY RECALL MODE

Chroma Programmable AC Power Source 61600 Series allows users to save 9 various voltage and frequency settings. Users can recall the value by only pressing "1" to "9" key. It can help testers or manufacture operators easily to change voltage or frequency for some fixed test conditions.

| CHOICE 1 - 9 , PRESS (ENTER) TO SAVE MAIN PAGE |             |           |           |  |  |
|------------------------------------------------|-------------|-----------|-----------|--|--|
| 1.                                             | Vac = 90.0  | F = 60.00 | Vdc = 0.0 |  |  |
| 2.                                             | Vac = 115.0 | F = 60.00 | Vdc = 0.0 |  |  |
| 3.                                             | Vac = 230.0 | F = 50.00 | Vdc = 0.0 |  |  |

COMPREHENSIVE MEASUREMENTS

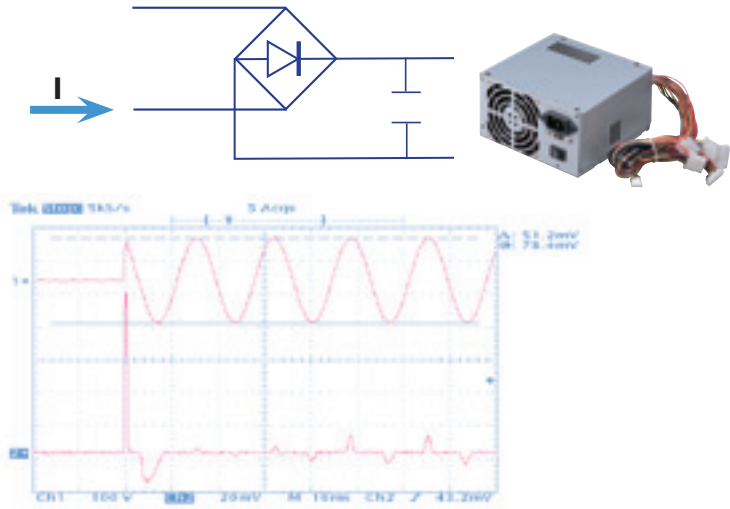
Chroma Programmable AC Power Source 61600 Series has built in a 16-bit precision measurement circuit and firmware utilities to measure the RMS voltage, RMS current, true power, power factor, peak repetitive current, inrush current, current crest factor, VA (apparent power), and VAR (reactive power). These comprehensive measurements make Chroma Programmable AC Power Source 61600 Series not only a power source but also a power meter.

|             |           |           |   |
|-------------|-----------|-----------|---|
| Vac = 110.0 | F = 60.00 | Vdc = 0.0 | L |
| V = 110.0   | F = 60.00 | I = 0.74  | ▲ |
| P = 34.2    | PF = 0.42 | CF = 5.14 | ▼ |

|             |            |            |   |
|-------------|------------|------------|---|
| Vac = 110.0 | F = 60.00  | Vdc = 0.0  | L |
| Vdc = 0.0   | Idc = 0.00 | Ip = 3.8   | ▲ |
| Is = 10.2   | VA = 81.4  | VAR = 73.9 | ▼ |

HIGH OUTPUT CURRENT CREST FACTOR AND TURN ON / OFF PHASE ANGLE CONTROL

Chroma Programmable AC Power Source 61600 Series is capable of providing high output current crest factor (Max. 6). It delivers sufficient transient power required for testing most of switching made power circuits. The additive programmable turn on (off) phase angle control makes the 61600 series AC source ideal for inrush current test.



## EASY-USE SOFTWARE : THE 61600 SERIES SOFTPANEL



Main Operation Menu



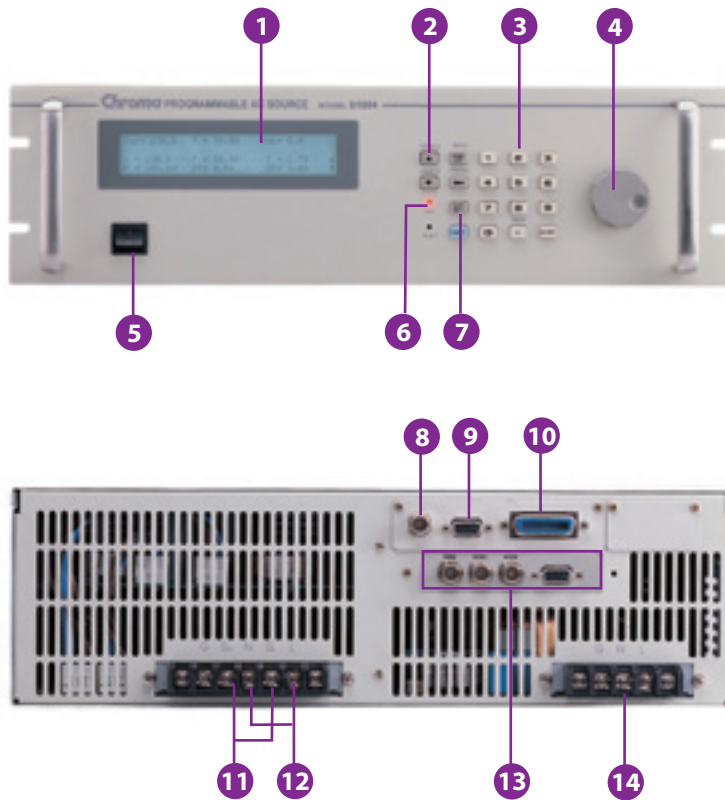
Auto Run (for ON/OFF or Burn in Test)



Recording Function

### PANEL DESCRIPTION

#### Model 61601~61604



- 1. LCD Display**  
Show the test setup, operating status and readings
- 2. Page Up/Down Key**  
Facilitate parameter data editing
- 3. Numeric Key**  
Data entry for test parameters
- 4. Rotary Knob**  
Regulate for Analog voltage, frequency and parameter setting
- 5. Power Switch**
- 6. Output Indicator**  
Lighten when output is enabled
- 7. Output Enable Key**  
Enable or disable output
- 8. External V Reference**  
External programming voltage input
- 9. RS-232 Interface**
- 10. GPIB Interface**
- 11. Remote Sense Terminal**  
Use to compensate the line drop between source and testing point
- 12. Output Terminal**  
Connect output cable to the UUT
- 13. System Interface**  
For synchronizing signal and transient signal
- 14. Input Terminal**

### ORDERING INFORMATION

**61601** : Programmable AC Source 0~300V, 15~1KHz / 500VA

**61602** : Programmable AC Source 0~300V, 15~1KHz / 1KVA

**61603** : Programmable AC Source 0~300V, 15~1KHz / 1.5KVA

**61604** : Programmable AC Source 0~300V, 15~1KHz / 2KVA

**61605** : Programmable AC Source 0~300V, 15~1KHz / 4KVA

**A615001** : Remote Interface Board for Model 61500/61600 series  
(External V Input, RS-232 Interface, GPIB Interface)

**A610004** : Universal Socket Center for Model 6512/6520/6530/ 6560/  
6415/6420/6430/61500/61600 series

**A615007** : Softpanel for Model 61500/61600 series

**A615008** : DC Noise Filter (Max.16A) for Model 61500/61600 series



MODEL 61605

## SPECIFICATIONS

| Model                         | 61601                          | 61602                          | 61603                          | 61604                          | 61605                                             |
|-------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------------------------|
| Output phase                  | 1                              | 1                              | 1                              | 1                              | 1                                                 |
| <b>Output Rating - AC</b>     |                                |                                |                                |                                |                                                   |
| Power/Phase                   | 500VA                          | 1000VA                         | 1500VA                         | 2000VA                         | 4000VA                                            |
| <b>Voltage</b>                |                                |                                |                                |                                |                                                   |
| Range/Phase                   | 150V/300V/Auto                 | 150V/300V/Auto                 | 150V/300V/Auto                 | 150V/300V/Auto                 | 150V/300V/Auto                                    |
| Accuracy                      | 0.2%+0.2%F.S.                  | 0.2%+0.2%F.S.                  | 0.2%+0.2%F.S.                  | 0.2%+0.2%F.S.                  | 0.2%+0.2%F.S.                                     |
| Resolution                    | 0.1V                           | 0.1V                           | 0.1V                           | 0.1V                           | 0.1V                                              |
| Distortion (*1)               | 0.3% @ 50/60Hz<br>1% @ 15~1kHz | 0.3% @ 50/60Hz<br>1% @ 15~1kHz | 0.3% @ 50/60Hz<br>1% @ 15~1kHz | 0.3% @ 50/60Hz<br>1% @ 15~1kHz | 0.3% @ 50/60Hz<br>1% @ 15~1kHz                    |
| Line Regulation               | 0.1%                           | 0.1%                           | 0.1%                           | 0.1%                           | 0.1%                                              |
| Load Regulation (*2)          | 0.2%                           | 0.2%                           | 0.2%                           | 0.2%                           | 0.2%                                              |
| <b>Max. Current/Phase</b>     |                                |                                |                                |                                |                                                   |
| r.m.s.                        | 4A/2A (150V/300V)              | 8A/4A (150V/300V)              | 12A/6A (150V/300V)             | 16A/8A (150V/300V)             | 32A/20A (150V/300V)                               |
| peak                          | 24A/12A (150V/300V)            | 48A/24A (150V/300V)            | 72A/36A (150V/300V)            | 96A/48A (150V/300V)            | 192A/96A (150V/300V)                              |
| <b>Frequency</b>              |                                |                                |                                |                                |                                                   |
| Range                         | DC, 15~1kHz                    | DC, 15~1kHz                    | DC, 15~1kHz                    | DC, 15~1kHz                    | DC, 15~1kHz                                       |
| Accuracy                      | 0.15%                          | 0.15%                          | 0.15%                          | 0.15%                          | 0.15%                                             |
| Resolution                    | 0.01 Hz                        | 0.01 Hz                        | 0.01 Hz                        | 0.01 Hz                        | 0.01 Hz                                           |
| <b>Output Rating - DC</b>     |                                |                                |                                |                                |                                                   |
| Power                         | 250W                           | 500W                           | 750W                           | 1000W                          | 2000W                                             |
| Voltage                       | 212V/424V                      | 212V/424V                      | 212V/424V                      | 212V/424V                      | 212V/424V                                         |
| Current                       | 2A/1A (212V/424V)              | 4A/2A (212V/424V)              | 6A/3A (212V/424V)              | 8A/4A (212V/424V)              | 16A/8A (212V/424V)                                |
| <b>Input Rating</b>           |                                |                                |                                |                                |                                                   |
| Voltage Range                 | 90~250V, 1ø                    | 90~250V, 1ø                    | 90~250V, 1ø                    | 90~250V, 1ø                    | 190~250V, 3ø (*3)                                 |
| Frequency Range               | 47~63Hz                        | 47~63Hz                        | 47~63Hz                        | 47~63Hz                        | 47~63Hz                                           |
| Current                       | 10A Max. @ 90V                 | 18A Max. @ 90V                 | 22A Max. @ 90V                 | 28A Max. @ 90V                 | 14A Max. @ 190V                                   |
| Power Factor (*4)             | 0.97 Min.                      | 0.97 Min.                      | 0.98 Min.                      | 0.98 Min.                      | 0.98 Min.                                         |
| <b>Measurement</b>            |                                |                                |                                |                                |                                                   |
| <b>Voltage</b>                |                                |                                |                                |                                |                                                   |
| Range/Phase                   | 150V/300V                      | 150V/300V                      | 150V/300V                      | 150V/300V                      | 150V/300V                                         |
| Accuracy                      | 0.2%+0.2%F.S.                  | 0.2%+0.2%F.S.                  | 0.2%+0.2%F.S.                  | 0.2%+0.2%F.S.                  | 0.2%+0.2%F.S.                                     |
| Resolution                    | 0.1V                           | 0.1V                           | 0.1V                           | 0.1V                           | 0.1V                                              |
| <b>Current</b>                |                                |                                |                                |                                |                                                   |
| Range (peak)                  | 24A                            | 48A                            | 72A                            | 96A                            | 192A                                              |
| Accuracy (r.m.s.)             | 0.4%+0.3%F.S.                  | 0.4%+0.3%F.S.                  | 0.4%+0.3%F.S.                  | 0.4%+0.3%F.S.                  | 0.4%+0.3%F.S.                                     |
| Accuracy (peak)               | 0.4%+0.6%F.S.                  | 0.4%+0.6%F.S.                  | 0.4%+0.6%F.S.                  | 0.4%+0.6%F.S.                  | 0.4%+0.6%F.S.                                     |
| <b>Power</b>                  |                                |                                |                                |                                |                                                   |
| Accuracy                      | 0.4%+0.4%F.S.                  | 0.4%+0.4%F.S.                  | 0.4%+0.4%F.S.                  | 0.4%+0.4%F.S.                  | 0.4%+0.4%F.S.                                     |
| Resolution                    | 0.1W                           | 0.1W                           | 0.1W                           | 0.1W                           | 0.1W                                              |
| <b>Temperature</b>            |                                |                                |                                |                                |                                                   |
| 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                                       |
| <b>Safety &amp; EMC</b>       |                                |                                |                                |                                |                                                   |
|                               | CE ( include EMC & LVD )       |                                |                                |                                |                                                   |
| <b>Dimensions (H x W x D)</b> |                                |                                |                                |                                | 266.7 x 482.6 x 569.5 mm / 10.5 x 19 x 22.42 inch |
| <b>Weight</b>                 |                                |                                |                                |                                | 41 kg / 90.31 lbs                                 |

**Note\*1** : Maximum distortion is tested on output 125VAC (150V RANGE) and 250VAC (300V RANGE) with maximum current to linear load.

**Note\*2** : Load regulation is tested with sinewave and remote sense.

**Note\*3** : Model 61605 can also use single-phase connecting method of input AC power, the maximum input current is 28A @ 190V.

**Note\*4** : Input power factor is tested on input 220V, full load condition.

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