

## N61200 Series Multi-channel DC Electronic Load



### Product Introduction

The N61200 series is a DC electronic load with high integration and high performance. It integrates 4 channels in 2U height and half 19 inch width chassis, each channel delivering 150W power, handling 150V input voltage, and supporting up to 30A current. The voltage, current, resistance, and power have a dual range design. It also allows parallel channel operation for flexible scalability to meet the extensive testing requirements of various devices.

Supporting 8 test modes such as CC, CV, CR, CP, CV+CC, CV+CR (CR - LED), CR+CC, and CP+CC, this series is highly versatile. Moreover, it offers functions like LED simulation, OCP/OVP/OPP testing, load effect testing, short-circuit testing, and time measurement. Fast-charging testing is available as an option, and it comes with standard LAN/RS485 interfaces. The N61200 series is perfect for mass production of consumer electronics and for use in universities and research institutions.

### Application Fields

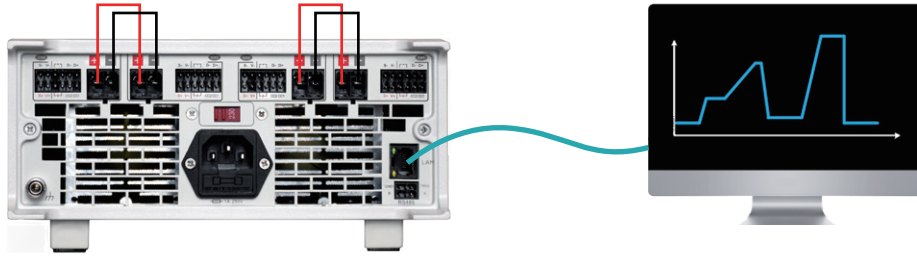
- ▶ Low to medium power supply testing: AC/DC, DC/DC converters, LED, communication
- ▶ Consumer electronics testing: Mobile phone fast-charge adapters, mobile devices
- ▶ Automotive component testing: Wiring harnesses, connectors, fuses, relays, central electrical boxes
- ▶ Energy storage device discharge testing: Lithium-ion, lead-acid batteries, supercapacitors

### Main Features

- ▶ Power specification: 150W/4CH, 300W/2CH
- ▶ Integrates 4 channels in 2U height and half 19 inch width chassis, parallel connection supportable between channels
- ▶ Support LED simulation function, LED power supply real load test
- ▶ Support CC, CV, CR, CP dynamic test, CC dynamic up to 30kHz
- ▶ Voltage, current, resistance, power dual range, wide measurement range
- ▶ Support sequence test, automatic test, Von/Voff, short-circuit simulation, ripple measurement functions
- ▶ Support OCP/OVP/OPP test, load effect test
- ▶ Support USB PD2.0/PD3.0/PD3.1/QC 2.0/QC 3.0/QC 4.0+/PE+/PE+2.0/FCP/SCP/AFC/VOOC protocols
- ▶ Support CC1/CC2 test, D+D-voltage monitoring
- ▶ Support LAN, RS485 communication control
- ▶ Current rise/fall rate can be set, voltage loop response speed adjustable

### Channel parallelism and multi-power combinations

The N61200 series supports parallel connections between channels. By paralleling channels (e.g., CH1+CH2, CH3+CH4), users can achieve the desired current and power levels. Parallel settings and operations can be easily performed via master computer software or the device interface.

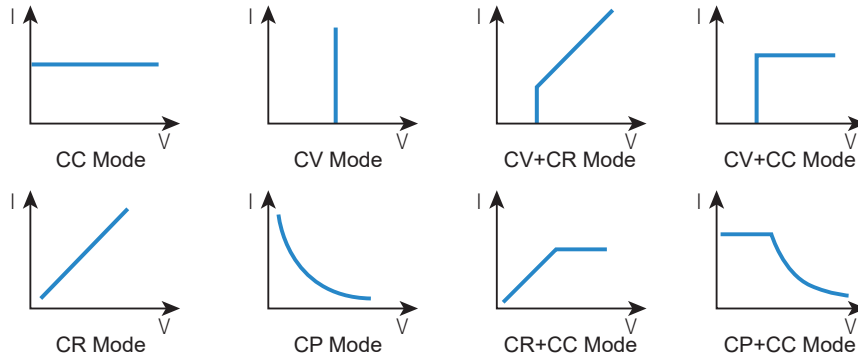


▲ Parallel Back Wiring Diagram

DC Power Supply

### Multiple operation modes

N61200 series not only supports four basic modes of CC, CV, CP, and CR, but also supports four combined working modes of CV+CC, CR+CC, CV+CR, CP+CC. CR+CC mode is suitable for power-on test of source, preventing over current protection during power-on. CV+CR mode can replace Von function. CV+CC mode can simulate the working mode conversion process of battery charging. Users can select different operation modes according to their test application.

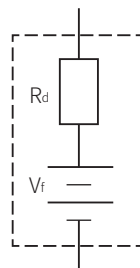


### LED light simulation to test LED driving power

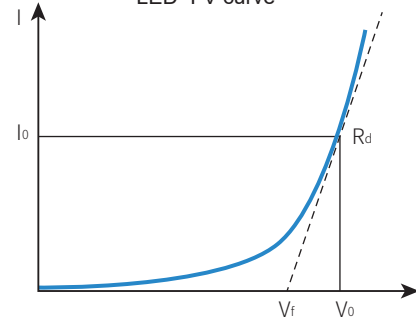
The electronic load has LED light simulation function. As shown in the figure, the LED equivalent circuit is to connect the resistance  $R_d$  with the voltage source  $V_f$  in series. Its I-V curve is equivalent to tangent of the real LED nonlinear I-V curve at the operating point ( $V_o$ ,  $I_o$ ). As the I-V curve of LEDs is non-linear, conventional electronic loads with CR or CV modes do not match the testing needs of LED power supplies, so more sophisticated load models are needed to simulate the behaviour of LEDs.

Under LED mode, users need to set three parameters to simulate real LED light loading condition, including the rated output current of LED driving power, LED operating voltage, and resistance coefficient.

LED equivalent circuit

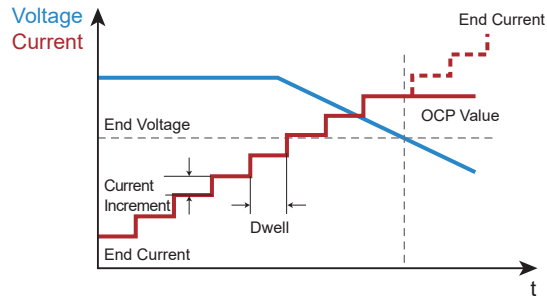


LED I-V curve

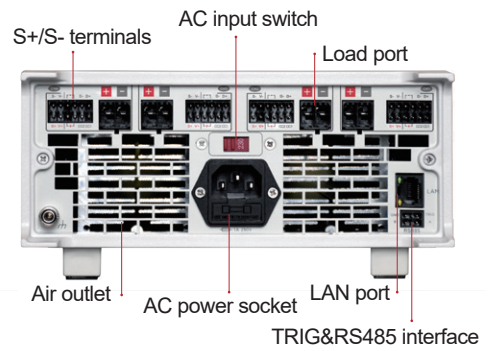
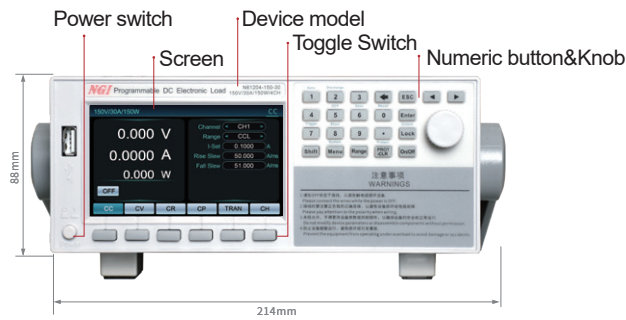


### OCP (over current protection) test

During OCP test, N61200 will load under CC mode and check whether the DUT voltage is lower than end voltage. If lower, N61200 will record the present loading current as the test result and shut the input to stop the test. If the DUT voltage is higher than end voltage, N61200 will increase the loading current until the DUT voltage is lower than end voltage or it reaches the Max. loading current.



### Product Dimension



**Technical Data Sheet**

Model	N61204-150-30		N61202-150-60	
Voltage	150V			
Current	30A		60A	
Power	150W		300W	
Minimum Operating Voltage	0.5V@3A	1.2V@30A	0.5V@6A	1.2V@60A
Channels	4CH		2CH	
CV Mode				
Range	0~15V	0~150V	0~15V	0~150V
Setting Resolution	1mV	10mV	1mV	10mV
Setting Accuracy (23 ±5°C)	0.025%+0.025%F.S.			
Setting Resolution	0.1mV	1mV	0.1mV	1mV
Readback Accuracy (23 ±5°C)	0.025%+0.025%F.S.			
CC Mode				
Range	0~3A	0~30A	0~6A	0~60A
Setting Resolution	0.01mA	0.1mA	0.01mA	0.1mA
Setting Accuracy (23 ±5°C)	0.05%+0.05%F.S.	0.03%+0.05%F.S.	0.05%+0.05%F.S.	0.03%+0.05%F.S.
Setting Resolution	1μA	0.01mA	1μA	0.01mA
Readback Accuracy (23 ±5°C)	0.05%+0.05%F.S.	0.03%+0.05%F.S.	0.05%+0.05%F.S.	0.03%+0.05%F.S.
CP Mode				
Range	15W	150W	30W	300W
Setting Resolution	0.1mW	1mW	0.1mW	1mW
Setting Accuracy (23 ±5°C)	0.1%+0.1%F.S.			
Setting Resolution	1mW	10mW	1mW	10mW
Readback Accuracy (23 ±5°C)	0.1%+0.1%F.S.			
CR Mode				
Range	1Ω~15kΩ	0.1Ω~1.5kΩ	1Ω~7.5kΩ	0.1Ω~0.75kΩ
Testing Setting Resolution	0.1Ω	0.01Ω	0.1Ω	0.01Ω
Setting Accuracy (23 ±5°C)	(Vin/Rset)*0.1%+0.5%F.S.			
Slew Rate				
Current	0.001~100A/ms	0.001~2000A/ms	0.001~200A/ms	0.001~4000A/ms
Power	0.001~100A/ms	0.001~2000A/ms	0.001~200A/ms	0.001~4000A/ms
Resistance	0.001~100A/ms	0.001~2000A/ms	0.001~200A/ms	0.001~4000A/ms
Dynamic Mode (CCD)				
T1&T2	0.016ms~6000ms/0.016s~6000s			
Resolution	1μs/1ms			
Rise/Fall Slew Rate	0.001~100A/ms	0.001~2000A/ms	0.001~200A/ms	0.001~4000A/ms
Others				
D+/D- Voltage Measurement	0~3.3V			
Protection Function	OVP/OCP/OPP/OTP/RV			
Interface	LAN/RS485			
Communication Protocol	Modbus-RTU standard protocol, SCPI standard protocol			
Communication Response Time	≤5ms			
Ripple Measurement	Bandwidth 10Hz~100kHz			
AC Input	Voltage 110/220V AC, frequency 47Hz~63Hz; current ≤1A@220V, ≤1A@110V			
Temperature	Operating temperature: 0°C~40°C; storage temperature: -20°C~60°C			
Operating Environment	Altitude <2000m, relative humidity: 5%~90%RH(non-condensing), atmospheric pressure: 80~110kPa			
Net Weight	Approx. 6.7 kg			
Dimension	88.0mm (H) *214.0mm (W) *450.5mm (D) (with shield)			

Note 1: For other specifications, please contact NGI.

Note 2: All specifications are subject to change without notice.