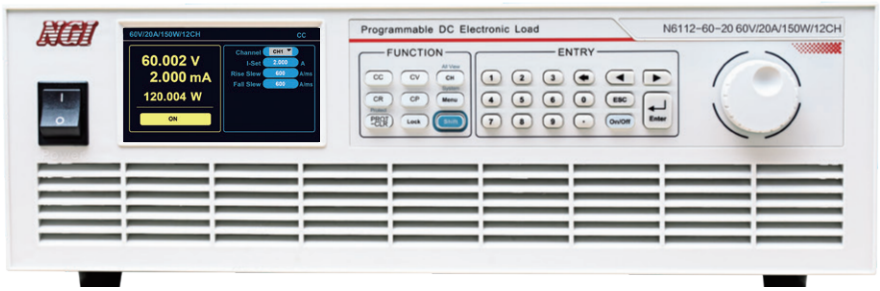
N6112 Series Multi-channel Programmable DC Electronic Load



Product Introduction

N6112 series is a 12-channel DC electronic load, with high accuracy, high reliability, high integration, high cost performance and full features. It is tailored for integrated applications, featuring in high communication speed and high stability. N6112 series is with 19-inch 3U size, and supports communication interfaces LAN and RS485. In most integrated applications, N6112 series can replace low-power standalone electronic loads and save much cost for users.

Application Fields

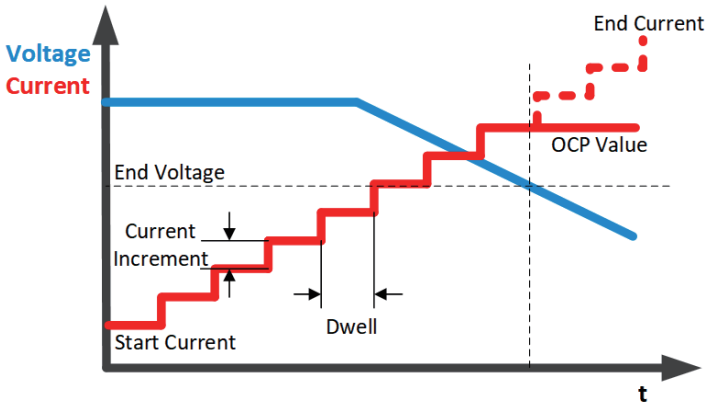
R&D, production, aging and QC of DC/DC converters, power products; test of automotive wiring harness, connectors, fuses, relays, BEC(Bussed Electrical Center) and other related fields.

Main Features

- Power range: 150W×12CH
- Current range: 0-5A/0-20A
- Dynamic mode
- Editable rise and fall slew rate
- Built-in RS485 interface and LAN port
- Each channel isolated
- Dynamic frequency sweep function
- Voltage range: 0-60V/0-120V/0-500V
- Operation mode: CC、CV、CP、CR
- Load effect test
- Convenient OCP/OPP test
- Multiple protection: OCP/OVP/OPP/OTP
- Fast communication response

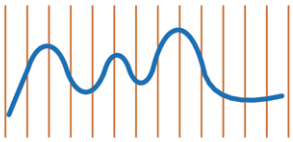
OCP (over current protection) test

During OCP test, N6112 will load under CC mode and check whether the DUT voltage is lower than end voltage. If lower, N6112 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, N6112 will increase the loading current until the DUT voltage is lower than end voltage or it reaches the Max. loading current.

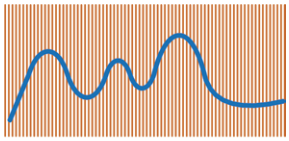


Readback speed up to 10ms , multi-channel centralized control

N6112's multi-channel readback interval is up to 10ms. When applying N6112 to test the dynamic performance of the DUT, it can capture the transient process of the DUT and make test of scenes such as fuse short-circuit or blowout.



Common Load-Readback Interval



N6112-Reaback Interval

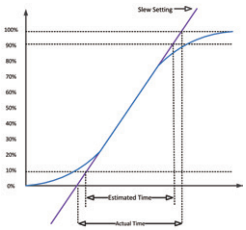
Dynamic frequency sweep

Dynamic frequency sweep is similar to transient mode, repeatedly switching between two parameters. The duration of each parameter is determined by the sweep frequency and duty ratio. It increases from the initial sweep frequency to the cut-off frequency. The frequency increment and frequency point sweep duration are settable. During the sweep, the input voltage is accompanied by a current transient, which causes overshoot and drop. With the functions of voltage ripple and peak-to-peak measurement, various dynamic parameters and corresponding frequencies can be obtained.

Programmable slew rate

Rise and fall slew rates are settable to prevent overshoot and meet the complex test demands.

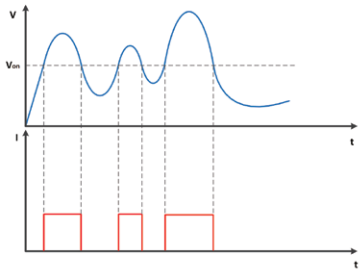
The conversion slew limits the current or voltage transition rate when the on-load main value of N6112 changes. When the slew is set to the maximum value, the transition time between the main value and the transient value is minimal.



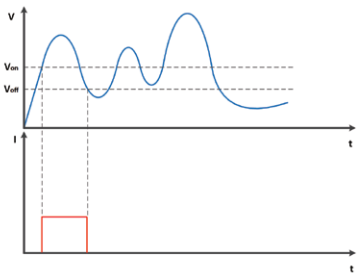
▲ Slew Rate and Actual Transition Time

Settable Von/Voff

The Von latch function has two modes to meet your various test needs: enabled and disabled.



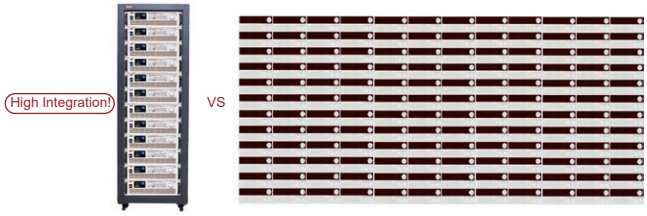
▲ Disabled: When the input voltage is higher than Von, N6112 starts to sink current. When the input voltage is lower than Von, it stops sinking current.



▲ Enabled: When the input voltage is higher than Von, N6112 starts to sink current. When the input voltage is lower than Voff, N6112 stops sinking current. After that, it will not sink current automatically even the input voltage is higher than Von again.

Ultra-high integration, single device with up to 12 channels

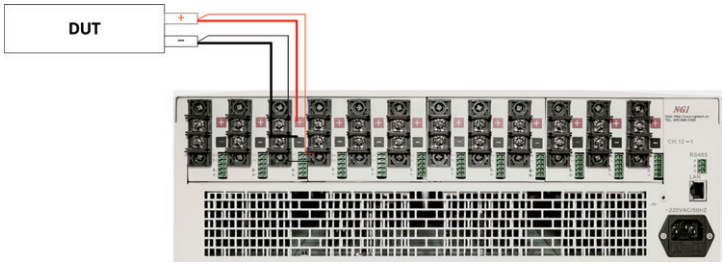
N6112 series supports up to 12 channels in a single device. Each channel is isolated, available for independent application or integration in a cabinet. The ultra-high integration makes N6112 a competitive selection for multi-channel batch test applications.



▲N6112 Electronic Load ▲Traditional Electronic Load

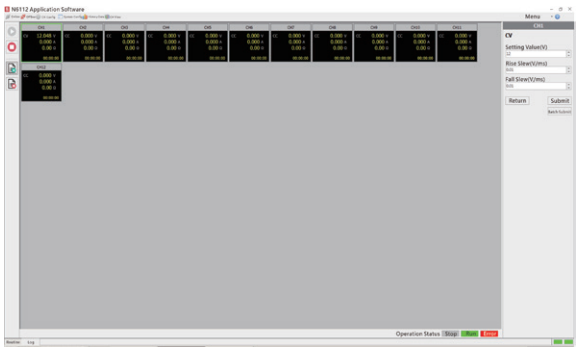
Remote sense to improve measurement accuracy

Remote sense is also known as four-wire sense. When N6112 is working, it will cause a voltage drop in the leads between the DUT and terminals of N6112, which will affect the voltage measurement accuracy of the load. When working under CV, CR and CP mode, to ensure accurate measurement, it is recommended to use remote sense. During remote sensing, terminals S+ and S- are directly connected to the output of the DUT, eliminating the voltage drop in the leads.



Typical application-Automotive fuse blowout test

Automotive fuse test is regarding the safety of automotive control circuits. There are mainly two test items : fuse short circuit test and fuse over current test. Both tests need to record the time, current and voltage of the fuse blowout and the waveform of the blowout process.

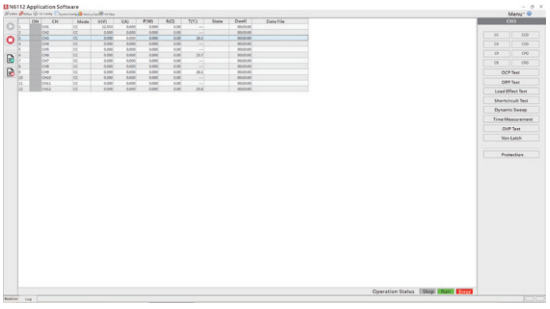


Advantages of N6112 in fuse test

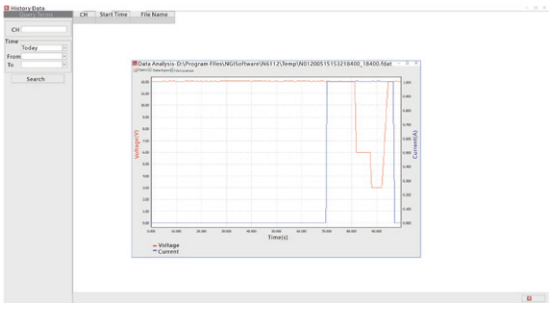
- Stable and reliable operation without failure for long time over-current test
- Sampling rate up to ms-level, short-circuit test waveform without distortion
- Convenient control via LAN port; single device with up to 12 channels, reducing communication wiring
- High cost performance

Multi-functional application software

N6112 provides application software, which can monitor the operating state of all channels in real time, including voltage, current, and power. Users can view the configuration information by selecting a specific channel. Meanwhile, all data will be saved into a database for future review.

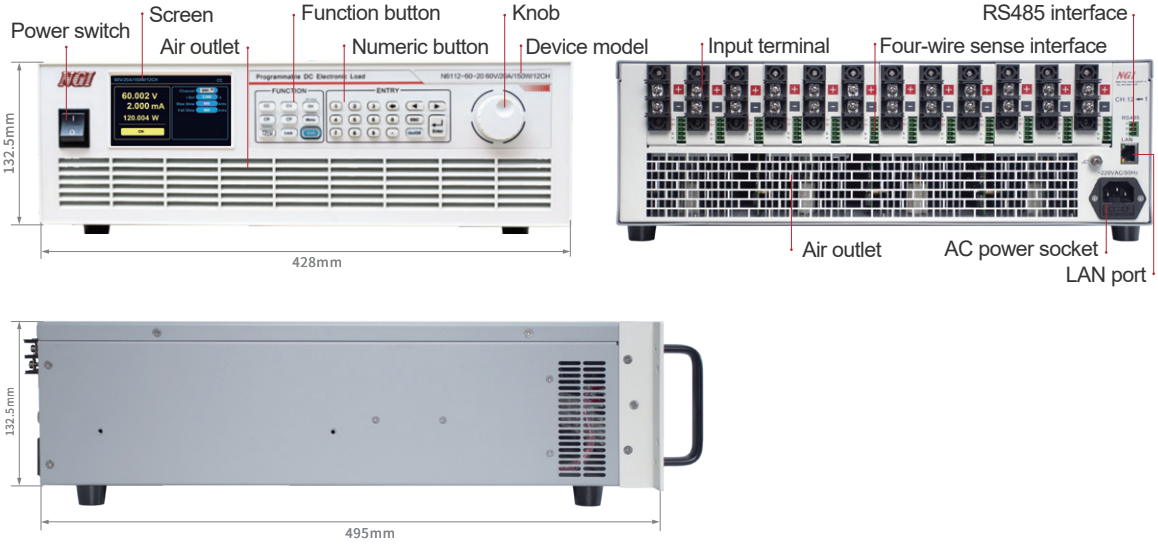


▲Real Time Data Interface



▲Data Analysis Interface

Product Dimension



Technical Data Sheet

Model	N6112-60-20	N6112-120-20	N6112-500-5
Voltage	60V/CH	120V/CH	500V/CH
Current	20A/CH	20A/CH	5A/CH
Power	150W/CH		
Min. Operating Voltage	1V@20A	1V@20A	5V@5A
Channels	12CH		
CC Mode			
Range	0~20A	0~20A	0~5A
Setting Resolution	1mA		
Setting Accuracy (23±5℃)	0.05%+0.1%F.S.		
CV Mode			
Range	0~60V	0~120V	0~500V
Setting Resolution	1mV	10mV	10mV
Setting Accuracy (23±5℃)	0.05%+0.05%F.S.		
CP Mode			
Range	0~150W		
Setting Accuracy (23±5℃)	0.15%+0.15%F.S.		
CR Mode			
Range	50mΩ~1kΩ	50mΩ~1kΩ	1Ω~10kΩ
Setting Accuracy (23±5℃)	0.15%+10μS	0.15%+10μS	0.15%+1μS
Current Measurement			
Range	0~20A	0~20A	0~5A
Readback Resolution	1mA		
Readback Accuracy (23±5℃)	0.05%+0.1%F.S.		
Voltage Measurement			
Range	0~60V	0~120V	0~500V
Readback Resolution	1mV	10mV	10mV
Readback Accuracy (23±5℃)	0.05%+0.05%F.S.		
Others			
Interface	LAN/RS485		
AC Input	Single phase, 220V AC±10%, frequency 47Hz~63Hz		
Sampling Frequency	25Hz		
Communication Response Time	≤10ms		
Temperature	Operating temperature: 0℃~40℃, storage temperature: -20℃~60℃		
Operating Environment	Altitude <2000m, relative humidity: 5%~90%RH(non-condensing), atmospheric pressure: 80~110kPa		
Net Weight	Approx. 21kg		
Dimension	3U, 132.5(H)*482.0(W)with handle*495.0(D)mm		

Note 1: For other specifications, please contact NGI.
Note 2: All specifications are subject to change without notice.