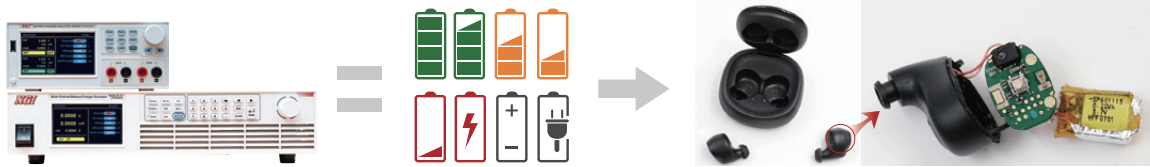


# Battery Simulator Selection Guide

## Application Principle

The application principle of battery simulator is to replace the batteries in the R&D, production and test stage of electronic products, simulate the output state of real batteries or the charge & discharge characteristics of real batteries. It offers source output, charge & discharge simulation, SOC test, internal resistance simulation, fault simulation, etc. It can achieve high-accuracy voltage and current measurement and quickly verify the response of DUT under different battery conditions.



## Application Fields

R&D and manufacturing test for BMS, electric tools, consumer electronics, and other battery-powered products.

BMS

- Cell simulation
- Active/passive balancing test
- Fault simulation
- Static power consumption test

→

EV

H<sub>2</sub>

Fuel cell  
CVM

BMS  
chips

CMS

Li-ion battery  
energy storage

UPS  
energy storage

Battery-powered products

- Cell simulation
- Charging source
- Static power consumption test
- Voltage monitoring

→

Bluetooth  
headset

Smartwatch

Cellphone

E-cigarette

Power  
bank

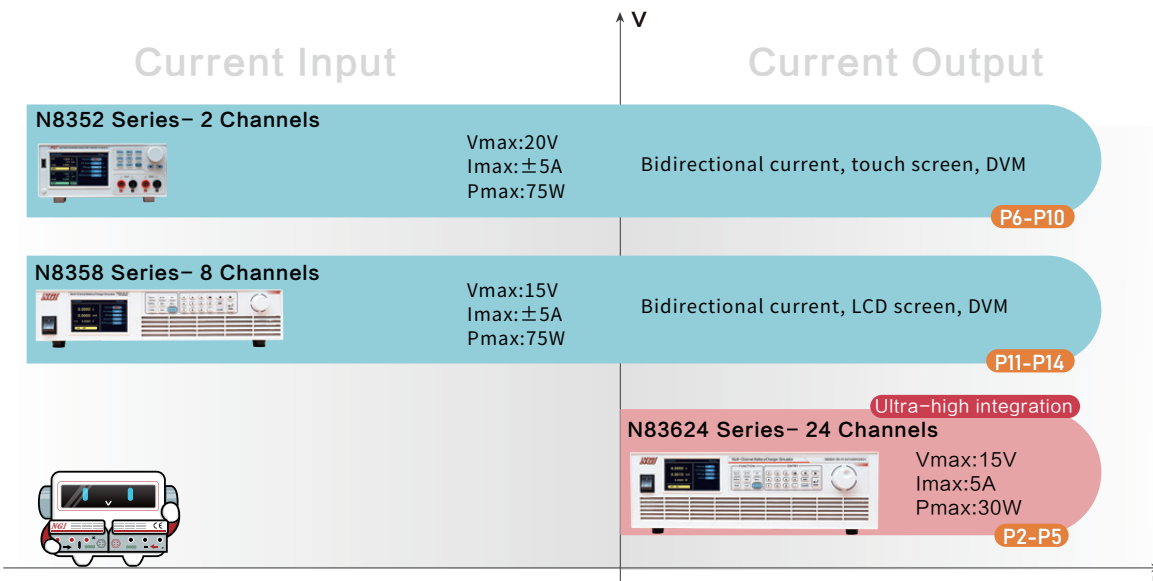
Intelligent  
lock

Electric  
tool

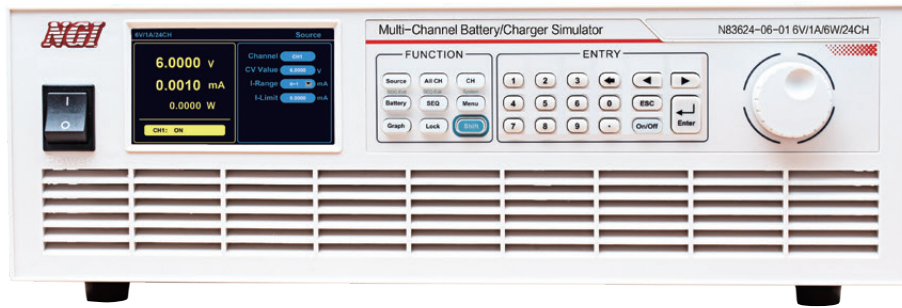
Smart  
robot

...

## Overview



## N83624 Series High-accuracy Multi-channel Battery Simulator



### Product Introduction

N83624 is a programmable battery simulator with low-power, multi-channel and high-accuracy, suitable for BMS/CMS test. It can also be used as a multi-channel high accuracy DC power supply. It is highly integrated, single device with up to 24 channels. Each channel is isolated, available for multi-channel series connection. N83624 is equipped with high-definition color LCD screen, available for local operation. Users can also set the voltage & current for each channel on application software, which is easy to use and can meet the needs of multi-channel and multi-data. The software can also provide graphs, data analysis and report function.

### Application Fields

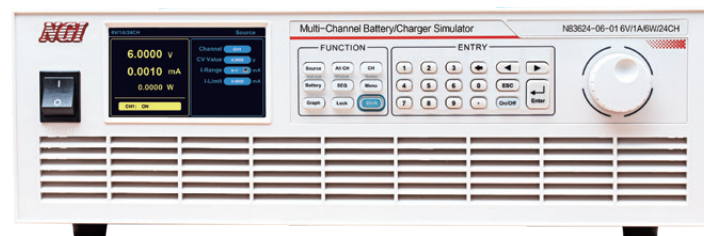
- ▶ BMS/CMS test for new energy vehicle, UAV and energy storage
- ▶ Portable consumer Electronics R&D and production, such as mobiles, bluetooth earphones, smartwatch, etc.
- ▶ Calibration of voltage acquisition device, such as fuel cell voltage monitor

### Main Features

- ▶ Voltage range: 0-6V/0-15V
- ▶ Current range: 0-1A/0-3A/0-5A
- ▶ Single device with up to 24 channels, each channel isolated, series connection available
- ▶ Fast communication response, within 10ms for all channels programming response
- ▶ Fast dynamic response, voltage rise time less than 20 $\mu$ s(For 6V specification)
- ▶ Remote sense for high accuracy
- ▶ Professional application software, with data analysis and report
- ▶ High-definition color LCD screen, available for local operation
- ▶ Standard 19-inch 3U, available for rack installation
- ▶ LAN port and RS232 interface; dual LAN ports, convenient for cascade application
- ▶  $\mu$ A level current measurement

### Ultra-high accuracy

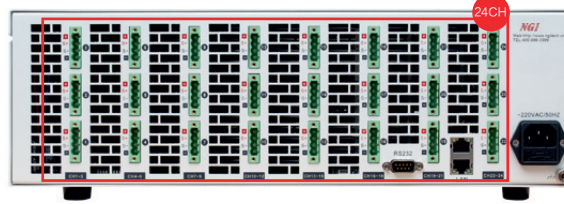
N83624 current resolution is as low as 0.1 $\mu$ A. Ultra-high accuracy, ultra-low ripple and noise index make N83624 an ideal choice for battery simulation application. The ultra-high accuracy of N83624 output and measurement can be directly used in product calibration and test, eliminating the use of external high-accuracy measuring instruments and saving cost for users.



▲ N83624 Load Mode

## Ultra-high integration

N83624 integrates up to 24 channels that can be connected in series mode in 19-inch 3U size, providing a compact solution for ATE test systems in BMS, CMS and similar large-scale high-density production sites.



▲ 24 Channels in 3U

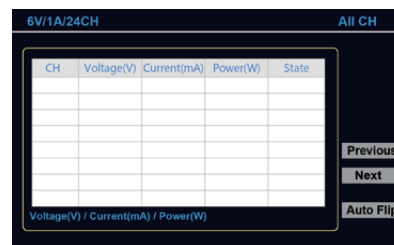
## Battery simulation suitable for BMS chips test of various specifications

N83624 series battery simulators have multiple functions and features, supporting Source, All CH, Charge, SOC Test, SEQ, Graph, etc.

One device can achieve multiple uses, streamline test equipment and optimize test procedures. N83624's internal circuit is optimized for different chips, which can be adapted to test BMS chips of various specifications.



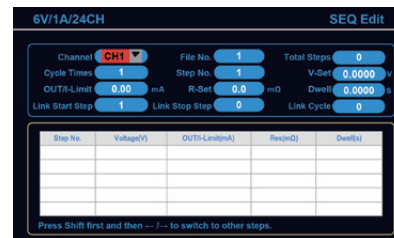
▲ Source



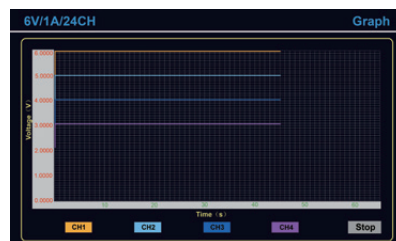
▲ All CH



▲ SOC Test



▲ SEQ Edit



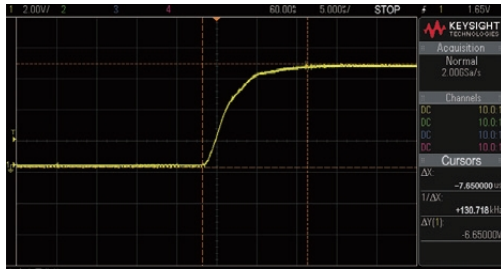
▲ Graph



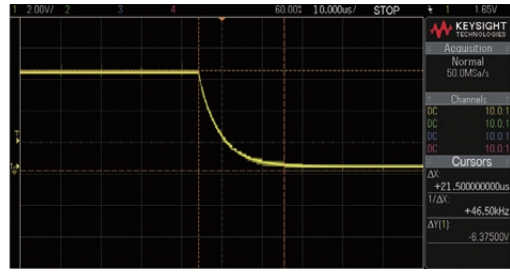
▲ System

## Fast dynamic response

N83624 series has fast dynamic response capability. The response time of load varying from 10% to 90% and voltage recovering within 50mV of previous voltage is less than 100 $\mu$ s (For 6V specification), which can ensure the rising waveform of voltage or current is high-speed and without overshoot, and provide stable power for the DUT. This feature can meet the demand for product test with strict power requirements.



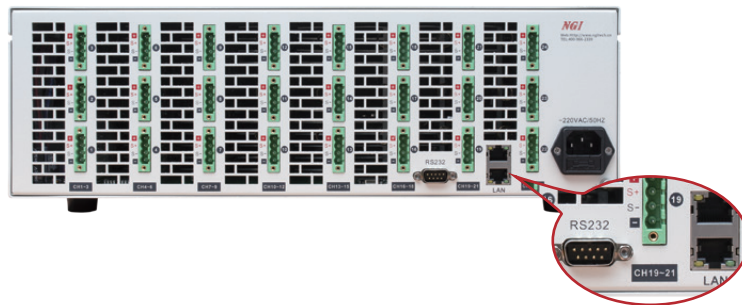
▲ N83624 Full-load Rise Time ( 7.65µs )



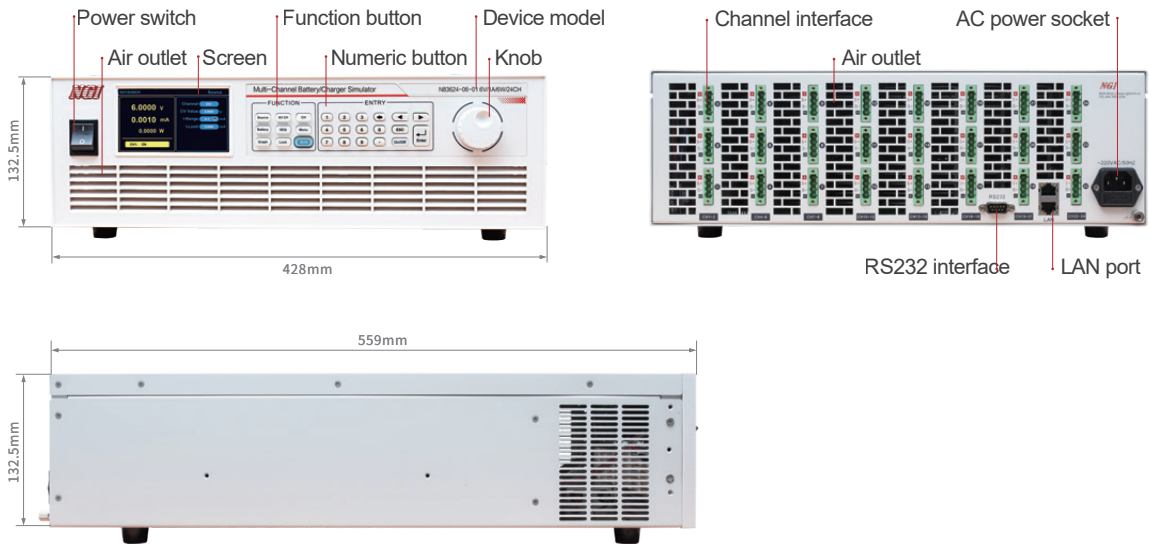
▲ N83624 Full-load Fall Time ( 21.5µs )

### LAN port and RS232 interface, easy for cascade application

N83624 series supports LAN port and RS232 interface. LAN port is designed with dual ports, which can be used for remote control and also for cascade application.



### Product Dimension



## Technical Data Sheet

Model	N83624-06-01	N83624-06-03	N83624-06-05	N83624-15-01				
Current	1A/CH	3A/CH	5A/CH	1A/CH				
Voltage	6V/CH	6V/CH	6V/CH	15V/CH				
Power	6W/CH	18W/CH	30W/CH	15W/CH				
Channels	24CH							
CV Mode								
Range	0~6V			0~15V				
Setting Resolution	0.1mV							
Setting Accuracy (23±5℃)	0.01%+1mV			0.01%+3mV				
Readback Resolution	0.1mV							
Readback Accuracy (23±5℃)	0.01%+1mV			0.01%+3mV				
Temperature Coefficient (0~40℃)	20ppm/℃							
Long-term Stability	80ppm/1000h							
Dynamic Characteristics								
Voltage Rise Time	<20μs ( no load ) (10%-90%F.S. Variation Time)			<40μs				
Voltage Rise Time	<20μs ( pure resistive full load ) (10%-90%F.S. Variation Time)							
Voltage Fall Time	<3ms ( no load ) (90%-10%F.S. Variation Time)			<6ms				
Voltage Fall Time	<100μs ( pure resistive full load ) (90%-10%F.S. Variation Time)							
Transient Voltage Drop <sup>1</sup>	200mV			400mV				
Transient Recovery Time <sup>2</sup>	<100μs			<200μs				
Current Measurement								
Range	0~1A	0~1mA	0~3A	0~1mA	0~5A	0~1mA	0~1A	0~1mA
Readback Resolution	0.1mA	0.1μA	0.1mA	0.1μA	0.1mA	0.1μA	0.1mA	0.1μA
Readback Accuracy (23±5℃)	1mA+2d	1μA+2d	3mA+2d	1μA+2d	5mA+2d	1μA+2d	1mA+2d	1μA+2d
Temperature Coefficient (0~40℃)	30ppm/℃							
Long-term Stability	100ppm/1000h							
Current Protection Limit								
Setting Value	0~1A	0~1mA	0~3A	0~1mA	0~5A	0~1mA	0~1A	0~1mA
Setting Resolution	0.1mA	0.1μA	0.1mA	0.1μA	0.1mA	0.1μA	0.1mA	0.1μA
Setting Accuracy (23±5℃)	1mA+2d	1μA+2d	3mA+2d	1μA+2d	5mA+2d	1μA+2d	1mA+2d	1μA+2d
Temperature Coefficient (0~40℃)	30ppm/℃							
Long-term Stability	100ppm/1000h							
Others								
Load Regulation	0.2mV					0.4mV		
Isolation (Output to ground)	1000VDC							
Isolation (Inter-channel)	500VDC							
Communication Response Time	All channels ≤10ms							
Interface	LAN/RS232							
AC Input	Single phase, 220V AC±10%, current <5A, frequency 47Hz~63Hz							
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. 17kg							
Dimension	3U, 132.5(H)*482.0(W)with handle*559.0(D)mm							

Note 1: Load varies from 10% to 90% by full voltage output.

Note 2: Load varies from 10% to 90% by full voltage output, with voltage recovering within 50mV of previous voltage.

Note 3: For other specifications, please contact NGI.

Note 4: All specifications are subject to change without notice.