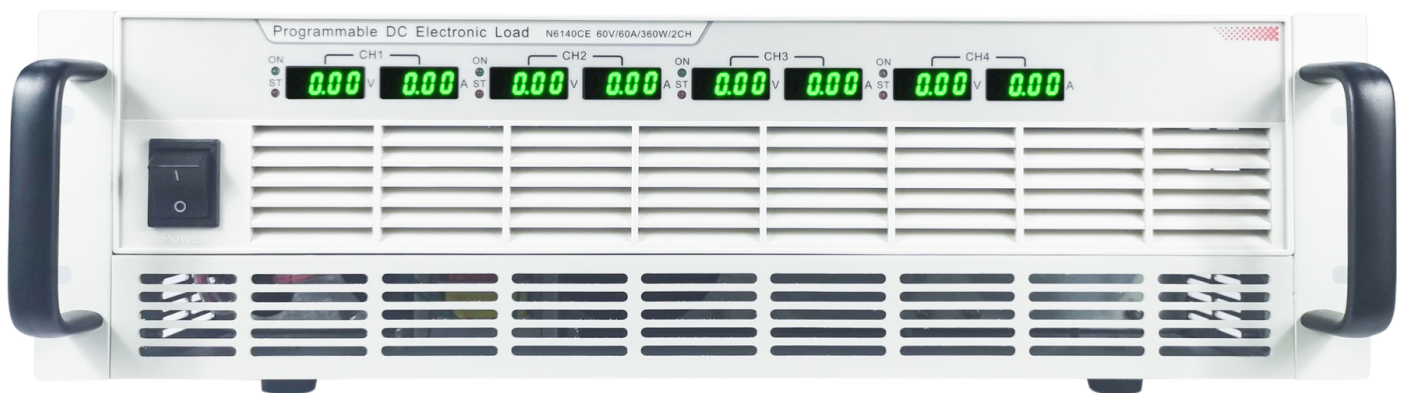


# Datasheet: N6140 Series

N6140 Series Four-channel  
Multifunctional DC Electronic Load



Version: 04.03.2025

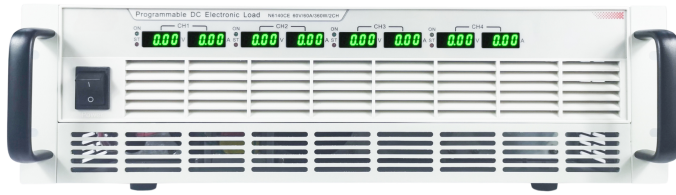
Official partner of NGI: Service and sales directly through ET System electronic GmbH.

## THE WORLD OF POWER

Your Partner for: DC & AC power supplies, bidirectional AC / DC solutions, conventional & regenerative loads, and battery cell simulators.



## N6140 Series Four-channel Multifunctional DC Electronic Load



### Product Introduction

N6140 series is developed based on NGI's years of experience in testing for power supply and battery. It is with high accuracy, high reliability, high integration, high cost performance and full features in CC, CV, CP, and CR. N6140 series is tailored for integrated applications, featuring in easy integration and high stability. In most integrated applications, N6140 series can replace low-power standalone electronic loads and save much cost for users.

N6140 series is specifically designed for embedded integrated applications, with 19-inch 2U/3U size and LAN port, and providing drive program. It supports secondary development of most software, such as Visual C ++, C #, Delphi, Visual Basic, Labview, etc. Users can customize the application software as needed.

### Application Fields

R&D, production, aging and quality inspection of low power supplies, DC converters, mobile chargers, battery, UPS, BMS, etc.; Manufacturing test of battery pack, BMS balanced discharge, electric tools, LED power board, etc.

### Main Features

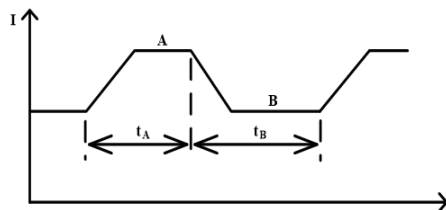
- ▶ Power range: 60W/180W/360W/540W
- ▶ Current range: 0-5A/0-15A/0-30A/0-60A/0-90A
- ▶ Short-circuit simulation
- ▶ High-speed LAN port
- ▶ Each channel isolated
- ▶ Standard 19-inch 2U/3U available for rack installation
- ▶ Von/Voff setting
- ▶ Voltage range: 0-20V/0-60V/0-150V/0-600V
- ▶ Operation mode: CC、CV、CP、CR、CCD
- ▶ Voltage ripple measurement(Optional)
- ▶ Convenient OCP Test(Optional)
- ▶ Multiple protection: OCP/OVP/OPP/OTP
- ▶ High reliability, long MTBF(mean time between failure)
- ▶ SEQ test function

### Voltage ripple measurement

By adjusting the voltage and current signals, the peak-to-peak value of the ripple and the effective value can be calculated according to the actual needs via professional algorithm. Combined with the waveform export function, various parameters such as the ripple frequency component can be further analyzed.

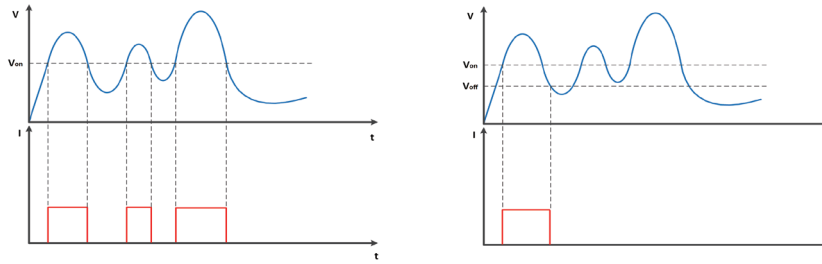
### Constant Current Dynamic Mode (CCD Mode)

CCD mode can allow N6140 to switch between main value and transient value, which is suitable for the test of power supply dynamic characteristics. The setting range of pulse width ( $t_A$  and  $t_B$ ) is: 1 ~ 60000ms.



## Settable Von/Voff

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

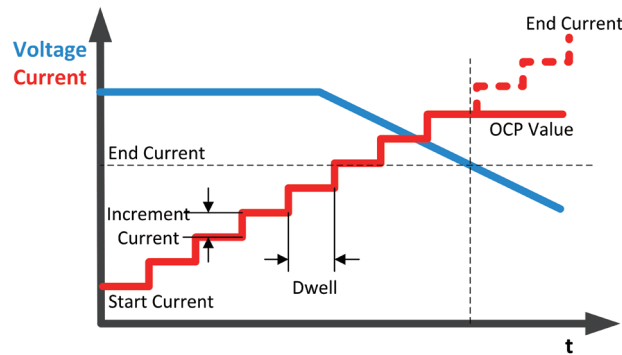


▲ Disabled: When the input voltage is higher than  $V_{on}$ , N6140 starts to sink current. When the input voltage is lower than  $V_{on}$ , it stops sinking current.

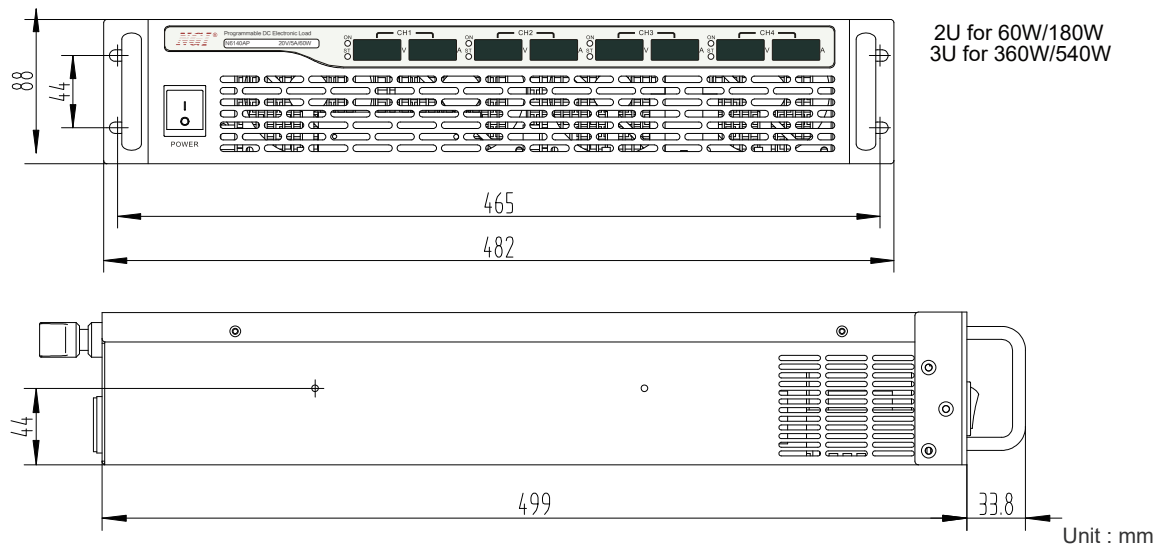
▲ Enabled: When the input voltage is higher than  $V_{on}$ , N6140 starts to sink current. When the input voltage is lower than  $V_{off}$ , N6140 stops sinking current. After that, it will not sink current automatically even the input voltage is higher than  $V_{on}$  again.

## OCP (over current protection) test

OCP test function increases the load current gradually until the current limit protection occurs to the DUT. The maximum actual current value before the measured current (voltage) drops is the current limit protection value.



## Product Dimension



## Technical Data Sheet(1)

Model	N6140AP	N6141BP	N6142BP	N6140CP	N6141CP					
Voltage	20V	60V	150V	60V	150V					
Current	5A	30A	30A	60A	60A					
Power	60W	180W		360W						
Min. Operating Voltage	1V@5A	1.4V@30A	1.4V@30A	1.4V@60A	1.4V@60A					
Channels	4CH									
	CC Mode									
Range	0-0.5A	0-5A	0-3A	0-30A	0-3A	0-30A	0-6A	0-60A	0-6A	0-60A
Setting Resolution	0.008mA	0.08mA	0.05mA	0.5mA	0.05mA	0.5mA	0.1mA	1mA	0.1mA	1mA
Setting Accuracy (23±5°C)	0.03%+0.05%F.S.									
	CV Mode									
Range	0-2V	0-20V	0-6V	0-60V	0-15V	0-150V	0-6V	0-60V	0-15V	0-150V
Setting Resolution	0.03mV	0.3mV	0.1mV	1mV	0.25mV	2.5mV	0.1mV	1mV	0.25mV	2.5mV
Setting Accuracy (23±5°C)	0.03%+0.02%F.S.									
	CP Mode									
Range	60W	180W		360W						
Setting Resolution	16bits									
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.									
	CR Mode									
Range	0.2-20kΩ	0.05-20kΩ	0.05-20kΩ	0.025-20kΩ	0.025-20kΩ					
Setting Resolution	16bits									
Setting Accuracy (23±5°C)	0.1%+0.001S									
	Current Measurement									
Range	0-0.5A	0-5A	0-3A	0-30A	0-3A	0-30A	0-6A	0-60A	0-6A	0-60A
Readback Resolution	0.001mA	0.01mA	0.01mA	0.1mA	0.01mA	0.1mA	0.02mA	0.2mA	0.02mA	0.2mA
Readback Accuracy (23±5°C)	0.015%+0.03%F.S.									
	Voltage Measurement									
Range	0-2V	0-20V	0-6V	0-60V	0-15V	0-150V	0-6V	0-60V	0-15V	0-150V
Readback Resolution	0.01mV	0.1mV	0.03mV	0.3mV	0.06mV	0.6mV	0.03mV	0.3mV	0.06mV	0.6mV
Readback Accuracy (23±5°C)	0.015%+0.03%F.S.									
	Ripple Measurement									
Range	0-0.04V	0-0.4V	0-0.12V	0-1.2V	0-0.3V	0-3V	0-0.12V	0-1.2V	0-0.3V	0-3V
Resolution	0.04mV	0.4mV	0.12mV	1.2mV	0.3mV	3mV	0.12mV	1.2mV	0.3mV	3mV
Accuracy (23±5°C)	1%F.S.									
	Others									
Interface	LAN/RS485									
AC Input	Single phase, 220V AC±10%, frequency 47Hz-63Hz									
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. 13kg									
Dimension	2U, 88(H)*482(W)*499(D)mm			3U, 132.5(H)*482(W)*499(D)mm						

Note: For other specifications, please contact us.

## Technical Data Sheet(2)

Model	N6142CP		N6140DP		N6141DP		N6142DP	
Voltage	600V		60V		150V		600V	
Current	15A		90A		90A		30A	
Power	360W		540W					
Min. Operating Voltage	4.5V@15A		1.4V@90A		1.4V@90A		4.5V@30A	
Channels	4CH							
	CC Mode							
Range	0-1.5A	0-15A	0-9A	0-90A	0-9A	0-90A	0-3A	0-30A
Setting Resolution	0.025mA	0.25mA	0.15mA	1.5mA	0.15mA	1.5mA	0.05mA	0.5mA
Setting Accuracy (23±5°C)	0.03%+0.05%F.S.							
	CV Mode							
Range	0-60V	0-600V	0-6V	0-60V	0-15V	0-150V	0-60V	0-600V
Setting Resolution	1mV	10mV	0.1mV	1mV	0.25mV	2.5mV	1mV	10mV
Setting Accuracy (23±5°C)	0.03%+0.02%F.S.							
	CP Mode							
Range	360W		540W					
Setting Resolution	16bits							
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.							
	CR Mode							
Range	0.3-20kΩ		0.015-20kΩ		0.015-20kΩ		0.15-20kΩ	
Setting Resolution	16bits							
Setting Accuracy (23±5°C)	0.1%+0.001S							
	Current Measurement							
Range	0-1.5A	0-15A	0-9A	0-90A	0-9A	0-90A	0-3A	0-30A
Readback Resolution	0.005mA	0.05mA	0.03mA	0.3mA	0.03mA	0.3mA	0.01mA	0.1mA
Readback Accuracy (23±5°C)	0.015%+0.03%F.S.							
	Voltage Measurement							
Range	0-60V	0-600V	0-6V	0-60V	0-15V	0-150V	0-60V	0-600V
Readback Resolution	0.3mV	3mV	0.03mV	0.3mV	0.06mV	0.6mV	0.3mV	3mV
Readback Accuracy (23±5°C)	0.015%+0.03%F.S.							
	Ripple Measurement							
Range	0-1.2V	0-12V	0-0.12V	0-1.2V	0-0.3V	0-3V	0-1.2V	0-12V
Resolution	1.2mV	12mV	0.12mV	1.2mV	0.3mV	3mV	1.2mV	12mV
Accuracy (23±5°C)	1%F.S.							
	Others							
Interface	LAN/RS485							
AC Input	Single phase, 220V AC±10%, frequency 47Hz-63Hz							
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. 13kg							
Dimension	3U, 132.5(H)*482(W)*499(D)mm							

Note: For other specifications, please contact us.

### Technical Data Sheet(3)

Model	N6140AE		N6141BE		N6142BE		N6140CE		N6141CE	
Voltage	20V		60V		150V		60V		150V	
Current	5A		30A		30A		60A		60A	
Power	60W		180W				360W			
Min. Operating Voltage	1V@5A		1.4V@30A		1.4V@30A		1.4V@60A		1.4V@60A	
Channels	4CH									
	CC Mode									
Range	0-0.5A	0-5A	0-3A	0-30A	0-3A	0-30A	0-6A	0-60A	0-6A	0-60A
Setting Resolution	0.008mA	0.08mA	0.05mA	0.5mA	0.05mA	0.5mA	0.1mA	1mA	0.1mA	1mA
Setting Accuracy (23±5°C)	0.03%+0.05%F.S.									
	CV Mode									
Range	0-2V	0-20V	0-6V	0-60V	0-15V	0-150V	0-6V	0-60V	0-15V	0-150V
Setting Resolution	0.03mV	0.3mV	0.1mV	1mV	0.25mV	2.5mV	0.1mV	1mV	0.25mV	2.5mV
Setting Accuracy (23±5°C)	0.03%+0.02%F.S.									
	CP Mode									
Range	60W		180W				360W			
Setting Resolution	16bits									
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.									
	CR Mode									
Range	0.2-20kΩ		0.05-20kΩ		0.05-20kΩ		0.025-20kΩ		0.025-20kΩ	
Setting Resolution	16bits									
Setting Accuracy (23±5°C)	0.1%+0.001S									
	Current Measurement									
Range	0-0.5A	0-5A	0-3A	0-30A	0-3A	0-30A	0-6A	0-60A	0-6A	0-60A
Readback Resolution	0.001mA	0.01mA	0.01mA	0.1mA	0.01mA	0.1mA	0.02mA	0.2mA	0.02mA	0.2mA
Readback Accuracy (23±5°C)	0.015%+0.03%F.S.									
	Voltage Measurement									
Range	0-2V	0-20V	0-6V	0-60V	0-15V	0-150V	0-6V	0-60V	0-15V	0-150V
Readback Resolution	0.01mV	0.1mV	0.03mV	0.3mV	0.06mV	0.6mV	0.03mV	0.3mV	0.06mV	0.6mV
Readback Accuracy (23±5°C)	0.015%+0.03%F.S.									
	Others									
Interface	LAN/RS485									
AC Input	Single phase, 220V AC±10%, frequency 47Hz-63Hz									
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. 13kg									
Dimension	2U, 88(H)*482(W)*499(D)mm						3U, 132.5(H)*482(W)*499(D)mm			

Note 1: Models with E ( E for economic ) are without ripple measurement.

Note 2: For other specifications, please contact us.

## Technical Data Sheet(4)

Model	N6142CE	N6140DE	N6141DE	N6142DE				
Voltage	600V	60V	150V	600V				
Current	15A	90A	90A	30A				
Power	360W	540W						
Min. Operating Voltage	4.5V@15A	1.4V@90A	1.4V@90A	4.5V@30A				
Channels	4CH							
	CC Mode							
Range	0-1.5A	0-15A	0-9A	0-90A	0-9A	0-90A	0-3A	0-30A
Setting Resolution	0.025mA	0.25mA	0.15mA	1.5mA	0.15mA	1.5mA	0.05mA	0.5mA
Setting Accuracy (23±5°C)	0.03%+0.05%F.S.							
	CV Mode							
Range	0-60V	0-600V	0-6V	0-60V	0-15V	0-150V	0-60V	0-600V
Setting Resolution	1mV	10mV	0.1mV	1mV	0.25mV	2.5mV	1mV	10mV
Setting Accuracy (23±5°C)	0.03%+0.02%F.S.							
	CP Mode							
Range	360W	540W						
Setting Resolution	16bits							
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.							
	CR Mode							
Range	0.3-20kΩ	0.015-20kΩ	0.015-20kΩ	0.15-20kΩ				
Setting Resolution	16bits							
Setting Accuracy (23±5°C)	0.1%+0.001S							
	Current Measurement							
Range	0-1.5A	0-15A	0-9A	0-90A	0-9A	0-90A	0-3A	0-30A
Readback Resolution	0.005mA	0.05mA	0.03mA	0.3mA	0.03mA	0.3mA	0.01mA	0.1mA
Readback Accuracy (23±5°C)	0.015%+0.03%F.S.							
	Voltage Measurement							
Range	0-60V	0-600V	0-6V	0-60V	0-15V	0-150V	0-60V	0-600V
Readback Resolution	0.3mV	3mV	0.03mV	0.3mV	0.06mV	0.6mV	0.3mV	3mV
Readback Accuracy (23±5°C)	0.015%+0.03%F.S.							
	Others							
Interface	LAN/RS485							
AC Input	Single phase, 220V AC±10%, frequency 47Hz-63Hz							
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. 13kg							
Dimension	3U, 132.5(H)*482(W)*499(D)mm							

Note 1: Models with E ( E for economic ) are without ripple measurement.

Note 2: For other specifications, please contact us.