

N35200 Series Wide Range High-Power Bidirectional Programmable DC Power Supply



Product Introduction

N35200 series is a wide range high-power bidirectional programmable DC power supply. N35200 adopts dual quadrant design, which can supply&absorb the power, and return power to the grid cleanly, so as to save the power consumption and reduce the space heat dissipation, which can greatly reduce the test cost. N35200 has a wide range of measuring applications, with single power range of 6kW to 54kW, current range up to 360A, voltage range up to 1500V. N35200 series provides high precision measurement and multiple testing functions, which can be widely used in new energy, automotive, energy storage, semiconductor, photovoltaic, electric drive and other industries.

Application Fields

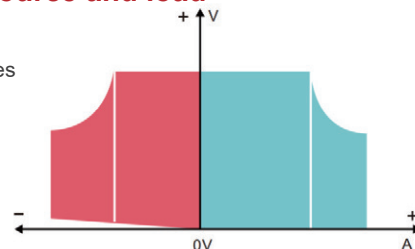
- ▶ Laboratory, production line ATE automatic test system
- ▶ Photovoltaic inverter, hydrogen fuel cell, solar cell matrix and other new energy fields
- ▶ High-power energy storage, UPS, micro grid inverter and other energy storage applications
- ▶ BOBC, DC-DC, motor drive, automotive electronics and other automotive fields
- ▶ Semiconductor and components, laser, high power LED and other semiconductor testing fields
- ▶ Communication equipment, UAV, aerospace electronics, welding/electroplating, etc
- ▶ Charge and discharge test of power battery, lead storage battery and super capacitor

Main Features

- ▶ Range: voltage 0~1500V, current $\pm 360A$, power $\pm 6kW \sim \pm 54kW$
- ▶ Two quadrants seamless switching, the current between the DUT and the grid flow bidirectional
- ▶ Voltage accuracy 0.02%F.S., current accuracy 0.1%F.S.
- ▶ Supporting battery charge/discharge test
- ▶ CC/CV priority selection function, adjustable voltage¤t slew rate
- ▶ Internal resistance simulation function, output timing function, voltage output ramp function
- ▶ Multiple protection functions, OVP, UVP, $\pm OCP$, $\pm OPP$, OTP, power failure protection
- ▶ LAN port and RS232 interface as standard, GPIB, CAN, RS485 and USB as optional
- ▶ Supporting PV matrix I-V curve simulation function (optional)
- ▶ Equipped with high-voltage isolation digital & analog, and monitoring interfaces

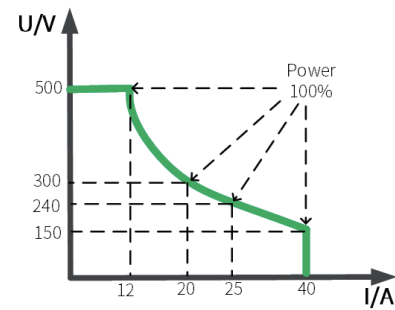
Bidirectional current, seamless switch between source and load

N35200 series DC source can not only provide external power, but also absorb power, and return electric energy to the grid cleanly. N35200 series bidirectional power supply can be converted continuously seamlessly between the output and absorbed current, effectively avoiding voltage or current overshoot. It is widely used in power battery, UPS, battery protection board and other energy storage equipment testing.



Wide range of output design

N35200 series bidirectional DC power supply adopts a wide range design. A single power supply can output a wider range of voltage and current under the rated output power, satisfying engineers' test application scenarios for products of various voltage/current levels, and greatly reducing purchase cost and space occupancy in laboratory or automated test systems.

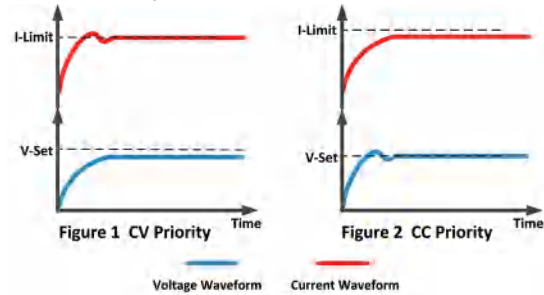


CC&CV priority function

N35200 series has the function of setting voltage-control priority or current-control loop priority, it can adopt the optimal working mode for testing according to the characteristics of DUT, so as to better protect DUT.

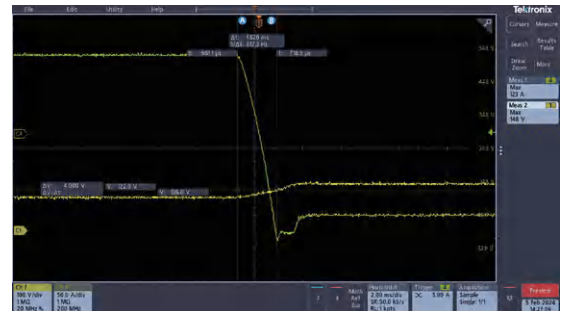
As shown in Figure 1, when it needs to reduce voltage overshoot during testing, the voltage priority mode should be used to obtain a fast and smooth rising voltage.

As shown in Figure 2, when it needs to reduce current overshoot during testing, the current priority mode should be used to obtain a fast and smooth rising current.



Fast dynamic response

N35200 series can achieve seamless switch between current output and current sink. Take N35218-500-120 for example. The switch time from source 120A to sink 120A is less than 2ms as below figure.

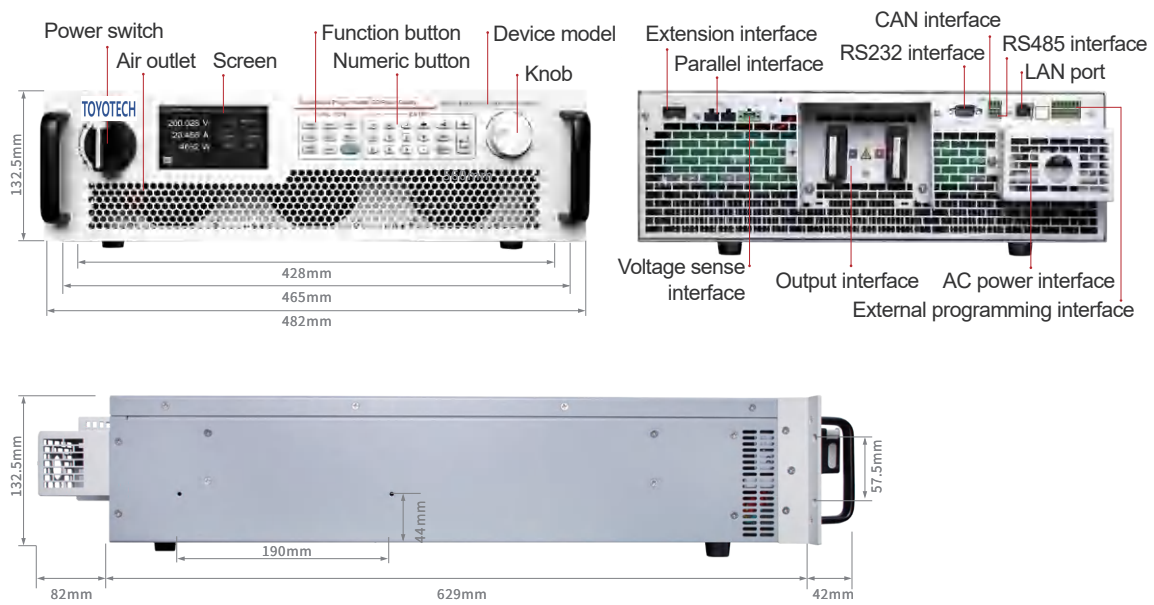


▲ Remark: CH1 for voltage sense, CH4 for current sense

Quick Selection Table

500V Model	Specification	Size	500V Model	Specification	Size
N35206-500-40	6kW/500V/40A	19inch/3U	N35236-500-240	36kW/500V/240A	19inch/6U
N35212-500-80	12kW/500V/80A	19inch/3U	N35254-500-360	54kW/500V/360A	19inch/9U
N35218-500-120	18kW/500V/120A	19inch/3U	/	/	/
1000V Model	Specification	Size	1500V Model	Specification	Size
N35212-1000-40	12kW/1000V/40A	19inch/3U	N35218-1500-40	18kW/1500V/40A	19inch/3U
N35224-1000-80	24kW/1000V/80A	19inch/6U	N35236-1500-80	36kW/1500V/80A	19inch/6U
N35236-1000-120	36kW/1000V/120A	19inch/9U	N35254-1500-120	54kW/1500V/120A	19inch/9U

Product Dimension



Technical Data Sheet(1)

Model	N35206-500-40	N35212-500-80	N35218-500-120
Voltage	0~500V	0~500V	0~500V
Current	-40~40A	-80A~+80A	-120A~+120A
Power	-6kW~+6kW	-12kW~+12kW	-18kW~+18kW
CV Mode			
Range	0~500V	0~500V	0~500V
Setting Resolution	10mV	10mV	10mV
Setting Accuracy (23±5℃)	0.02%+0.02%F.S.		
RDG Resolution	10mV	10mV	10mV
RDG Accuracy(23±5℃)	0.02%+0.02%F.S.		
Noise&Ripple	≤350mVp-p	≤350mVp-p	≤500mVp-p
Temperature Coefficient	≤50ppm/℃		
CC Mode			
Range	-40~40A	-80A~+80A	-120A~+120A
Setting Resolution	1mA	1mA	10mA
Setting Accuracy (23±5℃)	0.1%+0.1%F.S.		
RDG Resolution	1mA	1mA	10mA
RDG Accuracy (23±5℃)	0.1%+0.1%F.S.		
Temperature Coefficient	≤50ppm/℃		
CP Mode			
Range	-6kW~+6kW	-12kW~+12kW	-18kW~+18kW
Setting Resolution	1W		
Setting Accuracy (23±5℃)	0.5%F.S.		
RDG Resolution	1W		
RDG Accuracy (23±5℃)	0.5%F.S.		
CR Mode			
Range	0.1Ω~2.5kΩ	0.05Ω~1.25kΩ	0.03Ω~833Ω
Setting Resolution	0.01Ω		
Setting Accuracy (23±5℃)	Vin/Rset*0.01%+0.2%IF.S.		
Line Regulation			
Voltage	≤0.01%F.S.	Current	≤0.05%F.S.
Load Regulation			
Voltage	≤0.02%F.S.	Current	≤0.05%F.S.
Dynamic Characteristics			
Voltage Rise Time (no load)	≤15ms	Voltage Fall Time (no load)	≤30ms
Voltage Rise Time (full load)	≤30ms	Voltage Fall Time (full load)	≤15ms
Transient Recovery Time	The recovery time of load varying 10%~90% and voltage recovering within 0.75% accuracy range of rated value is within 2ms.		
Others			
Efficiency	92%		
Power Factor	0.99		
Communication Interface	LAN,RS232,And Optional for CAN,RS485,GPIB,USB		
AC Input	three-phase three-wire system,Voltage 342V~480V, 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. 18kg	Approx. 25kg	Approx. 32kg
Dimension	132.5(H)*482.0(W)with handle*770.0(D)mm, with output shield		

Technical Data Sheet(2)

Model	N35236-500-240	N35212-1000-40	N35236-1000-120
Voltage	0~500V	0~1000V	0~1000V
Current	-240A~-+240A	-40A~-+40A	-120A~-+120A
Power	-36kW~-+36kW	-12kW~-+12kW	-36kW~-+36kW
CV Mode			
Range	0~500V	0~1000V	0~1000V
Setting Resolution	10mV	100mV	100mV
Setting Accuracy (23±5℃)	0.02%+0.02%F.S.		
RDG Resolution	10mV	100mV	100mV
RDG Accuracy(23±5℃)	0.02%+0.02%F.S.		
Noise&Ripple	≤500mVp-p	≤1000mVp-p	≤1000mVp-p
Temperature Coefficient	≤50ppm/℃		
CC Mode			
Range	-240A~-+240A	-40A~-+40A	-120A~-+120A
Setting Resolution	10mA	1mA	10mA
Setting Accuracy (23±5℃)	0.1%+0.1%F.S.		
RDG Resolution	10mA	1mA	10mA
RDG Accuracy (23±5℃)	0.1%+0.1%F.S.		
Temperature Coefficient	≤50ppm/℃		
CP Mode			
Range	-36kW~-+36kW	-12kW~-+12kW	-36kW~-+36kW
Setting Resolution	1W		
Setting Accuracy (23±5℃)	0.5%F.S.		
RDG Resolution	1W		
RDG Accuracy (23±5℃)	0.5%F.S.		
CR Mode			
Range	0.02Ω-417Ω	0.25Ω~5kΩ	0.08Ω~1.67kΩ
Setting Resolution	0.01Ω		
Setting Accuracy (23±5℃)	Vin/Rset*0.01%+0.2%IF.S.		
Line Regulation			
Voltage	≤0.01%F.S.	Current	≤0.05%F.S.
Load Regulation			
Voltage	≤0.02%F.S.	Current	≤0.05%F.S.
Dynamic Characteristics			
Voltage Rise Time (no load)	≤15ms	≤20ms	≤20ms
Voltage Rise Time (full load)	≤30ms	≤40ms	≤40ms
Voltage Fall Time (no load)	≤30ms	≤20ms	≤20ms
Voltage Fall Time (full load)	≤15ms	≤20ms	≤20ms
Transient Recovery Time	The recovery time of load varying 10%~90% and voltage recovering within 0.75% accuracy range of rated value is within 2ms.		
Others			
Efficiency	92%		
Power Factor	0.99		
Communication Interface	LAN,RS232,And Optional for CAN,RS485,GPIB,USB		
AC Input	three-phase three-wire system,Voltage 342V~480V, 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. 65kg	Approx. 25kg	Approx. 97kg
Dimension	265.0(H)*482.0(W)with handle*770.0(D)mm with output shield	132.5(H)*482.0(W)with handle*770.0(D)mm with output shield	397.5(H)*482.0(W)with handle*770.0(D)mm with output shield

Technical Data Sheet(3)

Model	N35218-1500-40		
Voltage	0~1500V		
Current	-40A~+40A		
Power	-18kW~+18kW		
CV Mode			
Range	0~1500V		
Setting Resolution	100mV		
Setting Accuracy (23±5℃)	0.02%+0.02%F.S.		
RDG Resolution	100mV		
RDG Accuracy(23±5℃)	0.02%+0.02%F.S.		
Noise&Ripple	≤1500mVp-p		
Temperature Coefficient	≤50ppm/℃		
CC Mode			
Range	-40A~+40A		
Setting Resolution	1mA		
Setting Accuracy (23±5℃)	0.1%+0.1%F.S.		
RDG Resolution	1mA		
RDG Accuracy (23±5℃)	0.1%+0.1%F.S.		
Temperature Coefficient	≤50ppm/℃		
CP Mode			
Range	-18kW~+18kW		
Setting Resolution	1W		
Setting Accuracy (23±5℃)	0.5%F.S.		
RDG Resolution	1W		
RDG Accuracy (23±5℃)	0.5%F.S.		
CR Mode			
Range	0.38Ω~7.5kΩ		
Setting Resolution	0.01Ω		
Setting Accuracy (23±5℃)	Vin/Rset*0.01%+0.2%IF.S.		
Line Regulation			
Voltage	≤0.01%F.S.	Current	≤0.05%F.S.
Load Regulation			
Voltage	≤0.02%F.S.	Current	≤0.05%F.S.
Dynamic Characteristics			
Voltage Rise Time (no load)	≤30ms	Voltage Fall Time (no load)	≤30ms
Voltage Rise Time (full load)	≤60ms	Voltage Fall Time (full load)	≤30ms
Transient Recovery Time	The recovery time of load varying 10%~90% and voltage recovering within 0.75% accuracy range of rated value is within 2ms.		
Others			
Efficiency	92%		
Power Factor	0.99		
Communication Interface	LAN,RS232,And Optional for CAN,RS485,GPIB,USB		
AC Input	three-phase three-wire system,Voltage 342V~480V, 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. 32kg		
Dimension	132.5(H)*482.0(W)with handle*770.0(D)mm, with output shield		