

N3600 Series Wide Range Programmable DC Power Supply



제품소개 (Product Introduction)

N3600 시리즈는 광범위한 프로그래밍이 가능한 DC 전원 공급 장치입니다. 출력 전류 범위는 5A ~ 1500A, 출력 전압 범위는 16V ~ 1200V이고, 출력 전력 범위는 800W ~ 9kW입니다. 캐스케이드 모드, CC/CV/CP 모드, SEQ 테스트, 외부 프로그래밍을 지원합니다. 넓은 범위, 다기능, 고성능 및 높은 신뢰성을 갖춘 N3600은 신에너지, 산업자동화 등 사용될 수 있습니다.

응용분야 (Application Fields)

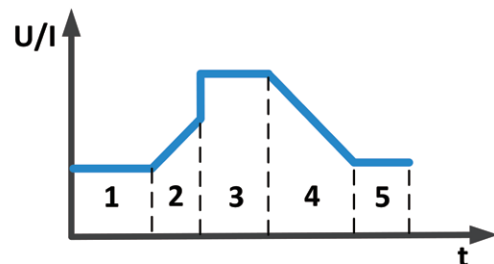
- ▶ Li-on 배터리, 태양광, 수소 연료, 에너지 저장 BMS 등과 같은 새로운 에너지 분야
- ▶ 가전제품, 가전제품, 통신 등 토목분야
- ▶ 시험실, 생산 라인 ATE 자동 테스트 시스템
- ▶ BMS, DC-DC, 자동차 전장 등 자동차 분야
- ▶ 항공 우주 전자 장치의 테스트 및 전원 공급
- ▶ 컨트롤러, 드라이브, 서버, 로봇 등과 같은 산업 자동화 분야

주요특징 (Main Features)

- ▶ 전압 범위 : 16V-1200V
- ▶ 전류 범위 : 5A-1500A
- ▶ 전력 범위 : 800W-9kW
- ▶ 캐스케이드 모드에서 여러 장치 작동
- ▶ CC, CV, CP 모드
- ▶ 시퀀스 테스트 기능(SEQ), 최대 100개의 그룹 시퀀스 파일, 파일당 최대 100스텝
- ▶ 편집가능한 rise/fall slew rate
- ▶ LCD 화면의 편리한 HMI(Human-Machine Interaction) 인터페이스
- ▶ 로컬 작동을 지원하는 LCD 화면, 숫자 버튼 및 노브 장착
- ▶ 전원 공급 장치 및 DUT를 보호하기 위한 외부 분산기
- ▶ 벤치탑 또는 랙 설치에 사용할 수 있는 표준 19인치 쉼시(chassis)
- ▶ 내장형 RS232/LAN 통신 인터페이스
- ▶ 다중 보호: OCP, OVP, UVP, OTP, OPP, 주변 장치 제어 통신 오류 경보
- ▶ 아날로그 프로그래밍(APG) 인터페이스, 전류 모니터링 인터페이스, 복잡한 기능을 구현하는 원격 트리거 기능 제어 및 모니터링

SEQ function

SEQ 기능은 출력 전압, 출력 전류, 단일 단계에 대한 전압 슬루율, 전류 슬루율 및 드웰 시간.



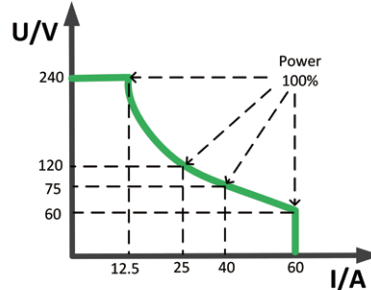
최대 1200V의 전압으로 고전압 테스트를 더욱 안전하게

N3600 시리즈는 최대 1200V를 지원합니다. LED, 배터리, DC/DC 컨버터 및 기타 산업 분야에서 고전압은 전원 공급 장치의 기본 요구 사항입니다. 또한 N3600 시리즈는 매우 높은 전압을 요구하는 테스트와 같은 특수 분야에도 적용할 수 있습니다.

고전압 테스트의 안정성을 보장하는 NGI 사의 제품을 만나보세요.

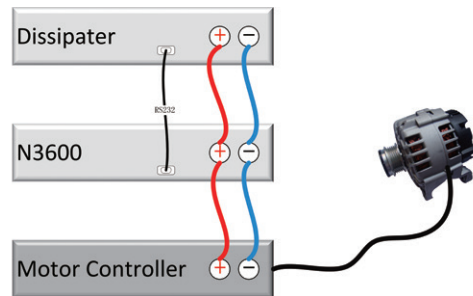
구매 비용 절감을 위한 다양한 범위

N3600 시리즈의 최대 전력은 최대 전류를 곱한 최대 전압의 결과가 아닙니다. 예를 들어 N3630-240-060 보면 최대 전압 240V 및 최대 전류 60A일 때 최대 전력은 3kW입니다. 이는 기존 파워 서플라이 보다 더 뛰어난 기능을 제공합니다.



External dissipater function

N3600을 사용하여 모터와 같은 것으로 유도성 부하에 전원을 공급할 때 파워서플라이를 멈추려면 N3600의 전면 패널에 있는 ON/OFF 버튼을 누르면 됩니다. 이때 모터는 N3600의 설정 값보다 큰 전압으로 돌아가고 이는 N3600과 모터를 손상 시킵니다. 사용자는 부하를 dissipater로 N3600에 연결할 수 있습니다. 부하의 설정 전압은 N3600의 설정 전압보다 높은 증가분이어야 합니다. 부하의 설정 전압은 N3600의 설정 전압보다 높을 때, 부하는 작동하지 않습니다. 모터에 의해 돌아온 전압이 부하 설정 전압을 초과하면 부하는 N3600와 모터컨트롤러를 보호하기 위해 작동하기 시작합니다.

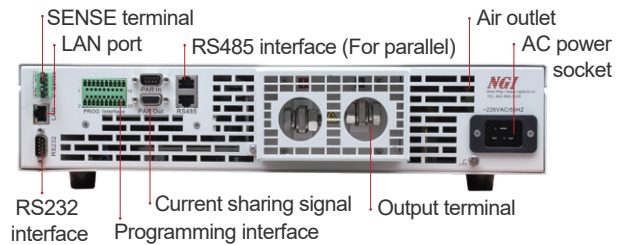
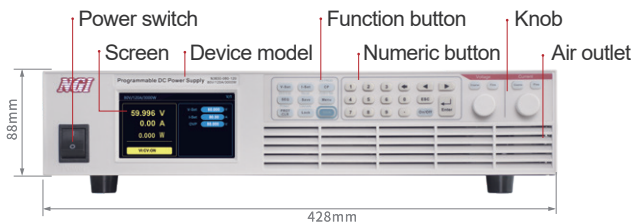


DC Power Supply

Quick Selection Table

Model	Specification	Model	Specification	Model	Specification
N3608-080-060	800W/80V/60A	N3612-080-060	1200W/80V/60A	N3612-240-030	1200W/240V/30A
N3618-016-250	1800W/16V/250A	N3618-080-120	1800W/80V/120A	N3618-240-060	1800W/240V/60A
N3618-360-035	1800W/360V/35A	N3618-600-005	1800W/600V/5A	N3618-600-020	1800W/600V/20A
N3618-800-015	1800W/800V/15A	N3618-1000-010	1800W/1000V/10A	N3630-016-500	3000W/16V/500A
N3630-080-120	3000W/80V/120A	N3630-240-060	3000W/240V/60A	N3630-360-035	3000W/360V/35A
N3630-600-020	3000W/600V/20A	N3630-800-015	3000W/800V/15A	N3630-1000-010	3000W/1000V/10A
N3660-016-1000	6000W/16V/1000A	N3660-080-240	6000W/80V/240A	N3660-240-120	6000W/240V/120A
N3660-360-070	6000W/360V/70A	N3660-600-040	6000W/600V/40A	N3660-800-030	6000W/800V/30A
N3660-1000-020	6000W/1000V/20A	N3690-016-1500	9000W/16V/1500A	N3690-080-360	9000W/80V/360A
N3690-240-180	9000W/240V/180A	N3690-360-105	9000W/360V/105A	N3690-600-060	9000W/600V/60A
N3690-800-045	9000W/800V/45A	N3690-1000-030	9000W/1000V/30A	/	/

Product Dimension



Technical Data Sheet (1)

Model	N3608-080-060	N3612-080-060	N3612-240-030
Voltage	0~80V	0~80V	0~240V
Current	0~60A	0~60A	0~30A
Power	800W	1200W	1200W
CV Mode			
Range	0~80V	0~80V	0~240V
Setting Resolution	1mV	1mV	10mV
Setting Accuracy (23±5°C)	0.05%+0.05%F.S.		
CC Mode			
Range	0~60A	0~60A	0~30A
Setting Resolution	1mA		
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.		
Voltage Measurement			
Range	0~80V	0~80V	0~240V
Readback Resolution	1mV	1mV	10mV
Readback Accuracy (23±5°C)	0.05%+0.05%F.S.		
Temperature Coefficient	50ppm/°C		
Current Measurement			
Range	0~60A	0~60A	0~30A
Readback Resolution	1mA		
Readback Accuracy (23±5°C)	0.1%+0.1%F.S.		
Temperature Coefficient	50ppm/°C		
Line Regulation			
Voltage	≤0.01%		
Current	≤0.05%		
Load Regulation			
Voltage	≤0.05%		
Current	≤0.05%		
Dynamic Characteristics			
Voltage Rise Time (no load)	≤20ms	≤20ms	≤60ms
Voltage Rise Time (full load)	≤500ms		
Voltage Fall Time (no load)	≤1.2s	≤1.2s	≤0.8s
Voltage Fall Time (full load)	≤20ms	≤20ms	≤50ms
Transient Recovery Time	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 20ms.		
Output Ripple(20Hz-20MHz)			
Voltage Ripple (P-P)	≤300mVp-p	≤300mVp-p	≤400mVp-p
Others			
Efficiency	90% (Typical)		
Interface	RS232/LAN		
Communication Response Time	≤5ms		
AC Input	Single phase, 220V AC±10%, current ≤16A, 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. 15.5kg		
Dimension	2U, 88.0(H)*482.0(W)with handle*550.0(D)mm		

Note 1: For other specifications, please contact NGI.

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

Technical Data Sheet (2)

Model	N3618-016-250	N3618-080-120	N3618-240-060	N3618-360-035
Voltage	0~16V	0~80V	0~240V	0~360V
Current	0~250A	0~120A	0~60A	0~35A
Power	1800W			
CV Mode				
Range	0~16V	0~80V	0~240V	0~360V
Setting Resolution	1mV	1mV	10mV	10mV
Setting Accuracy (23±5°C)	0.05%+0.05%F.S.			
CC Mode				
Range	0~250A	0~120A	0~60A	0~35A
Setting Resolution	10mA	10mA	1mA	1mA
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.			
Voltage Measurement				
Range	0~16V	0~80V	0~240V	0~360V
Readback Resolution	1mV	1mV	10mV	10mV
Readback Accuracy (23±5°C)	0.05%+0.05%F.S.			
Temperature Coefficient	50ppm/°C			
Current Measurement				
Range	0~250A	0~120A	0~60A	0~35A
Readback Resolution	10mA	10mA	1mA	1mA
Readback Accuracy (23±5°C)	0.1%+0.1%F.S.			
Temperature Coefficient	50ppm/°C			
Line Regulation				
Voltage	≤0.01%			
Current	≤0.05%			
Load Regulation				
Voltage	≤0.05%			
Current	≤0.05%			
Dynamic Characteristics				
Voltage Rise Time (no load)	≤10ms	≤20ms	≤60ms	≤80ms
Voltage Rise Time (full load)	≤300ms	≤500ms	≤500ms	≤400ms
Voltage Fall Time (no load)	≤0.6s	≤1.2s	≤0.8s	≤1.2s
Voltage Fall Time (full load)	≤5ms	≤20ms	≤50ms	≤80ms
Transient Recovery Time	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 80ms.	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 20ms.		
Output Ripple(20Hz-20MHz)				
Voltage Ripple (P-P)	≤400mVp-p	≤400mVp-p	≤400mVp-p	≤500mVp-p
Others				
Efficiency	90% (Typical)			
Interface	RS232/LAN			
Communication Response Time	≤5ms			
AC Input	Single phase, 220V AC±10%, current ≤16A, 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. 20kg		Approx. 18kg	
Dimension	2U, 88.0(H)*482.0(W)with handle*550.0(D)mm			

Note 1: For other specifications, please contact NGI.

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

Technical Data Sheet (3)

Model	N3618-600-005	N3618-600-020	N3618-800-015	N3618-1000-010
Voltage	0~600V	0~600V	0~800V	0~1000V
Current	0~5A	0~20A	0~15A	0~10A
Power	1800W			
CV Mode				
Range	0~600V	0~600V	0~800V	0~1000V
Setting Resolution	10mV	10mV	10mV	100mV
Setting Accuracy (23±5°C)	0.05%+0.05%F.S.			
CC Mode				
Range	0~5A	0~20A	0~15A	0~10A
Setting Resolution	1mA	1mA	1mA	1mA
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.			
Voltage Measurement				
Range	0~600V	0~600V	0~800V	0~1000V
Readback Resolution	10mV	10mV	10mV	100mV
Readback Accuracy (23±5°C)	0.05%+0.05%F.S.			
Temperature Coefficient	50ppm/°C			
Current Measurement				
Range	0~5A	0~20A	0~15A	0~10A
Readback Resolution	1mA	1mA	1mA	1mA
Readback Accuracy (23±5°C)	0.1%+0.1%F.S.			
Temperature Coefficient	50ppm/°C			
Line Regulation				
Voltage	≤0.01%			
Current	≤0.05%			
Load Regulation				
Voltage	≤0.05%			
Current	≤0.05%			
Dynamic Characteristics				
Voltage Rise Time (no load)	≤100ms	≤100ms	≤150ms	≤150ms
Voltage Rise Time (full load)	≤400ms	≤400ms	≤500ms	≤500ms
Voltage Fall Time (no load)	≤1.2s	≤1.2s	≤0.9s	≤0.9s
Voltage Fall Time (full load)	≤80ms	≤80ms	≤80ms	≤100ms
Transient Recovery Time	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 20ms.			
Output Ripple(20Hz-20MHz)				
Voltage Ripple (P-P)	≤600mVp-p	≤600mVp-p	≤750mVp-p	≤750mVp-p
Others				
Efficiency	90% (Typical)			
Interface	RS232/LAN			
Communication Response Time	≤5ms			
AC Input	Single phase, 220V AC±10%, current ≤16A, 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. 18kg			
Dimension	2U, 88.0(H)*482.0(W)with handle*550.0(D)mm			

Note 1: For other specifications, please contact NGI.

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

Technical Data Sheet (4)

Model	N3630-016-500	N3630-080-120	N3630-240-060	N3630-360-035
Voltage	0~16V	0~80V	0~240V	0~360V
Current	0~500A	0~120A	0~60A	0~35A
Power	3000W			
CV Mode				
Range	0~16V	0~80V	0~240V	0~360V
Setting Resolution	1mV	1mV	10mV	10mV
Setting Accuracy (23±5°C)	0.05%+0.05%F.S.			
CC Mode				
Range	0~500A	0~120A	0~60A	0~35A
Setting Resolution	10mA	10mA	1mA	1mA
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.			
Voltage Measurement				
Range	0~16V	0~80V	0~240V	0~360V
Readback Resolution	1mV	1mV	10mV	10mV
Readback Accuracy (23±5°C)	0.05%+0.05%F.S.			
Temperature Coefficient	50ppm/°C			
Current Measurement				
Range	0~500A	0~120A	0~60A	0~35A
Readback Resolution	10mA	10mA	1mA	1mA
Readback Accuracy (23±5°C)	0.1%+0.1%F.S.			
Temperature Coefficient	50ppm/°C			
Line Regulation				
Voltage	≤0.01%			
Current	≤0.05%			
Load Regulation				
Voltage	≤0.05%			
Current	≤0.05%			
Dynamic Characteristics				
Voltage Rise Time (no load)	≤10ms	≤20ms	≤60ms	≤80ms
Voltage Rise Time (full load)	≤300ms	≤500ms	≤500ms	≤400ms
Voltage Fall Time (no load)	≤0.6s	≤1.2s	≤0.8s	≤1.2s
Voltage Fall Time (full load)	≤5ms	≤20ms	≤50ms	≤80ms
Transient Recovery Time	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 80ms.	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 20ms.		
Output Ripple(20Hz-20MHz)				
Voltage Ripple (P-P)	≤400mVp-p	≤400mVp-p	≤400mVp-p	≤500mVp-p
Others				
Efficiency	90% (Typical)			
Interface	RS232/LAN			
Communication Response Time	≤5ms			
AC Input	Single phase, 220V AC±10%, current ≤16A, 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. 20kg	Approx. 18kg		
Dimension	2U, 88.0(H)*482.0(W)with handle*550.0(D)mm			

Note 1: For other specifications, please contact NGI.

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

Technical Data Sheet (5)

Model	N3630-600-020	N3630-800-015	N3630-1000-010
Voltage	0~600V	0~800V	0~1000V
Current	0~20A	0~15A	0~10A
Power	3000W		
CV Mode			
Range	0~600V	0~800V	0~1000V
Setting Resolution	10mV	10mV	100mV
Setting Accuracy (23±5°C)	0.05%+0.05%F.S.		
CC Mode			
Range	0~20A	0~15A	0~10A
Setting Resolution	1mA		
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.		
Voltage Measurement			
Range	0~600V	0~800V	0~1000V
Readback Resolution	10mV	10mV	100mV
Readback Accuracy (23±5°C)	0.05%+0.05%F.S.		
Temperature Coefficient	50ppm/°C		
Current Measurement			
Range	0~20A	0~15A	0~10A
Readback Resolution	1mA		
Readback Accuracy (23±5°C)	0.1%+0.1%F.S.		
Temperature Coefficient	50ppm/°C		
Line Regulation			
Voltage	≤0.01%		
Current	≤0.05%		
Load Regulation			
Voltage	≤0.05%		
Current	≤0.05%		
Dynamic Characteristics			
Voltage Rise Time (no load)	≤100ms	≤150ms	≤150ms
Voltage Rise Time (full load)	≤400ms	≤500ms	≤500ms
Voltage Fall Time (no load)	≤1.2s	≤0.9s	≤0.9s
Voltage Fall Time (full load)	≤80ms	≤80ms	≤100ms
Transient Recovery Time	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 20ms.		
Output Ripple(20Hz-20MHz)			
Voltage Ripple (P-P)	≤600mVp-p	≤750mVp-p	≤750mVp-p
Others			
Efficiency	90% (Typical)		
Interface	RS232/LAN		
Communication Response Time	≤5ms		
AC Input	Single phase, 220V AC±10%, current ≤16A, 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. 18kg		
Dimension	2U, 88.0(H)*482.0(W)with handle*550.0(D)mm		

Note 1: For other specifications, please contact NGI.

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

Technical Data Sheet (6)

Model	N3660-016-1000	N3660-080-240	N3690-016-1500	N3690-080-360
Voltage	0~16V	0~80V	0~16V	0~80V
Current	0~1000A	0~240A	0~1500A	0~360A
Power	6000W	6000W	9000W	9000W
CV Mode				
Range	0~16V	0~80V	0~16V	0~80V
Setting Resolution	1mV			
Setting Accuracy (23±5°C)	0.05%+0.05%F.S.			
CC Mode				
Range	0~1000A	0~240A	0~1500A	0~360A
Setting Resolution	100mA	10mA	100mA	10mA
Setting Accuracy (23±5°C)	0.1%+0.1%F.S.			
Voltage Measurement				
Range	0~16V	0~80V	0~16V	0~80V
Readback Resolution	1mV			
Readback Accuracy (23±5°C)	0.05%+0.05%F.S.			
Temperature Coefficient	50ppm/°C			
Current Measurement				
Range	0~1000A	0~240A	0~1500A	0~360A
Readback Resolution	100mA	10mA	100mA	10mA
Readback Accuracy (23±5°C)	0.1%+0.1%F.S.			
Temperature Coefficient	50ppm/°C			
Line Regulation				
Voltage	≤0.01%			
Current	≤0.05%			
Load Regulation				
Voltage	≤0.05%			
Current	≤0.05%			
Dynamic Characteristics				
Voltage Rise Time (no load)	≤10ms	≤20ms	≤10ms	≤20ms
Voltage Rise Time (full load)	≤300ms	≤500ms	≤300ms	≤500ms
Voltage Fall Time (no load)	≤0.6s	≤1.2s	≤0.6s	≤1.2s
Voltage Fall Time (full load)	≤5ms	≤20ms	≤5ms	≤20ms
Transient Recovery Time	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 80ms.	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 20ms.	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 80ms.	The recovery time of load varying from 10% to 90% and output voltage recovering within 0.5% of rated voltage is less than 20ms.
Output Ripple(20Hz-20MHz)				
Voltage Ripple (P-P)	≤400mVp-p			
Others				
Efficiency	90% (Typical)			
Interface	RS232/LAN			
Communication Response Time	≤5ms			
AC Input	Single phase, 220V AC±10%, current ≤32A, frequency 47Hz~63Hz		Three phase, 380V AC±10%, current ≤16A, 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. 40kg	Approx. 36kg	Approx. 60kg	Approx. 54kg
Dimension	4U, 175.0(H)*482.0(W)with handle*600.0/580.0(D)mm		6U, 264.0(H)*482.0(W)with handle*600.0/580.0(D)mm	

Note 1: For other specifications, please contact NGI.

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