ML 시리즈

Programmable DC Power Supply

인증



전력	전압	전류	모델
500 kW to **10** MW+	**100** Vdc to **6000** Vdc	**83** Adc to **5000** Adc (per unit)	**38**

1 설명

Magna-Power Electronics의 ML 시리즈는 전력 밀도와 성능의 새로운 표준을 세우기 위해 처음부터 설계되었습니다. 고급 수냉 기술을 활용하여 500 kW 및 1,000 kW ML 시리즈 모델은 Magna-Power의 공랭 모델에 비해 전력 밀도가 거의 네 배 증가합니다. 마스터-슬레이브 병렬 구성으로 연결할 수 있는 기능을 통해 ML 시리즈는 10 MW를 초과하는 전력 수준에 도달할 수 있습니다. Magna-Power의 시그니처인 신뢰할 수 있는 전류 공급 전력 처리 토폴로지와 혁신적인 고조파 중화 기술을 기반으로 ML 시리즈 전원 공급 장치는 낮은 고조파 왜곡으로 신뢰할 수 있고 효율적인 전력 변환을 제공합니다. 뉴저지 주 Flemington에서 설계 및 제조된 ML 시리즈 전원 공급 장치는 품질, 신뢰성 및 고급 엔지니어링에 대한 Magna-Power의 약속을 구현합니다.

2 주요 기능

- 500 kW 및 1,000 kW 모델; 10 MW로 확장 가능
- 12비트 정밀 제어
- SCPI 명령을 사용한 원격 프로그래밍
- 프로그래밍 가능한 보호 기능
- 외부 비상 정지를 위한 안전 인터록
- LabVIEW 드라이버
- 50°C 주변 온도에서 연속 최대 전력 작동
- 37핀 아날로그-디지털 사용자 I/O 포트
- 결로 방지용 통합 솔레노이드
- 고성능 마스터-슬레이브
- 로컬, 원격 및 무연 전압 감지
- 표준 RS232 및 LAN TCP/IP 이더넷 통신 옵션 제공
- RIS 패널 소프트웨어 플랫폼 포함
- 미국산

3 가능한 통합 옵션

+ISO	High Isolation Output
+HS	High Slew Rate Output
+GPIB	IEEE-488 GPIB
+BD	Integrated Blocking Diode
+LXI	LXI TCP/IP Ethernet

4 명세서

사양은 예고 없이 변경될 수 있습니다. 별도의 명시가 없는 한, 모든 사양은 제품의 최대 정격에서 측정되었습니다.

4.1 AC Input Specifications

매개변수	값	조건
Input Voltages Available	440 Vac, 3-phase 480 Vac, 3-phase	AC Input voltage specified at time of order and cannot be modified
Input Voltage Tolerance	± 10%	
Input Voltage Frequency	50-60 Hz	
Power Factor	> 0.96	Measured at max power
Input Isolation	± 2000 Vdc	Measured line-to-ground
AC Circuit Protection	UL/CSA listed circuit breaker	

4.2 DC Output Specifications

매개변수	값	조건
Voltage Ripple	Model specific. Refer to models table.	
Line Regulation	Voltage control: ± 0.04% of rated voltage Current control: ± 0.03% of rated current	
Load Regulation	Voltage control: ± 0.02% of rated voltage Current control: ± 0.06% of rated current	
Stability	± 0.10%	FWHM, measured at 25ºC over 8 hrs after 30 min warm-up
Temperature Coefficient	Voltage control: 0.04%/°C of rated voltage Current control: 0.06%/ºC of rated current	
Efficiency	Up to 96%. Model specific. Refer to Models table.	
Slew Rate	< 170 ms, output voltage change from 0 to 63% < 200 ms, output current change from 0 to 63%	Standard Models
Slew Rate	< 5 ms, output voltage change from 0 to 63% < 10 ms, output current change from 0 to 63%	Models with High Slew Rate (+HS) Option
Output Isolation	± 1500 Vdc	Measured output-to-ground, models rated ≤ 1000 Vdc
Output Isolation	± 6000 Vdc	Measured output-to-ground, models rated > 1000 Vdc or models with High Isolation Output (+ISO) option

4.3 Programming Specifications

매개변수	값	조건
Resolution, Digital Programming	12-bit, 0.025% of rated voltage, current or power	Front panel or communication interfaces
Accuracy, Programming	Voltage: ± 0.075% of rated voltage Current: ± 0.075% of rated current	Output value to set point value
Accuracy, Measurement	Voltage: ± 0.20% of rated voltage Current: ± 0.20% of rated current	Output value to returned value
Trip Settings Range	Over Voltage: 10% to 110% of rated voltage Over Current: 10% to 110% of rated current	
Computer Command Protocol	Standard Commands for Programmable Instruments (SCPI) (ASCII-based commands)	
Remote Sense Limits	3% maximum voltage drop from output to load	Wired; Available on Models Rated ≤ 1000 Vdc

4.3 Programming Specifications

매개변수	값	조건
Analog I/O	Analog programming inputs: 0-10 V Analog programming impedance: 10 kΩ Analog measurement outputs: 0-10V, 5 mA capacity Analog measurement impedance: 100 Ω Analog reference signal: 10 V, 5 mA capacity, 1 Ω	4 analog programming inputs, 2 analog measurement outputs, Reference signal provided
Digital I/O	Digital control inputs: 5 V Digital control inputs impedance: 10 kΩ Digital monitoring outputs: 5 V, 5 mA capacity Digital reference signal: 5 V, 25 mA capacity	5 digital control inputs, 15 digital monitoring outputs, Reference signal provided

4.4 Interace Specifications

매개변수	값	조건
Front Panel Programming	Two machined aluminum 10-turn knobs and keypad	
Communication Interfaces	RS232: D-sub DB-9, Female	Standard
Communication Interfaces	LXI TCP/IP Ethernet (+LXI): RJ-45	Optional
External User I/O Port	37-pin D-sub DB-37, female Referenced to ground; isolated from the DC output See User Manual for pin layout	Standard

4.5 Physical Specifications

매개변수	값	조건
Size & Weight	76.4” H x 72” W x 31.5” D (194.1 x 182.9 x 80.0 cm) 6800 lbs (3084 kg)	500 kW models
Size & Weight	Ships as two components: 1000 kW Power Supply 76.4” H x 72” W x 31.5” D (194.1 x 182.9 x 80.0 cm) 4750 lbs (2155 kg) 1000 kW Harmonic Neutralizer 76.4” H x 48” W x 31.5” D (194.1 x 121.9 x 80.0 cm) 4350 lbs (1973 kg)	1000 kW Models

4.6 Environmental Specifications

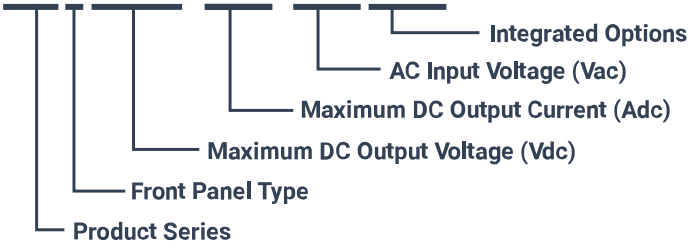
매개변수	값	조건
Ambient Operating Temperature	0°C to 50°C	
Storage Temperature	-40°C to +85°C	
Humidity	Relative humidity up to 95% non-condensing	
Air Flow	Bottom air inlet, top exhaust	To ensure even heat distribution for water cooling system
Water Coolant Supply	Maximum inlet temperature: 25ºC Maximum inlet pressure: 80 psi Inlet and outlet fittings provided: 1” Female NPT Materials in coolant path: Copper pipe, PEX tubing, brass solenoid & fittings	Requirement for supplied coolant
Minimum Coolant Flow Rate	9 GPM	500 kW models
Minimum Coolant Flow Rate	15 GPM	1000 kW models

4.7 Regulatory Specifications

매개변수	값	조건
EMC	Complies with 2014/30/EU (EMC Directive) CISPR 22 / EN 55022 Class A	
Safety	Complies with EN61010-1 and 2014/35/EU (Low Voltage Directive)	
CE Mark	Yes	

5 모델 주문 가이드

MLD1250-800/480+LXI



6 모델

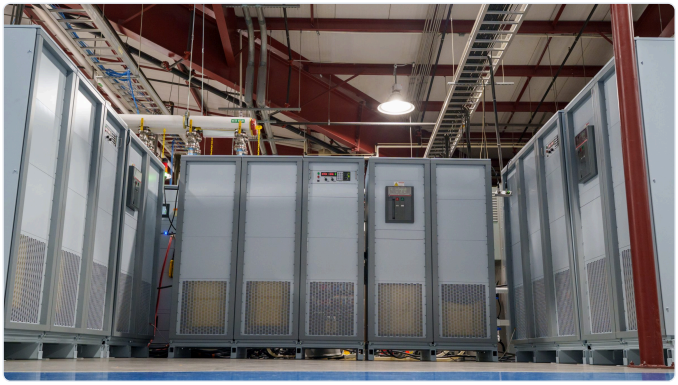
Max Voltage	500 kW	1000 kW	Ripple	
Vdc	Max Current Adc		mVrms	Efficiency
100	5000	–	100	91%
125	4000	–	100	91%
160	3125	–	120	92%
200	2500	5000	125	92%
250	2000	4000	130	92%
300	1666	3333	160	93%
375	1333	2666	170	93%
400	1250	2500	180	95%
500	1000	2000	220	95%
600	833	1666	300	95%
800	625	1250	400	96%
1000	500	1000	500	96%
1250	400	800	500	96%
1600	312	625	600	96%
2000	250	500	800	96%
2500	200	400	900	96%
3000	166	333	1000	96%
4000	125	250	1100	96%
5000	100	200	1500	96%
6000	83	166.6	2000	96%

7 기능

High power density, water cooled megawatt-scale DC power systems

고밀도 수냉식 성능

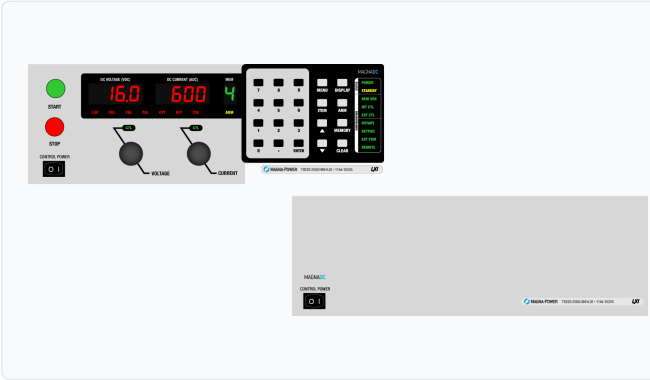
500 kW에서 10 MW+ 이상의 깨끗하고 정밀한 출력.



ML Series 프로그래머블 DC 전원공급장치는 첨단 수냉식 칠 플레이트와 내부 매니폴드를 활용하여 캐비넷당 500 kW 및 1,000 kW의 출력을 최대 96% 효율로 제공하며, 50°C 주변 온도에서 정격 전력으로 운전하면서도 동급 공랭식 모델 대비 약 4배 높은 전력 밀도를 달성합니다. MagnaDC의 전류 급전 토폴로지를 기반으로 구축된 ML Series는 12-bit (0.025%) 프로그래밍 분해능, 엄격한 라인/부하 레귤레이션, ±0.075%의 전압 및 전류 프로그래밍 정확도와 낮은 리플을 제공하여 멀티 메가와트급 시험 및 공정 시스템에 실험실 수준의 성능을 구현합니다.

블랭크 패널 옵션이 포함된 무단계 전면 패널 제어

필요한 곳에서는 직접 조작하고, 불필요한 곳에서는 깔끔하게 숨길 수 있습니다.



The standard SL front panel provides rotary and key-based control, bright digital metering, and clear status indicators, so operators can configure setpoints, start and stop the supply, and see system health at a glance. For OEMs and production tools, the optional blank (C-version) front panel removes local controls altogether while retaining full control via communication interfaces and rear 37-pin user I/O, keeping systems secure, clean, and operator-proof.

통합 옵션으로 주문 맞춤 구성

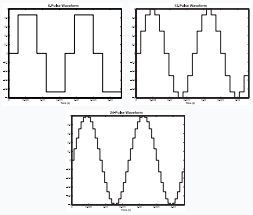
풍부한 표준 기능, 필요 시 확장 가능.



Like the rest of the MagnaDC line, MT Series supplies start with a strong control base: SCPI over RS232, isolated rear User I/O, LabVIEW and IVI drivers, and Remote Interface Software included. From there, integrated options let you tailor each system for its role—High Isolation Output (+ISO) for extended series stacking, High Slew Rate Output (+HS) for faster dynamics, LXI TCP/IP Ethernet (+LXI) and IEEE-488 GPIB (+GPIB) for additional communications, plus protection and mechanical options such as an Integrated Blocking Diode (+BD) and Pedestal Base (+PB) for fixed installations.

더 깨끗한 고출력 시스템을 위한 고조파 중화기

전원 품질 규정 준수를 용이하게 하기 위해 소스에서 THD를 저감합니다.



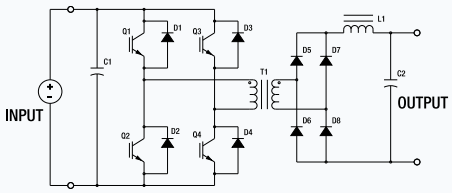
입력 전류 고조파는 3상 정류기의 고유한 부산물입니다. 표준 6펄스 프론트엔드는 기본파의 1, 5, 7, 11, 13… 배 주파수에서 고조파 전류를 생성하며, 5차 및 7차 성분만으로도 기본파의 약 20%와 14%에 달합니다. 이러한 전류는 직렬 커패시터/인덕터가 포함된 조명 안정기와 같은 민감한 부하를 여기시킬 수 있으며, IEEE 519와 같은 전력 품질 지침 준수를 더욱 어렵게 만듭니다. 고조파 문제를 최소화하는 가장 신뢰할 수 있는 방법은 소스에서 고조파 전류를 제거하는 것입니다.

고출력 시스템의 경우, Magna-Power는 입력 위상 수를 증가시키고 입력 전류 THD를 수동적으로 대폭 저감하는 특수 권선 고조파 중화기를 제조합니다. 표준 1.5–150 kW Magna-Power 전원 공급 장치는 6펄스 파형을 사용하며, 250 kW MT Series 및 500 kW ML Series 모델은 12펄스 고조파 중화기를, 1000 kW ML Series 모델은 24펄스 고조파 중화기를 내장하고 있으며, 이는 사용자에게 투명하게 작동합니다.

Rugged by design: safety + reliability, as you'd expect from Magna-Power.

신뢰성 높은 전류 공급형 전력 처리

견고한 설계: 가동 시간을 위한 자체 보호 토폴로지.



The SLx Series uses a high-frequency, current-fed architecture that adds a control stage beyond conventional voltage-fed designs. This topology inherently limits fault energy—avoiding fast-rising current spikes and magnetic core saturation so the supply self-protects and your load stays safe. Paired with state-of-the-art SiC power semiconductors, SLx delivers class-leading power density, efficiency, and reliability, including continuous full-power operation up to 50°C ambient.

- Current-fed architecture with an added control stage vs. voltage-fed.
- Inherent surge immunity—no current spikes or core saturation.
- Self-protecting behavior under fault conditions.
- SiC devices for high density and efficiency; full power to 50°C.

안전 기능 및 인터록

소프트 스타트, 프로그래밍 가능한 보호 기능, 그리고 진정한 안전을 위한 기계식 라인 차단 장치.



MagnaDC supplies start gently and watch continuously. A soft-start stage keeps inrush below steady-state draw, while built-in diagnostics monitor line, thermal, and control conditions. In standby or on a diagnostic fault, an embedded AC contactor mechanically disconnects the mains, assuring the unit only processes power when intended. Faults are shown on the front-panel status display, through 5V digital outputs, and are queryable via SCPI.

- Programmable trips: Over voltage (OVT) and over current (OCT)/
- Control integrity: Program-line over-voltage detection.
- Thermal protection: Over temperature on internal heatsinks.
- Interlock/E-stop fault monitoring as a standard diagnostic.
- Field integration: 5V interlock input (with 5V reference) for a dry-contact, latching inhibit with control power maintained.

From lab scripts to factory PLCs, flexible programming & integration.

간편한 소프트웨어 통합

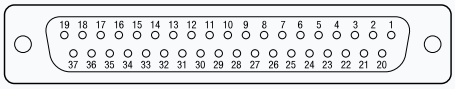
직관적인 명령어, 빠른 결과—모든 프로그래밍 언어와 호환됩니다.

MagnaDC 전원공급장치는 소켓 통신을 통해 전송되는 ASCII 기반 명령어인 네이티브 SCPI를 갖춘 명확한 텍스트 기반 API를 제공합니다. 40개 이상의 잘 문서화된 명령어가 시작/정지, 전압 및 전류 설정값, 고정밀 측정, 전체 구성을 지원하여 스크립트와 시스템을 개념 검증 단계에서 양산까지 신속하게 전환할 수 있습니다.

- 일관된 동작을 제공하는 SCPI 명령어 세트.
- 시작/정지 및 보호 기능: 출력 활성화, 트립 한계 설정, 상태 조회.
- 고정밀 측정: 전압, 전류, 전력 및 센스 피드백.
- 개발자 중심의 문서 및 예제 제공.

PLC 제어 또는 PHIL 시뮬레이션을 위한 외부 User I/O

I/O 모듈처럼 배선하세요—추가 절연이 필요 없습니다.



Via the included rear 37-pin User I/O connector, MagnaDC supplies can be fully driven and monitored by external signals or a PLC. Voltage, current, OVT, and OCT set points are programmed with 0–10 V analog inputs, while each diagnostic condition has its own +5V digital status pin. Built-in +2.5V, +5V, and +10V reference rails let you use dry contacts without adding external supplies. All I/O is isolated from the output and referenced to earth ground as standard.

- 0–10 V analog programming for V, I, OVT, and OCT.
- Per-fault digital outputs: each diagnostic has its own +5V pin.
- Isolated user I/O referenced to earth ground—no extra isolators.
- With High Slew Rate Output (+HS), high-bandwidth response and fast rise times support HIL/PHIL simulation applications.

고성능 마스터-슬레이브 운전

성능 저하 없이 전압 또는 전류를 확장하십시오.

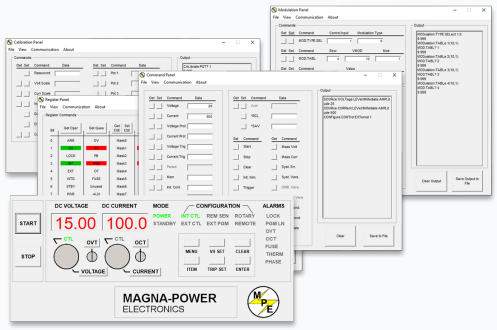


All MagnaDC supplies support master-slave operation, using gate-drive signals from the master when configured for parallel, so the whole stack behaves like a single supply—with one control loop and no noisy long analog references. The optional UID47 accessory simplifies wiring for series or parallel sets with near-equal sharing.

- Single control loop parallel operation: Master gate-drive to slaves for consistent dynamics.
- Plug & play with the UID47, enabling parallel or series stacks with current/voltage sharing.
- Series up to the DC isolation rating without added hardware.
- No additional ORing diodes required for parallel operation.

Magna-Power 소프트웨어, LabVIEW 및 IVI 드라이버

가상 전면 패널부터 완전 자동화까지—즉시 사용 가능합니다.



모든 MagnaDC 전원공급장치에는 IVI 드라이버와 NI LabVIEW 드라이버가 포함되어 있으며, 전체 VI 세트와 예제 프로그램이 함께 제공되어 몇 분 만에 하드웨어와 통신을 시작할 수 있습니다. PC에서 전면 패널 방식의 직접 제어를 위해, Magna-Power의 Remote Interface Software는 명령 및 레지스터부터 캘리브레이션 및 펌웨어까지 전원공급장치에 대한 풍부한 정보를 제공합니다.

- 전체 VI 세트가 포함된 IVI 및 NI LabVIEW 드라이버 제공.
- 통합 및 테스트를 신속하게 시작할 수 있는 예제 프로그램.
- 다음 기능을 갖춘 Remote Interface Software:
  - 수동 제어를 위한 가상 전면 패널
  - 명령 탐색 및 전송을 위한 명령 패널
  - 실시간 상태 모니터링을 위한 레지스터 패널
  - 내부 디지털 포텐셔미터용 캘리브레이션 패널
  - 현장 업그레이드를 위한 펌웨어 패널
  - 비선형 프로파일 에뮬레이션을 위한 모듈레이션 패널
- 일관된 프로그래밍 경험을 위해 모든 통신 인터페이스가 소프트웨어 및 드라이버 전반에서 지원됩니다.

State-of-the-art USA manufacturing with worldwide support

미국 제조

완벽한 품질 관리를 위한 수직 통합 제조.

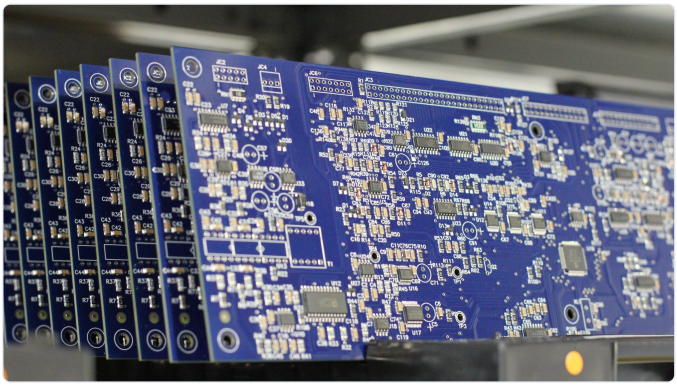


Magna-Power 제품은 뉴저지주 플레밍턴에 위치한 73,500 sq-ft 규모의 본사에서 설계, 제작, 테스트 및 서비스됩니다. 금속 가공, 자성 부품, PCB 조립, 번인 테스트까지 모두 자체적으로 수행하여 품질, 비용, 납기를 철저히 관리합니다.

- 미국 제조: 엔지니어링, 제조, 서비스를 한 지붕 아래에서.
- 자체 생산: 금속 가공, 자성 부품, SMT PCB, 표면 처리.
- 검증된 신뢰성: 모든 제품을 완벽하게 테스트, 교정, 번인 실시.

전 세계 서비스 및 OEM 부품 지원

공장 전문성, 현지 대응.



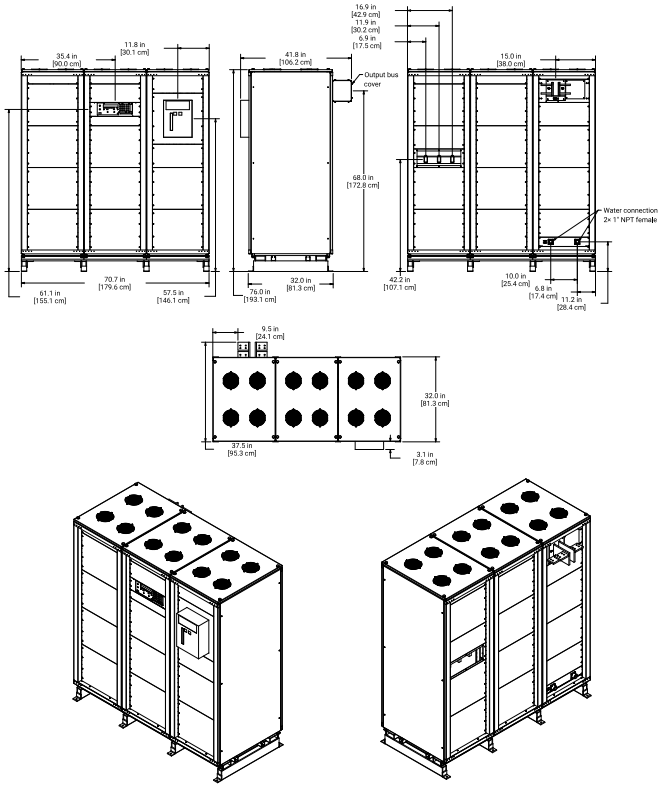
Magna-Power는 북미, 유럽, 영국, 아시아태평양, 동아시아, 남미 전역의 공장 및 공인 서비스 센터를 통해 자사 제품을 지원하며, 보증 기간 내외를 불문하고 공장 절차와 정품 부품을 사용하여 장비를 원래 사양으로 복원합니다.

- 글로벌 커버리지: 뉴저지 본사 및 지역 공인 서비스 센터.
- 일관된 수리: 공장 진단, 작업 지침서 및 시스템 다이어그램.
- 정품 OEM 부품: 검증된 교체 어셈블리로 예측 가능하고 다운타임이 적은 서비스 제공.

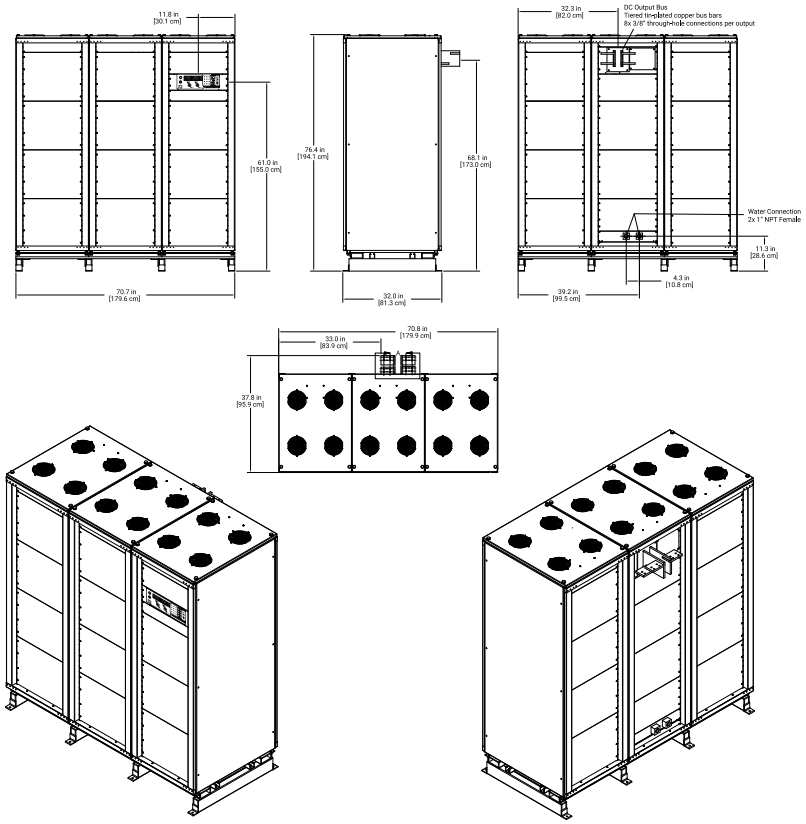
8 다이어그램

500 kW Power Supply

12-pulse harmonic neutralizer integrated

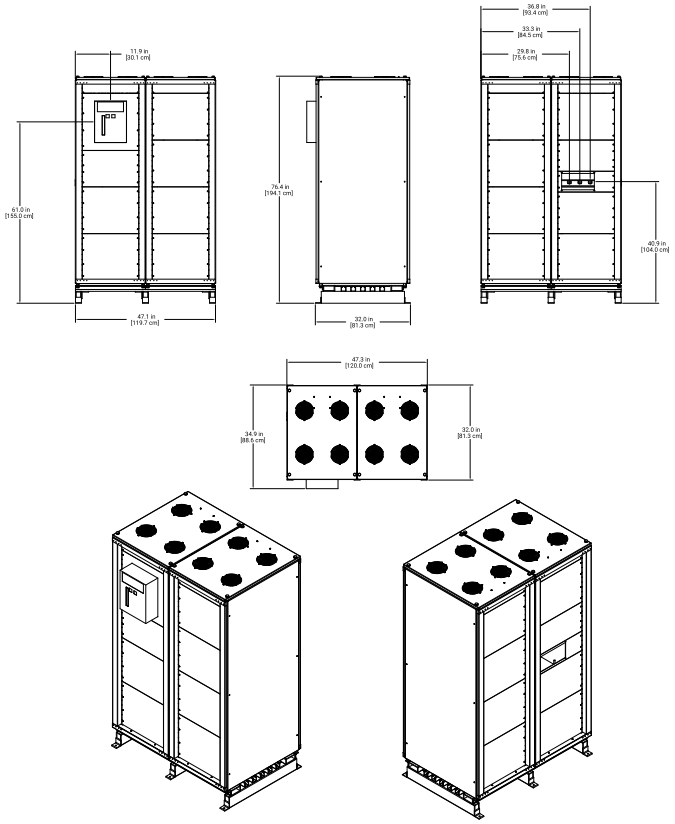


1000 kW Power Supply

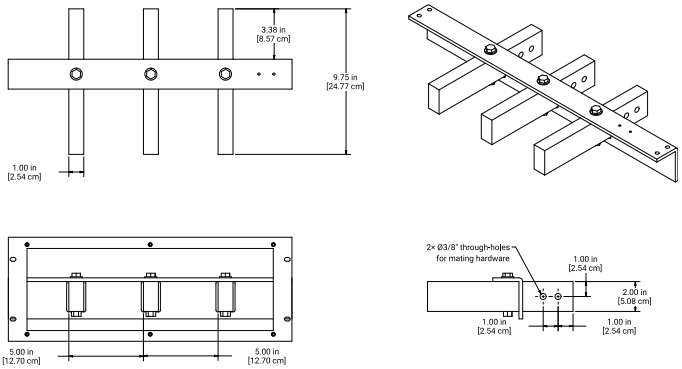


1000 kW Harmonic Neutralizer

24-pulse, integrated with power supply at install

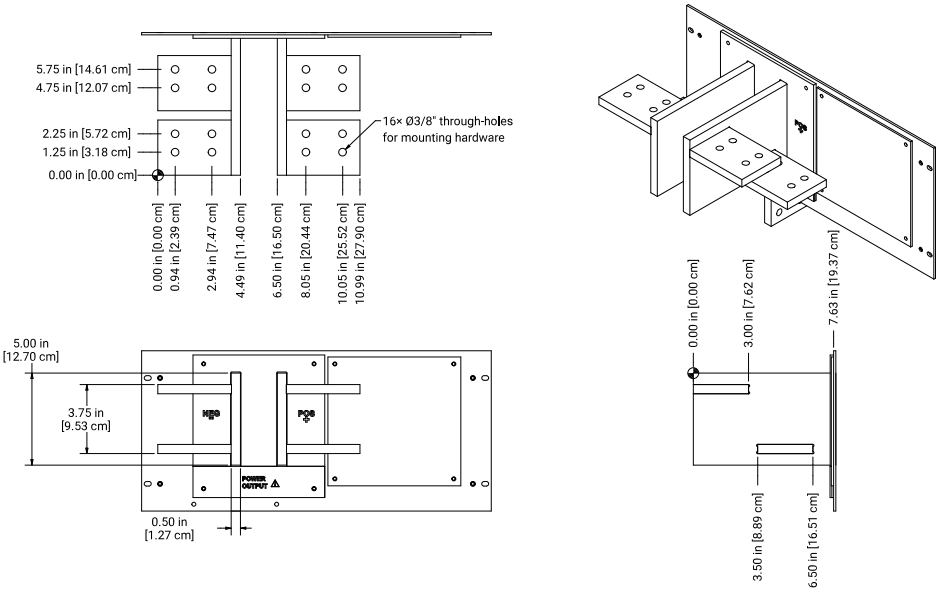


AC Input Bus



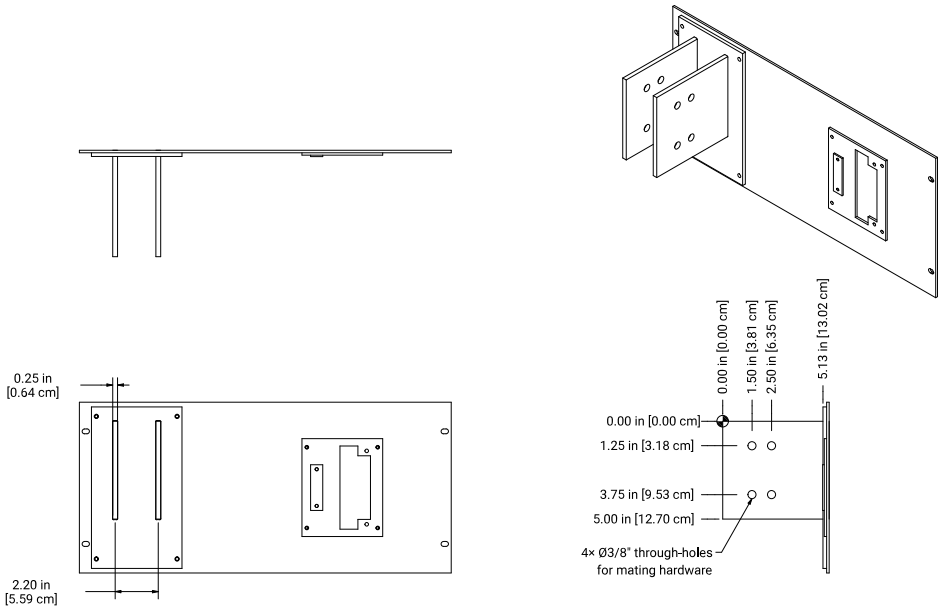
DC Output Bus

Models with Maximum DC Output Voltage ≤ 500 Vdc



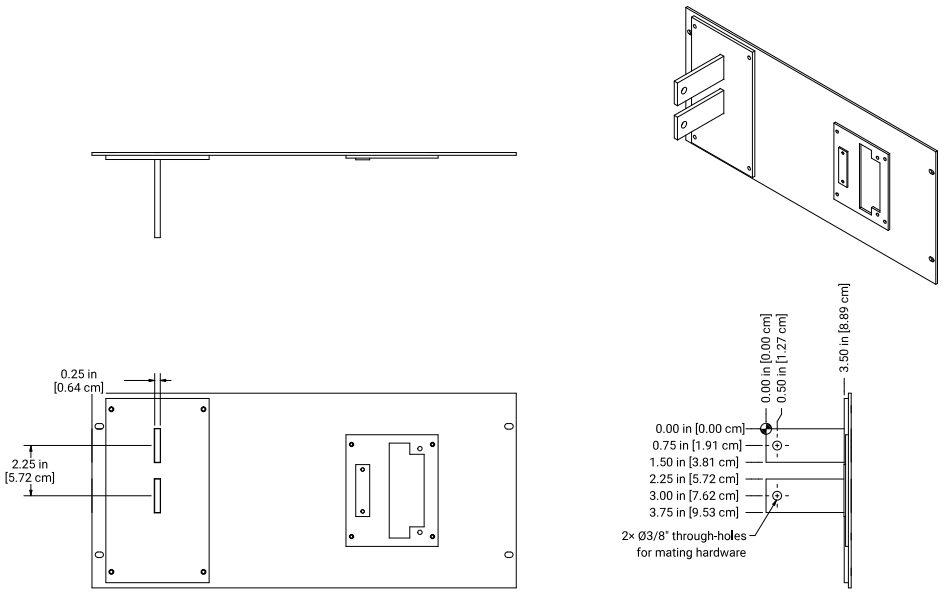
DC Output Bus

Models with Maximum DC Output Voltage > 500 Vdc, ≤ 2000 Vdc



DC Output Bus

Models with Maximum DC Output Voltage > 2000 Vdc, ≤ 6000 Vdc



9 가능한 통합 옵션

+ISO High Isolation Output

250 Vdc~1000 Vdc 정격 모델에 사용 가능한 +ISO 옵션은 출력 절연을 대폭 향상시키며, 표준 ±1000 Vdc 출력 절연 정격을 초과하여 유닛을 플로팅하거나 직렬로 연결해야 하는 애플리케이션에 활용됩니다.

Certain applications require floating the output voltage to values beyond the power supply isolation rating. Magna-Power's High Isolation Output Option (+ISO) enables any TS Series or MT Series model with a peak output voltage rating of 250 Vdc through 1000 Vdc to be rated for a higher voltage output isolation. Improved isolation is achieved by a novel output stage with improved controller isolation. In addition to being able to float the power supply to a higher output voltage, this option also enables lower voltage units to be tied together in series up to its new higher isolation rating, in accordance with the table below.

Availability

The +ISO option is available for models with maximum output voltage rating from 250 Vdc to 1000 Vdc from the following product series:

- TS Series

- MT Series
- ML Series

The +ISO option cannot be combined with the +BD or +WC options. Addition of the +ISO option will cause the product's wired remote sense feature to be removed.

Specifications

The output isolation for Magna-Power Electronics TS Series and MT Series programmable DC power supplies is as follows, where Vo is output voltage rating of the particular model:

Product Series	DC Output Isolation (Standard) (Models Rated Up to 1000 Vdc)	DC Output Isolation (With +ISO Option) (Models Rated Up to 1000 Vdc)
TS Series	±1000 Vdc, max output voltage to ground	±(3000 Vdc + Vo/2), max output voltage to ground, where Vo is the max rated voltage
MT Series	±1000 Vdc, max output voltage to ground	±6000 Vdc
ML Series	±1500 Vdc, max output voltage to ground	±6000 Vdc

+HS High Slew Rate Output

표준 출력 단을 저 커패시턴스 필름 및/또는 고 RMS 전류 정격 알루미늄 전해 콘덴서로 교체하는 하드웨어 및 제어 수정 옵션입니다. 이 옵션은 더 빠른 출력 상승 및 하강 시간으로 더 높은 대역폭을 제공합니다.

The high slew rate option solves several limitations inherent in switching power supply design. Rapid voltage transitions require internal electronics to supply the energy to charge and discharge output capacitors. Peak currents internal to the power supply define slew rate; utilizing less capacitance enables voltage transitions in shorter time periods. Additionally, less capacitance reduces requirements for discharge demands during open circuit conditions.

The standard output stage Magna-Power Electronics power supplies has been designed to provide the lowest possible output ripple voltage within the constraints of available components, size, and cost. Part of the output stage consists of a bank of aluminum electrolytic capacitors which has the desired electrical properties to provide this function. These components require bleed resistors to discharge any voltage when the power supply has no load and is disabled. While the presence of these components and the resulting performance are normally industry accepted, there are applications where lower output capacitance and lower loss bleed resistors are extremely desirable and higher ripple voltage is acceptable. To meet this need, a high-slew rate option is available which has an output stage consisting of low capacitance film and aluminum electrolytic capacitors and lower loss bleed resistors. Applications for the high-slew rate option include battery charging, photovoltaic emulation, power waveform generation, and medium speed power pulsing. These applications all benefit from higher bandwidth and in many cases, can tolerate increased ripple voltage.

Key Applications

For **battery charger applications**, output capacitance and internal bleed resistors present themselves as a load to the connecting batteries. One common practice is to use a series diode to block reverse current flow with the sacrifice of increased cost and lower efficiency. The high slew rate option, with its lower output capacitance and lower loss bleed resistors, enables direct connection to batteries without series blocking diodes.

For **photovoltaic emulation applications**, higher bandwidth and lower output capacitance enable improved performance with higher speed, maximum power tracker algorithms. Maximum power tracker circuitry deviates the operating point of photovoltaic arrays to determine maximum power output. Slow responding emulation sources can present a problem when the speed of the algorithm exceeds that of the source. Furthermore, with lower output capacitance, changes in the operating point and transients, caused by shorting the solar inverter input, produce lower unwanted input currents.

The high-slew rate option enables the power supply to operate as a **low frequency, power pulse generator**. With the special capacitors selected for this option, it is possible to superimpose waveforms or produce a medium speed pulse on top of the dc output and expect normal capacitor life. It is important to note that the power supply output is single quadrant; that is, the output voltage or current cannot reverse.

Specifications

SL Series Output Stage Ratings with the High Slew Rate Output Option Integrated

Voltage Maximum Rating (Vdc)	Output Capacitance (uF)	Output Voltage Ripple (Vrms)
5	4235	0.5
10	1740	0.6
16	1740	0.6
20	775	0.6
25	775	0.8
32	775	0.8
40	760	1.5
50	760	1.5
60	760	2.0
80	110	1.5
100	110	1.6
125	70	1.7
160	70	1.8
200	70	1.8
250	70	1.8
300	70	1.8
375	70	1.8
400	70	1.8
500	40	2.0
600	40	2.2
800	30	2.5
1000	30	3.4
1250	–	3.4
1500	–	4.0

XR Series Output Stage Ratings with the High Slew Rate Output Option Integrated

Voltage Maximum Rating (Vdc)	Output Capacitance (uF)	Output Voltage Ripple (Vrms)
5	13200	1.5
10	4080	1.6
16	4080	1.7

Voltage Maximum Rating (Vdc)	Output Capacitance (uF)	Output Voltage Ripple (Vrms)
20	2340	1.8
25	1170	1.8
32	1170	1.8
40	240	1.8
50	240	1.8
60	240	2.0
80	240	2.2
100	160	2.5
125	160	3.0
160	160	2.8
200	160	4.0
250	160	1.6
300	160	1.8
375	160	1.8
400	160	1.8
500	56	3.0
600	56	3.0
800	52	3.0
1000	52	3.0
1250	18	3.5
1500	18	3.5
2000	18	5.0
3000-10000	—	—

TS Series Output Stage Ratings with the High Slew Rate Output Option Integrated

Voltage Maximum Rating (Vdc)	Output Capacitance (uF)	Output Voltage Ripple (Vrms)
5	13200	0.5
8	9000	0.5
10	9000	0.5
16	4080	0.5
20	2340	0.8
25	2340	0.8
32	1170	0.8
40	1170	0.8
50	1170	0.8
60	300	1.2
80	300	1.2
100	200	1.6
125	200	1.6
160	200	1.6
200	200	2.0
250	200	2.0
300	200	2.2
375	200	2.2
400	200	2.4
500	200	2.7
600	120	2.6
800	70	2.6
1000	60	3.5
1250	18	3.5
1500	18	4.3
2000	18	3.8
3000	9	7.2
4000	9	4.0

Voltage Maximum Rating (Vdc)	Output Capacitance (uF)	Output Voltage Ripple (Vrms)

Note:
For 20 to 30 kW models, multiply capacitance by 2
For 40, 50, 75, and 100 kW models, contact Magna-Power support

For MT Series and ML Series output stage ratings with the high slew rate output option, please inquire with your local sales partner regarding the specific model.

+GPIB IEEE-488 GPIB

완전한 명령 지원 및 다른 GPIB 장치와의 호환성을 제공하는 IEEE-488 범용 인터페이스 버스(GPIB) 통신 인터페이스

The IEEE-488 interface, sometimes called the General Purpose Interface Bus (GPIB), is a general purpose digital interface system that can be used to transfer data between two or more devices. It is particularly well-suited for interconnecting computers and instruments. Some of its key features are:

- Up to 15 devices may be connected to one bus
- Total bus length may be up to 20 m and the distance between devices may be up to 2 m
- Communication is digital and messages are sent one byte (8 bits) at a time
- Message transactions are hardware handshaked
- Data rates may be up to 1 Mbyte/sec

The IEEE-488 GPIB interface in integrated with the power supply's rear communication ports. The IEEE 488 interface offers full compatibility with Magna-Power provided drivers, software and SCPI command set.

+BD Integrated Blocking Diode

MagnaDC 프로그래머블 DC 전원 공급 장치의 양극 출력 단자에 내부 방열판이 장착된 보호 다이오드로, 제품의 출력 전압 정격을 훨씬 초과하는 역전압으로부터 제품의 출력을 보호합니다.

The Integrated Blocking Diode Option (+BD) provides an internally heat-sunk protection diode on the positive output terminal of a MagnaDC programmable DC power supply. This diode protects the product's output from reverse voltage up to 1200 Vdc. All voltage sensing is performed after the protection diode—at the product's output terminals—making the diode's operation completely transparent to the performance of the power supply.

The +BD option is recommended for applications where there is significant back-emf or the possibility of a DC output voltage that could exceed the power supply's output voltage rating, such as:

- DC motor drives
- Battery and capacitor charging
- Large electromagnets

In these applications, the integrated blocking diode can be used to prevent back-emf from the energy stored in the load into the power supply's output. Furthermore, the integrated blocking diode will prevent the power supply's internal bleed resistance from discharging the energy storaged in the load when the power supply is off or in standby.

Availability

The +BD option is available for models with maximum output voltage rating as specified for the following product series:

- TS Series, models rated from 40 Vdc to 1000 Vdc
- MT Series, models rated from 125 Vdc to 1000 Vdc
- ML Series, models rated from 250 Vdc to 1000 Vdc

The +BD option cannot be combined with the +ISO option.

Specifications

Table 1. Specification for Integrated Blocking Diode (+BD) option

Reverse Voltage Rating Models Rated 125 Vdc to 1000 Vdc	1200 Vdc
Reverse Voltage Rating Models Rated Below 125 Vdc	200 Vdc
Additional Losses Models Rated 125 Vdc to 1000 Vdc	Up to 1.4%
Additional Losses Models Rated Below 125 Vdc	Up to 2.5%

+LXI LXI TCP/IP Ethernet

소켓 통신을 위한 TCP/IP 이더넷 통신 프로토콜 및 단일 RJ-45 인터페이스로, LXI Class C 표준 인증을 받아 기존 컴퓨터 네트워크를 통한 통신을 지원합니다

Certified to the LXI Standard (Class C), version 1.4, this option allows the product to be fully controlled over an integrated TCP/IP Ethernet interface. LXI is an instrumentation platform based on industry standard Ethernet technology designed to provide modularity, flexibility, and performance to small- and medium-sized systems. All of the product's standard SCPI commands are supported over the +LXI option, along with all provided software and drivers.

LXI's advantages are exemplified in its compact, flexible package providing high-speed I/O and reliable measurements. The Magna-Power Electronics LXI TCP/IP Ethernet option includes an embedded web-server, allowing web browser power supply control and monitoring from virtually anywhere.

Note: For xGen products, only the SCPI command protocol is available when LXI TCP/IP Ethernet interface is installed. Modbus communication protocol is not available through any interface when the LXI TCP/IP Ethernet interface is installed.

10 제품 이미지









1 MW ML Series programmable DC power supply

11 다운로드

https://magna-power.com/ko/products/magnadc/ml#downloads

12 문의

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