Serie SLX

Programmable DC Power Supply

Alimentazione versatile per montaggio di rack digitali, da 1,5 kW a 10 kW in 1U

CERTIFICAZIONI



POTENZA	TENSIONE	CORRENTE	MODELLI	DIMENSIONE
1.5 kW to 10 kW	5 Vdc to 1000 Vdc	1.5 Adc to 250 Adc	171	1U

1 Descrizione

Basandosi su oltre 40 anni di innovazione di alimentazione e con oltre 26.500+ diverse configurazioni di modelli, la serie SLX è la serie di alimentazione DC più programmabile di Magna-Power mai creata. La serie SLX offre modelli a 6 diversi livelli di potenza, con una gamma di tensioni e correnti altamente granulari. Con la densità di potenza leader del settore, la robusta elaborazione dell'energia alimentato a corrente corrente e l'architettura di controllo digitale DSP distribuito Magn-of-the-art, la serie SLX soddisfa i requisiti di potenza DC a lungo termine di ricerca e sviluppo, automazione industriale e applicazioni di controllo dei processi.

2 Caratteristiche principali

- Controllo della tensione, corrente e potenza
- Elaborazione di potenza alimentata a corrente corrente
- Precisione a 16 bit con controllo a bit singolo
- Set di comandi SCPI e Modbus
- Caratteristiche di protezione programmabili
- Stop di emergenza di interblocco e hardware
- Controllo della velocità di griglia
- Operazione completa a piena potenza fino a 50° C Ambiente
- Porta I/O a 26 pin configurabile
- Maestro per maestro di Magnalink digitale Hybrid
- Rilevamento di tensione locale, remoto e senza piombo
- Interfacce USB (anteriore e posteriore) e RS485
- CAN, EtherCAT, Ethernet/IP, LXI TCP/IP Ethernet, ModbusTCP e Opzioni di comunicazione completamente integrate Profinet disponibili
- Piattaforma software di Magnactrl inclusa
- Realizzato negli Stati Uniti

3 opzioni integrate disponbili

+C1	Black Enclosure
+FP1	Blank Front Panel
+CAN	CANopen
+ECAT	EtherCAT
+EIP	EtherNet/IP
+LXI	LXI TCP/IP Ethernet
+MTCP	Modbus-TCP
+PROF	PROFINET
+RUG	Ruggedized
+WC	Water Cooling

4 Specificazioni

Le specifiche sono soggette a modifiche senza preavviso. Salvo diversa indicazione, tutte le specifiche sono misurate ai valori nominali massimi del prodotto.

4.1 AC Input Specifications

PARAMETRO	VALORE	CONDIZIONI
Input Voltages Available	UI, 100-240 Vac, 1-phase UI2, 208-240 Vac, 1-phase 208 Vac, 3-phase 240 Vac, 3-phase 380/400 Vac, 3-phase 415 Vac, 3-phase 440 Vac, 3-phase 480 Vac 3-phase	Refer to models table for AC input voltage availability by power level. AC Input voltage specified at time of order and cannot be modified
Input Voltage Tolerance	± 10%	
Input Voltage Frequency	50-400 Hz	
Power Factor	> 0.99, 1-phase UI and UI2 AC inputs > 0.92, 3-phase AC inputs	Measured at max power
Input Isolation	± 2000 Vdc	Measured line-to-ground

4.2 DC Output Specifications

PARAMETRO	VALORE	CONDIZIONI
Voltage Ripple	Model specific. Refer to models table.	
Line Regulation	Voltage control: ± 0.04% of rated voltage Current control: ± 0.03% of rated current Power control: ± 0.05% of rated power	
Load Regulation	Voltage control: ± 0.02% of rated voltage Current control: ± 0.06% of rated current Power control: ± 0.08% of rated power	
Stability	Voltage control: ± 0.005% of rated voltage Current control: ± 0.075% of rated current	FWHM, measured at 25ºC over 8 hrs after 30 min warm-up
Temperature Coefficient	Voltage control: 0.01%/ºC of rated voltage Current control: 0.04%/ºC of rated current Power control: 0.04%/ºC of rated power	
Efficiency	Up to 95%. Model specific. Refer to Models table.	
Slew Rate, Voltage	Minimum (Slowest): Rated voltage x 2^{-15} [V/ms] Maximum (Fastest): Rated voltage x 0.006 [V/ms]	Standard models, programmable
Slew Rate, Current	Minimum (Slowest): Rated current x 2^{-15} [A/ms] Maximum (Fastest): Rated current x 0.005 [A/ms]	Standard models, programmable
Slew Rate, Power	Minimum (Slowest): Rated power x 2^{-15} [W/ms] Maximum (Fastest): Rated power x 0.0025 [W/ms]	Standard models, programmable
Output Isolation	± 2000 Vdc	Models Rated ≤ 1500 Vdc, Measured output-to-ground
Output Isolation	± (2750 Vdc + Vo/2), where Vo is the maximum output voltage of the power supply	Models Rated > 1500 Vdc, Measured output-to-ground

4.3 Programming Specifications

PARAMETRO	VALORE	CONDIZIONI
Resolution, Digital Programming	16-bit, 0.00153% of rated voltage, current or power	Front panel or communication interfaces
Accuracy, Digital Programming	Voltage: ± 0.06% of rated voltage Current: ± 0.06% of rated current Power: ± 0.10% of rated power	Output value to set point value, programmed via front panel or communication interfaces

4.3 Programming Specifications

PARAMETRO	VALORE	CONDIZIONI
Accuracy, Digital Measurement	Voltage: ± 0.08% of rated voltage Current: ± 0.08% of rated current Power: ± 0.10% of rated power	Output value to returned value, via front panel display or communication interfaces
Resolution, Analog Programming	12-bit, 0.025% of rated voltage, current or power	0-10 V analog input
Accuracy, Analog Programming	Voltage: ± 0.12% of rated voltage Current: ± 0.08% of rated current Power: ± 0.10% of rated power	Output value to set point value, programmed via analog input
Accuracy, Analog Programming, High Speed Input	Voltage: ± 0.80% of rated voltage Current: ± 0.80% of rated current Power: ± 1.20% of rated power	Output value to set point value, programmed via the high-speed analog input
Accuracy, Analog Measurement	Voltage: ± 0.08% of rated voltage Current: ± 0.08% of rated current Power: ± 0.10% of rated power	Output value to returned value, via analog output
Analog I/O	High-Speed Input Sampling Rate: 2 kHz Programming Voltage: 0-10 V Monitoring Voltage: 0-10 V, 3 mA capacity Monitoring Impedance: 0.005 Ω Reference Voltage: 10 V, 20 mA capacity	3 configurable standard analog inputs, 1 configurable high-speed analog input, 4 configurable analog outputs, reference signal provided

4.4 Interface Specifications

PARAMETRO	VALORE	CONDIZIONI
Front Panel Programming	Machined aluminum rotary knob with encoder, keypad, and up-down arrow for single bit control	
Communication Interfaces	USB Host (Front): Type B USB Host (Rear): Type B RS485 (Rear): RJ-45 MagnaLINK™: RJ-25 x 2	Standard
External User I/O Port	26-pin D-sub DB-26, female Referenced to ground; isolated from the DC output See User Manual for pin layout	Standard
Communication Interfaces	CANopen (+CAN): DB-9 EtherCAT (+ECAT): RJ-45 x 2 EtherNet/IP (+EIP): RJ-45 x 2 LXI TCP/IP Ethernet (+LXI): RJ-45 ModbusTCP (+MTCP): RJ-45 x 2 PROFINET (+PROF): RJ-45 x 2	Optional

4.5 Physical Specifications

PARAMETRO	VALORE	CONDIZIONI
Size	1U 1.75” H x 19” W x 24” D (4.4 x 48.3 x 61.0 cm)	All models
Weight	1.5 kW models: 32 lbs (14.52 kg) 2.6 kW models: 34 lbs (15.42 kg) 4 kW models: 35 lbs (15.88 kg) 6 kW models: 35 lbs (15.88 kg) 8 kW models: 36 lbs (16.33 kg) 10 kW models: 36 lbs (16.33 kg)	
Racking Standard	EIA-310	
Rear Support Rails	Included	

4.6 Environmental Specifications

PARAMETRO	VALORE	CONDIZIONI
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	Side air inlet, rear exhaust	

4.7 Regulatory Specifications

PARAMETRO	VALORE	CONDIZIONI
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	
RoHS Compliant	Yes	
REACH Compliant	Yes	

5 Guida all'ordinazione dei modelli

SLx10-800-12.5/480+ECAT

- Integrated Options
- AC Input Voltage (Vac)
- Maximum DC Output Current (Adc)
- Maximum DC Output Voltage (Vdc)
- Output Power (kW)
- Product Series

6 Modelli

Max Voltage Vdc	1.5 kW	2.6 kW	4 kW	6 kW	8 kW	10 kW	Ripple mVrms	Efficiency
			Max Current Adc					
5	250	—	—	—	—	—	30	84%
10	150	250	—	—	—	—	30	89%
16	93	162	250	—	—	—	40	89%
20	75	130	200	250	—	—	40	90%
25	60	104	160	240	—	—	50	91%
32	46	81	125	186	250	—	60	91%
40	37	65	100	150	200	250	80	91%
50	30	52	80	120	160	200	70	92%
60	25	43	66	100	133	166	100	93%
80	18	32	50	75	100	125	120	93%
100	15	26	40	60	80	100	120	93%
125	12	20	32	48	64	80	110	93%
160	9	16	25	36	50	60	110	93%
200	7.5	13	20	30	40	50	110	94%
250	6	10.4	16	24	32	40	110	94%
300	5	8.6	13.2	20	26.4	33.3	160	94%
375	4	6.9	10.4	16	21.3	26.5	160	94%
400	3.7	6.5	10	15	20	25	170	95%
500	3	5.2	8	12	16	20	250	95%
600	2.5	4.3	6.4	10	13.3	16.5	250	95%
800	1.8	3.2	5	7.5	10	12.5	350	95%
1000	1.5	2.6	4	6	8	10	400	95%
1250	1.2	2	3.2	4.8	6.4	8	700	95%
1500	1	1.7	2.6	4	5.3	6.6	1000	95%
2000	0.75	1.3	2	3	4	5	6500	95%
2500	0.6	1	1.6	2.4	3.2	4	7500	95%
3000	0.5	0.86	1.3	2	2.6	3.3	8500	95%
AC Input Voltage Vac			**Input Current Per Phase** Aac					
UI (100-240 Vac, 1Φ)	18 - 8[1]	—	—	—	—	—		
UI2 (208-240 Vac, 1Φ)	—	15 - 13	—	—	—	—		
208/240 Vac, 3Φ	6	9	14	20	27	33		
380/415 Vac, 3Φ	4	6	9	12	17	19		
440/480 Vac, 3Φ	3	5	7	10	14	16		

[1] 15 Aac input current at 120 Vac, 1Φ

7 Caratteristiche

Do more with MagnaLINK™ distributed digital control.

Controllo e misura di precisione

Precisione guidata da DSP dal setpoint al punto di carico.

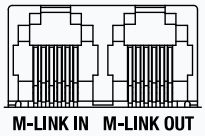


La Serie SLx è dotata della piattaforma di controllo digitale xGen MagnaLINK™ di Magna-Power, che utilizza una rete distribuita di DSP e comunicazioni scheda-scheda ad alta velocità basate su un protocollo di comunicazione a basso livello sviluppato internamente. La programmazione interna dei guadagni con guadagni regolabili in campo supporta un'ampia gamma di condizioni di carico.

- Controllo di tensione, corrente e potenza con risoluzione a 16 bit.
- Controlli programmabili della velocità di variazione (slew-rate).
- Stabilità nativa di 100 ppm.
- Rilevamento della tensione locale, remoto e senza cavi per una regolazione accurata al punto di carico.

Master-slaving plug-and-play

Scala la potenza senza interruzioni con valori di sistema aggregati.



Le doppie porte MagnaLINK offrono un master-slaving digitale-ibrido di nuova generazione, consentendo a un'unità di comandare uno stack sincronizzato. Espandi la capacità di corrente collegando in parallelo fino a 16 unità. Un collegamento secondario di rilevamento della corrente fornisce la corrente analogica in tempo reale al master per un'aggregazione e una visualizzazione accurate.

- Collegamento in parallelo di fino a 16 unità con semplice cablaggio dell'interfaccia.
- Un unico setpoint; uscita e protezioni sincronizzate.
- Feedback secondario di rilevamento della corrente per una condivisione accurata.
- Configurazione automatica e misurazioni aggregate su un unico display master.

Controllo intuitivo e luminoso dal pannello frontale

Display luminosi, controllo preciso, costruito per durare.



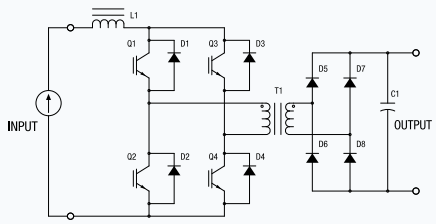
La Serie SLx abbina un display ibrido a lunga durata—segmenti V/I verdi ad alta visibilità più uno schermo multi-linea per stato/configurazione—con controlli precisi e robusti. Una manopola in alluminio lavorato con anodizzazione nera consente una regolazione fine del setpoint, mentre un tastierino numerico a 10 tasti e i tasti freccia supportano l'inserimento digitale esatto. Un pulsante Lock dedicato protegge le impostazioni e una porta USB frontale rende il collegamento al PC semplice e immediato (USB posteriore anch'essa disponibile).

- Display ibrido: segmenti V/I luminosi + stato multi-linea e menu.
- Manopola di controllo in alluminio lavorato per regolazioni precise.
- Tastierino a 10 tasti + frecce per l'inserimento del setpoint a 16-bit.
- Lock sul pannello frontale e USB frontale per un utilizzo rapido e sicuro.

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

Elaborazione di potenza affidabile con alimentazione in corrente

Robusto per progettazione: topologia autoprotettiva per la massima operatività.



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.

Sicurezza stratificata, interblocco e arresto di emergenza

Limiti programmabili standard più spegnimento cablato.



Una fase di avviamento graduale mantiene la corrente di spunto al di sotto dell'assorbimento a regime, mentre la diagnostica integrata monitora le condizioni di linea, termiche e interne. In caso di guasto, un intervento immediato one-shot (OSHT) arresta l'inverter. I guasti vengono segnalati sul display di stato del pannello frontale e tramite SCPI/Modbus per una rapida risoluzione dei problemi.

- L'avviamento graduale limita la corrente di spunto; l'assorbimento CA resta inferiore alla corrente a pieno carico.
- Interventi programmabili: sovratensione, sovracorrente, sovrapotenza.
- Monitoraggio termico su dissipatore e condensatori di uscita.
- Ingresso interblocco a 5V per contatto pulito, inibizione a ritenuta (alimentazione di controllo mantenuta).
- Arresto di emergenza a 24 V che bypassa la logica per interrompere la CA; spegnimento hardware completo.

Diagnostica mirata

Matrice LED mappata sui gruppi interni per una rapida diagnosi sul campo.



La Serie SLx introduce la Target Diagnostics: i LED di stato di ogni gruppo principale sono mappati su una matrice LED montata sul pannello posteriore. I tecnici possono individuare guasti o problemi di configurazione mentre l'unità resta installata a rack e sigillata. Abbinata all'editor EEPROM di MagnaCTRL, consente un supporto remoto efficace per mantenere i sistemi operativi.

- La matrice LED posteriore replica i LED di stato di ciascun gruppo.
- Diagnosi di guasti e configurazioni con il prodotto montato e i coperchi chiusi.
- Funziona con l'editor EEPROM di MagnaCTRL per verifiche/aggiornamenti da remoto.
- Riduce i tempi di troubleshooting e i fermi macchina.

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

Integrazione software semplificata

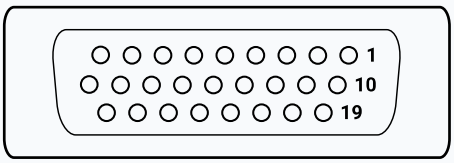
Comandi leggibili, risultati immediati: compatibile con qualsiasi linguaggio.

La Serie SLx offre un'API testuale chiara con supporto nativo SCPI e Modbus. Oltre 60 comandi ben documentati coprono avvio/arresto, set point per tensione, corrente e potenza, controllo dello slew rate, misurazioni ad alta precisione e configurazione completa, permettendo ai vostri script e sistemi di passare rapidamente dal proof-of-concept alla produzione.

- Set di comandi SCPI e Modbus con comportamento coerente.
- Avvio/arresto e protezioni: abilitazione uscita, impostazione limiti di intervento, interrogazione stato.
- Letture ad alta precisione: tensione, corrente, potenza e feedback di sense.
- Documentazione ed esempi orientati allo sviluppatore.

User I/O Esterno

Controlli analogico-digitali isolati e flessibili.



Tutti gli alimentatori della Serie SLx sono dotati di serie di un connettore D-Sub a 26 pin designato come User I/O Esterno. Questo connettore fornisce:

- 8 uscite digitali (logica 5V)
- 4 ingressi digitali (logica 5V)
- 4 uscite analogiche (logica 0-10V)
- 4 ingressi analogici (logica 0-10V)

L'User I/O Esterno è isolato dai terminali di uscita e riferito alla massa di terra. I pin del connettore sono configurabili dall'utente, consentendo di selezionare le funzioni necessarie per la propria applicazione e garantendo al contempo la possibilità di integrare nuove funzionalità in futuro. Le uscite digitali possono essere utilizzate per integrare l'alimentatore con, ad esempio, segnali di abilitazione esterni o logica di monitoraggio guasti digitale, oppure per monitorare tensione e corrente tramite le uscite analogiche 0-10V. È inoltre disponibile un ingresso analogico dedicato ad alta velocità, campionato a 2 kHz per un controllo pressoché in tempo reale.

Comunicazioni e controllo industriali

Dalle reti di laboratorio ai PLC: integrazione secondo le tue esigenze.

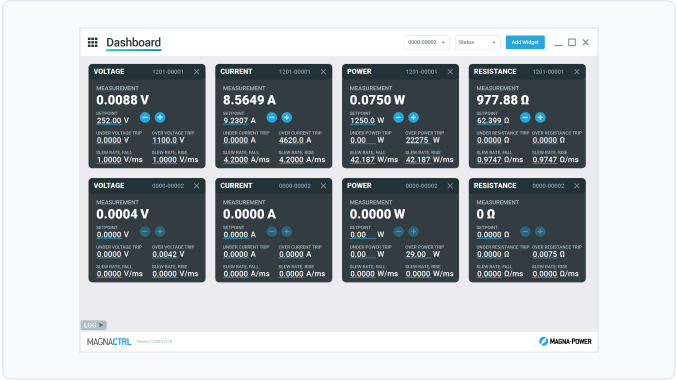


La Serie viene fornita pronta per il collegamento con doppia USB (frontale e posteriore) e RS485, con supporto per SCPI e Modbus. Per reti e automazione industriale, sono disponibili opzioni completamente integrate con supporto Modbus, documentazione completa e file di descrizione dispositivo per accelerare la configurazione del PLC e la mappatura dei tag.

- Doppia USB standard (frontale + posteriore) e RS485.
- Rete TCP/IP con opzione LXI TCP/IP Ethernet (+LXI)
- Opzioni fieldbus per PLC: CANopen (+CAN), EtherCAT (+ECAT), EtherNet/IP (+EIP), Modbus-TCP (+MTCP), PROFINET (+PROF).
- File dispositivo inclusi: EDS (CANopen/EtherNet/IP), ESI XML (EtherCAT), GSDML (PROFINET) per una rapida integrazione con il PLC.
- Documentazione completa dei comandi, esempi e diagnostica.

Software MagnaCTRL incluso

Dashboard multi-prodotto per controllo, diagnostica e aggiornamenti—pronti all'uso.



MagnaCTRL è una piattaforma di controllo multi-prodotto moderna, inclusa con i prodotti xGen. Crea dashboard, configura l'I/O, esegui aggiornamenti e accedi a diagnostiche approfondite—tutto da un'unica applicazione.

- Dashboard configurabile: aggiungi/organizza widget per monitorare e controllare più unità collegate.
- Product Explorer: rileva automaticamente i dispositivi, salva le connessioni e riconnettiti automaticamente nelle sessioni future.
- Pannello External User I/O: mappa l'I/O a 26 pin, esporta/importa le mappe dei pin per implementazioni rapide.
- Aggiornamenti firmware/software: rileva automaticamente le nuove versioni; esegui aggiornamenti manuali offline se necessario (vedi Changelog)
- Strumenti di calibrazione: regola guadagni/offset di programmazione/misurazione; con la guida, ottimizza i guadagni dell'anello di controllo.
- Registrazione dati: output grafico e registrazione .csv di tensione, corrente e misurazioni/impostazioni di potenza nel tempo

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

Made in the USA

Produzione verticalmente integrata per un controllo qualità completo.

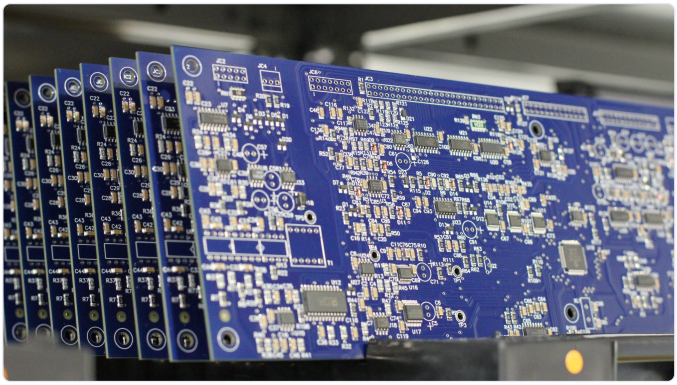


I prodotti Magna-Power sono progettati, costruiti, testati e assistiti presso la sede centrale di Magna-Power di 73.500 sq-ft a Flemington, New Jersey, dove lavorazioni metalliche, componenti magnetici, assemblaggio PCB e rodaggio vengono eseguiti internamente per un controllo rigoroso su qualità, costi e tempi di consegna.

- Prodotto negli USA: ingegneria, produzione e assistenza sotto un unico tetto.
- Produzione interna: lavorazioni metalliche, componenti magnetici, PCB SMT e finiture.
- Affidabilità comprovata: ogni unità completamente testata, calibrata e sottoposta a rodaggio.

Assistenza mondiale e supporto ricambi OEM

Competenza di fabbrica, risposta locale.

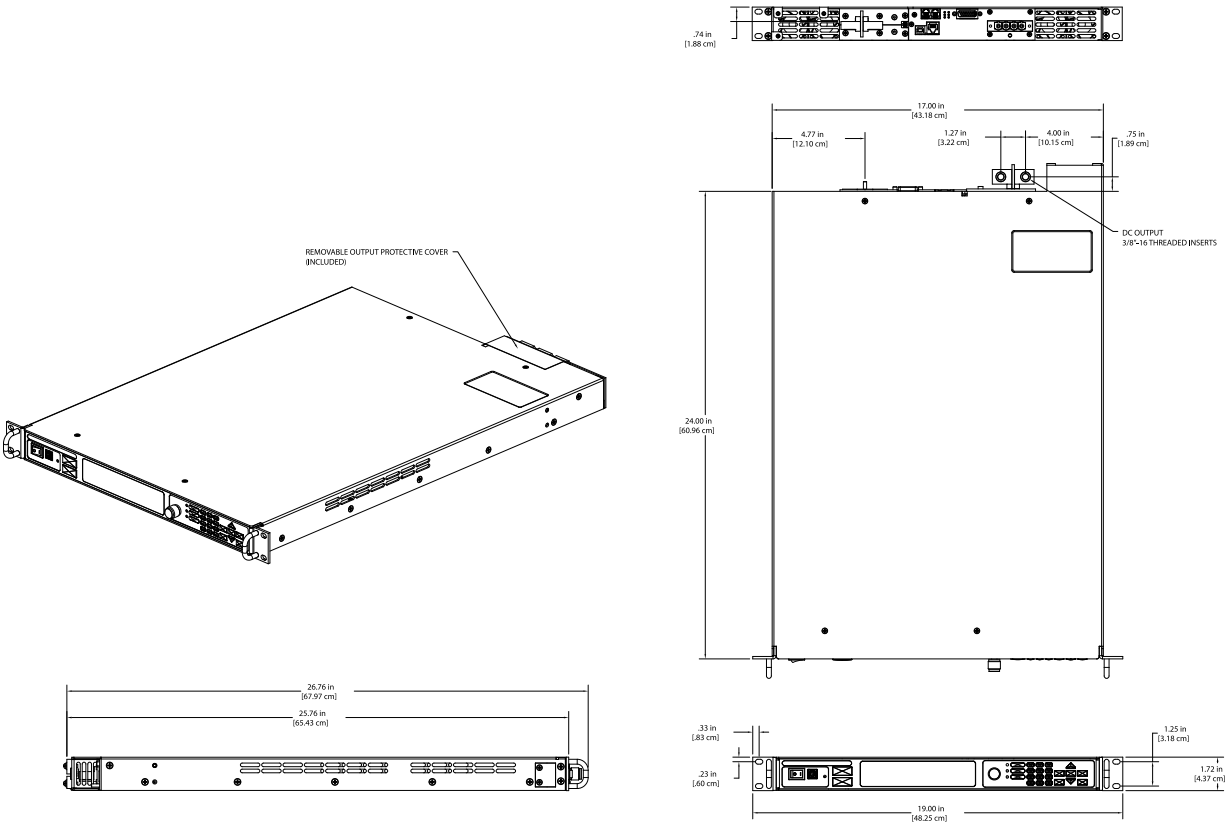


Magna-Power supporta i propri prodotti con centri di assistenza di fabbrica e autorizzati in Nord America, Europa, Regno Unito, Asia-Pacifico, Asia orientale e Sud America, utilizzando procedure di fabbrica e ricambi originali per ripristinare le unità alle specifiche originali, in garanzia e fuori garanzia.

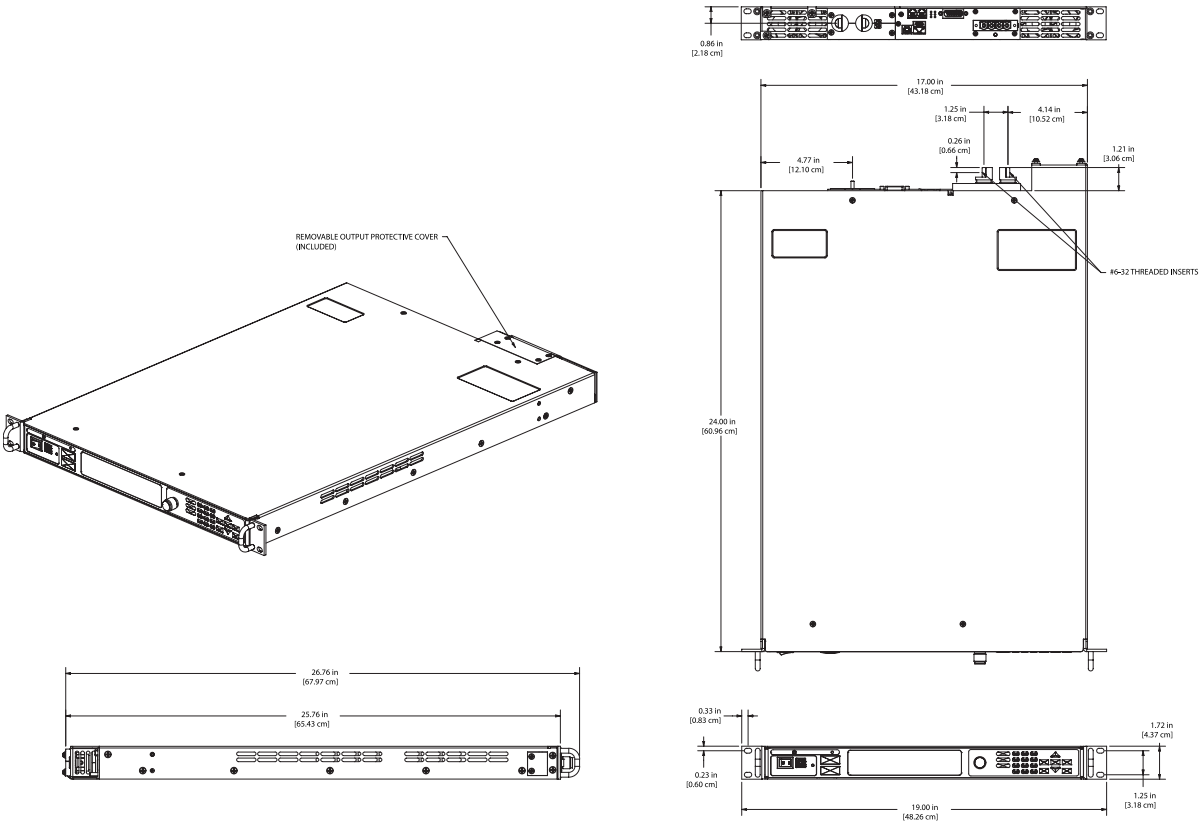
- Copertura globale: sede centrale nel New Jersey e centri di assistenza autorizzati regionali.
- Riparazioni uniformi: diagnostica di fabbrica, istruzioni operative e schemi di sistema.
- Ricambi OEM originali: gruppi di ricambio testati per un servizio prevedibile e con tempi di fermo ridotti.

8 Diagrammi

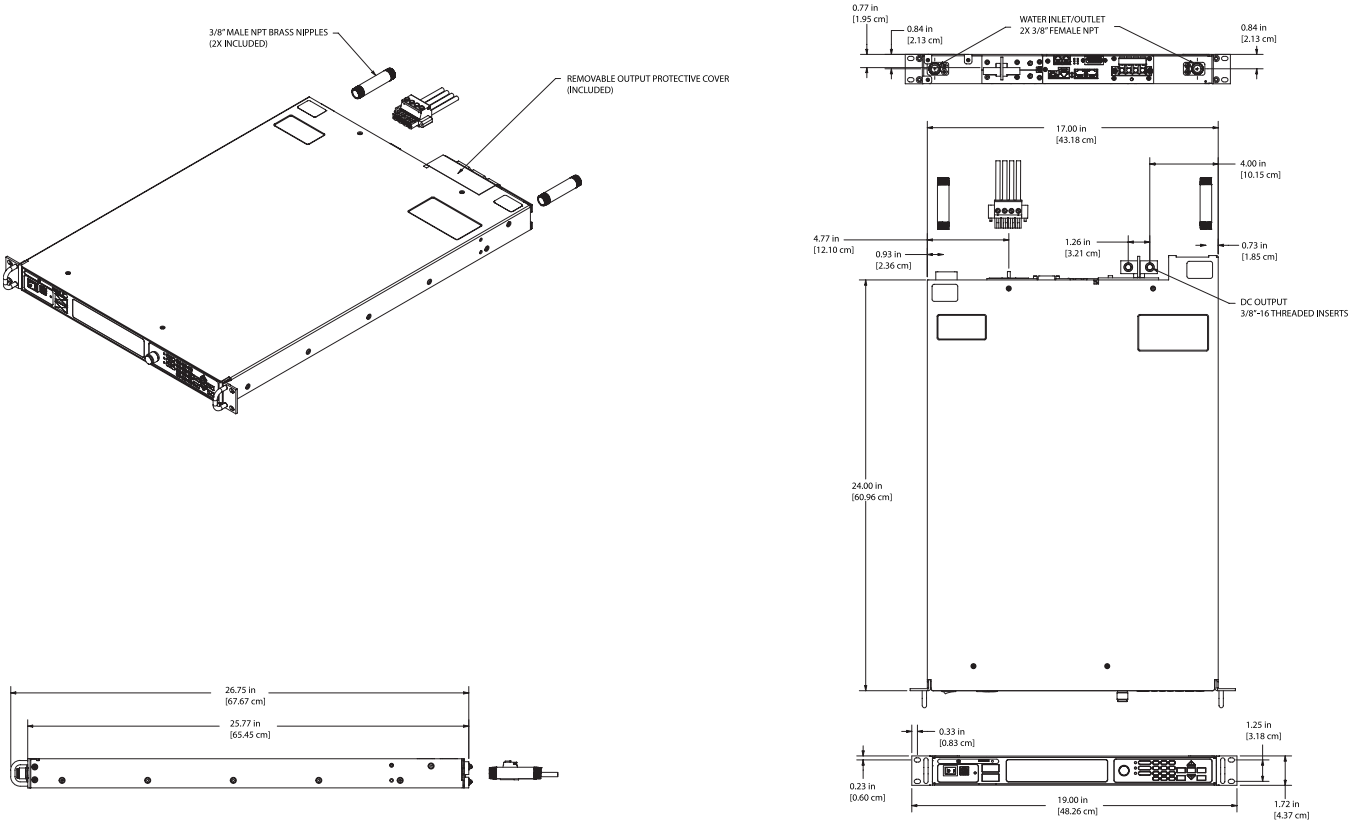
Dimensional Diagrams • Standard SLx Series Models Up To 1500 Vdc



Dimensional Diagrams • Standard SLx Series Models Above 1500 Vdc

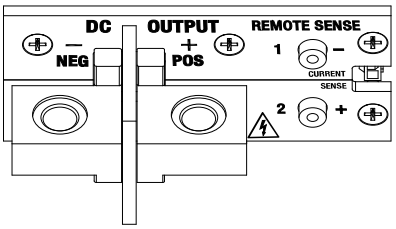


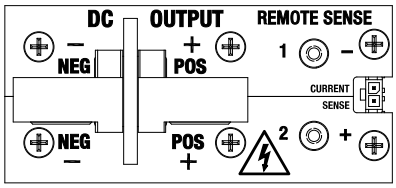
Dimensional Diagrams • SLx Series Models Up To 1500 Vdc with Water Cooling (+WC) Option



DC Output Bus Bars without Included Cover, Models up to 1500 Vdc

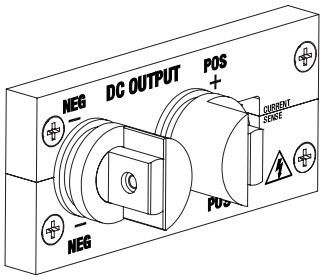
Two views shown, 3/8" mating hardware included (not shown)

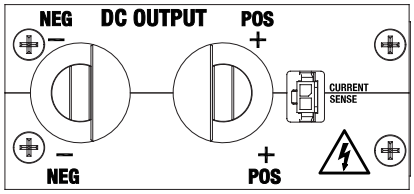




DC Output Bus Bars without Included Cover, Models above 1500 Vdc

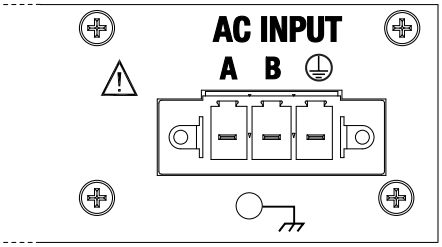
Two views shown, #6 mating hardware included (not shown)





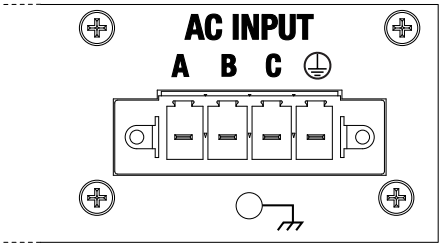
AC Input • 1-phase, 8 AWG

For SLx Series models with 1-phase UI or UI2 input. Phoenix Contact 1720916, 2-wire + ground connector. Pheonix Contact 1777846 mating adapter included.



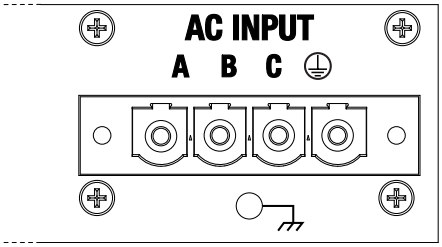
AC Input • 3-phase, 8 AWG

For SLx Series models with 3-phase input, except 10 kW models with 208/240 Vac input. Phoenix Contact 1720929, 3-wire + ground connector. Pheonix Contact 1777859 mating adapter included.



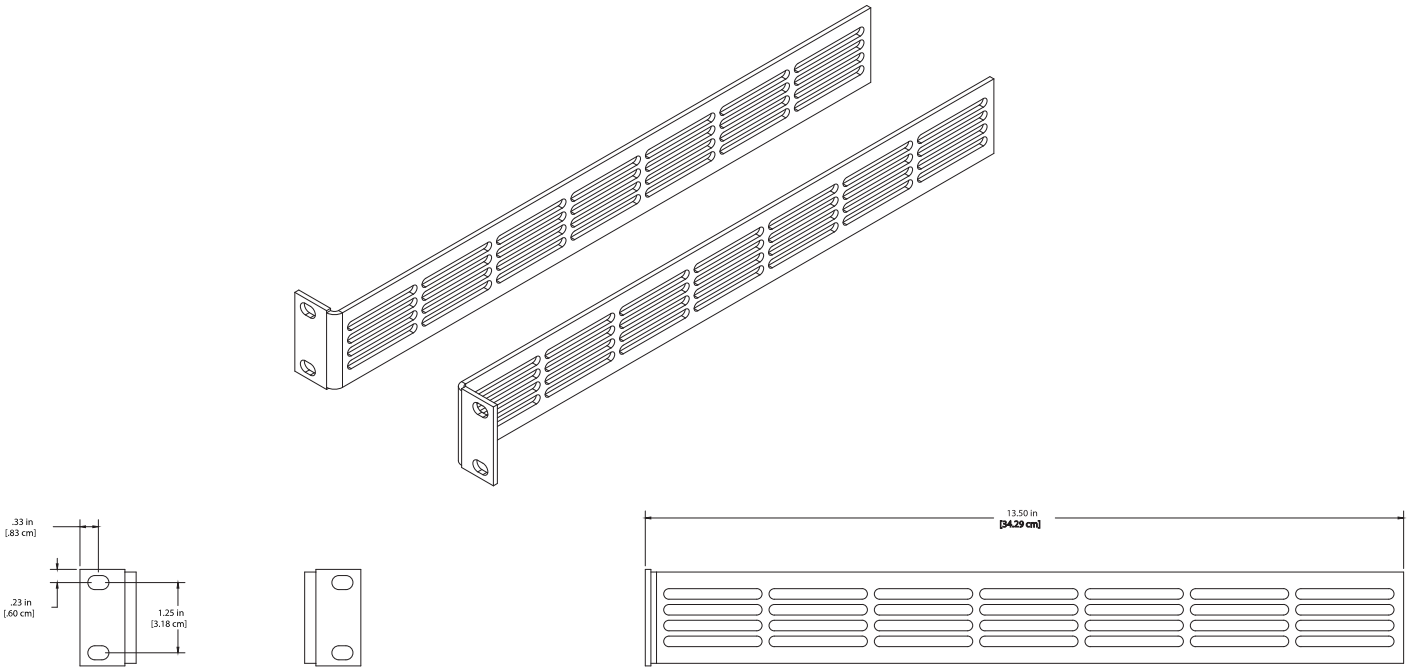
AC Input • 3-phase, 6 AWG

For 10 kW SLx Series models with 208/240 Vac 3-phase input. Phoenix Contact 1998881, 3-wire + ground connector. Pheonix Contact 1967472 mating adapter included.



Rear Mounting Rails

Included



9 opzioni integrate disponbili

+C1 Black Enclosure

Finitura in vernice a polvere nera con texture e pannello frontale nero

+FP1 Blank Front Panel

L'opzione pannello frontale cieco FP1 rimuove tutti i controlli del pannello anteriore, ad eccezione di un indicatore di stato e di un interruttore a bilanciere on/off, mantenendo comunque la piena funzionalità tramite computer e controllo I/O utente

+CAN CANopen

Protocollo di comunicazione CANopen e interfaccia RJ-45 doppia che abilita le comunicazioni CAN bus, ampiamente utilizzata nelle applicazioni automotive

CANopen is a high-level communication protocol that is widely used in industrial automation and embedded systems. It is based on the Controller Area Network (CAN) bus, a robust and efficient serial communication bus commonly found in automotive and industrial applications.

CANopen defines a set of communication protocols and application layer services built on top of the CAN physical layer. It provides a standardized way for devices to communicate and exchange data. CANopen devices communicate using an Object Dictionary, which defines the data structure and parameters that can be exchanged between devices. This dictionary is essential for device configuration and data exchange. It includes objects like PDOs (Process Data Objects) for real-time data exchange and SDOs (Service Data Objects) for parameterization and configuration. Each CANopen device on the network has a unique Node ID, which allows devices to address each other for communication. This addressing scheme simplifies the setup of multi-device networks.

Magna-Power's CANopen Implementation

Magna-Power has designed its CANopen (+CAN) option to allow for seamless integration into a variety of automation and industrial environments. The following are some of the key features for Magna-Power's +CAN option:

- Magna-Power developed CANopen Electronic Data Sheet (EDS), used by network configuration software tools to help set up devices on the network.
- Support for the product's full command set
- Extensive HTML- and PDF-based documentation, detailing connection setup and commands
- D-Sub 9-pin male connector

+ECAT EtherCAT

Protocollo di comunicazione EtherCAT e interfaccia doppia RJ-45 per comunicazioni ad alte prestazioni nell'automazione industriale, nel controllo del movimento e nella robotica

EtherCAT is a real-time Ethernet network protocol developed by Beckhoff Automation for communicating among multiple nodes. EtherCAT networks are formed using CAT cabling, where master and nodes can be directly wired together through RJ-45 ports, in a daisy chain configuration, without need for external networking switches. The protocol is standardized in IEC 61158 and is popular for demanding high-speed communication requirements in automation technology. As a result of its flexibility and scalability, EtherCAT can be found in

a wide range of applications, including factory automation, motion control, robotics, and more.

One of the key advantages of EtherCAT is its ability to handle large amounts of data at very high speeds. It uses a unique "processing on the fly" technique, in which each node in the network can add or remove data from the data stream as it passes through, without interrupting the overall data flow. This allows for very low latency and high precision in control applications. It can support a wide range of different communication topologies, from simple point-to-point connections to complex multi-node configurations. It is also highly customizable, with support for different data formats, communication protocols, and network configurations.

Magna-Power's EtherCAT Implementation

Magna-Power has designed its EtherCAT (+ECAT) option to allow for seamless integration into a variety of automation and industrial environments. The following are some of the key features for Magna-Power's +ECAT option:

- Support for EtherCAT protocol and Ethernet over EtherCAT
- Support for the product's full command set
- Extensive HTML- and PDF-based documentation, detailing connection setup and commands
- Dual RJ-45 connectors with bi-color activity and error LEDs

+EIP EtherNet/IP

Protocollo di comunicazione EtherNet/IP e interfaccia doppia RJ-45 con profilo EIS per l'automazione industriale, comunemente utilizzato nei PLC Allen Bradley, Schneider Electric e Omron

The EtherNet/IP standard (EIP) is the application layer protocol for industrial automation developed by four independent groups: ODVA, the Industrial Open Ethernet Association (IOANA), Control Net International (CI) and the Industrial Ethernet Association (IEA). EtherNet/IP provides wide-ranging, comprehensive, certifiable standard in the public domain that is suitable to a wide variety of automation devices. EtherNet/IP is used by Ethernet modules for several programmable logic controllers including Allen Bradley, Schneider Electric, and Omron

EtherNet/IP uses a client-server model, where the client sends requests to the server, and the server responds with the requested information. The information is transmitted in the form of messages, which are divided into two types: Explicit and Implicit messages.

Explicit messages are used for data exchange and are initiated by the client. The client sends a request for data to the server, and the server responds with the requested data. Implicit messages, on the other hand, are used for real-time control and monitoring. They are sent by the server to the client without any request from the client.

One of the key advantages of EtherNet/IP is its high speed and bandwidth. It allows for real-time data exchange, which is essential in many industrial applications, such as motion control, where high-speed communication is required for precise control of machines and processes.

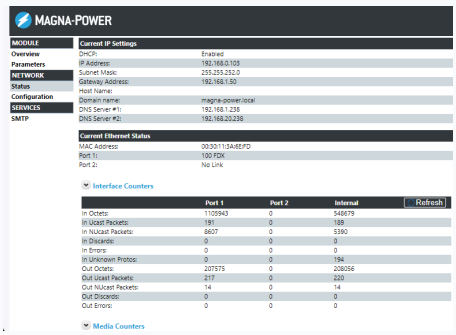
Another advantage is its flexibility and scalability. EtherNet/IP allows for easy integration of devices and systems from different vendors, making it an ideal choice for multi-vendor environments. It also allows for easy expansion of the network, with the ability to add or remove devices without affecting the rest of the network.

EtherNet/IP also provides robust security features to ensure the integrity and confidentiality of data. It uses standard Ethernet security protocols, such as IPsec and SSL/TLS, to protect data in transit.

Magna-Power's EtherNet/IP Implementation

Magna-Power has designed its EtherNet/IP (+EIP) option to allow for seamless integration into Allen Bardley, Schneider Electric and Omron PLCs. The following are some of the key features for Magna-Power's +EIP option:

- Support for the product's full command set
- Extensive HTML- and PDF-based documentation, detailing connection setup and commands
- Dual RJ-45 connectors with bi-color activity and error LEDs
- Magna-Power developed electronic data sheet (EDS) for device discovery and network setup
- Hosted a EtherNet/IP web page for easily accessing local network settings, device parameters, and operation status (figure below)



Pagina web EtherNet/IP ospitata nell'opzione +EIP di Magna-Power

+LXI LXI TCP/IP Ethernet

Protocollo di comunicazione TCP/IP Ethernet e interfaccia RJ-45 singola, certificata secondo lo standard LXI Class C, per comunicazioni socket tramite reti informatiche convenzionali

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.

+MTCP Modbus-TCP

Protocollo di comunicazione Modbus-TCP e interfaccia RJ-45 doppia con supporto completo del set di comandi come comandi Modbus

Modbus-TCP is a communication protocol that enables communication between industrial devices over Ethernet networks. It is an extension of the Modbus protocol, which was originally developed in the 1970s for communication between programmable logic controllers (PLCs) and other devices. Modbus-TCP uses the same protocol as Modbus, but it is transmitted over Ethernet rather than serial communication.

Modbus-TCP is a widely used protocol in industrial control and automation applications because it is open and simple to implement. It supports a wide range of devices, including PLCs, sensors, and actuators. Modbus-TCP provides fast and reliable communication, with data rates of up to 100 Mbps. It also supports multiple connections and can handle up to 65,535 devices on a single network.

Magna-Power's Implementation of Modbus-TCP

Magna-Power has designed its Modbus-TCP (+MTCP) option to allow for seamless integration into a variety of automation and industrial environments. The following are some of the key features for Magna-Power's +MTCP option:

- Support for the product's full command set as Modbus commands
- Extensive HTML- and PDF-based documentation for all the commands and interfacing
- Dual RJ-45 connectors with bi-color activity and error LEDs

+PROF PROFINET

Protocollo di comunicazione PROFINET e interfaccia RJ-45 doppia per l'automazione industriale, comunemente utilizzata nei PLC Siemens

PROFINET is a widely-used industrial Ethernet protocol for communication between automation systems and devices in manufacturing and process industries. It was developed by PROFIBUS & PROFINET International (PI), an organization that oversees the development and maintenance of the protocol. PROFINET is used mainly by Siemens PLCs.

PROFINET provides a high-speed and real-time communication capability that enables efficient data exchange and control between various automation components such as PLCs, robots, sensors, and drives. It supports both TCP/IP and UDP/IP communication, and offers a wide range of features such as integrated safety, motion control, and diagnostics.

PROFINET also provides a flexible network topology that can be configured to suit different industrial applications. It supports various physical media such as copper, fiber optic, and wireless, and allows for the use of different network topologies including star, ring, and line.

PROFINET is widely adopted by many leading manufacturers and system integrators in different industries due to its reliability, flexibility, and interoperability. It has a large ecosystem of compatible products and tools, and is supported by a global network of PI-certified experts and service providers.

Magna-Power's PROFINET Implementation

Magna-Power has designed its PROFINET (+PROF) option to allow for seamless integration into Siemens PLCs. The following are some key features for Magna-Power +PROF option:

- Support for the product's full command set
- Extensive HTML- and PDF-based documentation, detailing connection setup and commands
- Dual RJ-45 connectors with bi-color activity and error LEDs

+RUG Ruggedized

Rinforzamento interno del prodotto, testato in modo indipendente per conformarsi a specifiche selezionate di shock e vibrazione secondo gli standard MIL-STD-810G e RTCA DO-160.

The Ruggedized Option (+RUG) provides additional mechanical security for large power components and sub-assemblies within SLx Series, SL Series, and XR Series products.

SLx Series, SL Series, and XR Series units with the Ruggedized Option have been independently tested to comply with the following MIL-STD-810G shock and vibration specifications:

- MIL-STD-810G CHG1 Method 516.7 Functional Shock, Procedure I; which subjects the product to 40G, 11 ms terminal saw tooth pulse; three shocks in each direction along three mutually perpendicular axes
- MIL-STD-810G CHG1 Method 514.7 Vibration; which subjects the product to two hours of vibration per axis along three mutually perpendicular axes

In addition to the specifications listed above, the air cooled SLx Series products with the Ruggedized Option have also been independently tested to comply with RTCA/DO-160G Section 8.0 Vibration, Profile B4 with its associated total energy of 2.2 G_{rms} for equipment installed in Fixed Wing aircrafts with Turbojet or Turbofan engines.

With the Ruggedized Option, SL Series and XR Series products maintain ambient operating temperatures from -25°C to 50°C, while SLx Series products maintain ambient operating temperatures from 0°C to 50°C. Storage temperature for all products is rated from -40°C to +85°C.

+WC Water Cooling

Utilizzando uno scambiatore di calore centrale integrato e componenti magnetici avvolti in modo speciale, il raffreddamento ad acqua è disponibile per alcuni alimentatori Magna-Power selezionati, per l'utilizzo in armadi di sistema ad alta densità di componenti, dove la rimozione del calore tramite il raffreddamento ad aria standard del prodotto presenta una sfida.

Water Cooling (+WC) is available for Magna-Power power supplies to enable high-power density in cabinets where heat removal via standard air cooling is a challenge.

Water cooling is accomplished with chill plates and an integrated central heat exchanger. The chill plates provide a

thermal conduction path for heat-sensitive components, while the central heat exchanger removes heat from the air internal to the enclosure. 1U, 3U, 6U and 9U water-cooled models feature enclosures without vent holes and are essentially sealed from the environment. An internal solenoid valve enables water flow only when the chill plate reaches 60°C; this operation prevents internal condensation.

Plumbing and Connections

1U SLx Series as well as 3U and 4U TS Series models utilize a 1/4" NPT male inlet and outlet for water flow. For **6U, 8U, 12U and 16U TS Series**, external plumbing interconnects power supply modules to a single 1/2" NPT male connection for the inlet and another for the outlet.

A minimum of 2.5" of clearance is recommended behind the enclosure for plumbing hardware and user connections. For systems requiring more than one power supply, plumbing connections must be paralleled; water should not flow from one power supply into another. When water-cooled power supplies are ordered with the Cabinet and Integration accessory, Magna-Power will parallel these connections, providing a single inlet and outlet for the entire rack.

> **Note:** The Water Cooling (+WC) option cannot be combined with the High Isolation Output (+ISO) option. On the TS Series, the Water Cooling (+WC) option is only available for models rated up to 1000 Vdc. On the SLx Series, *the Water Cooling (+WC) option is only available for models rated up to 1500 Vdc.*

Water Cooling Specifications

Series	Model Size	Min. Flow Rate	Pipe Size (NPT Male)	Max. Pressure	Max. Inlet Temp
SLx Series	1U	1.2 GPM	1/4"	80 PSI	40°C
TS Series	3U, 4U	1.5 GPM	1/4"	80 PSI	25°C
TS Series	6U, 8U	3.0 GPM	1/2"	80 PSI	25°C
TS Series	9U, 12U	4.5 GPM	1/2"	80 PSI	25°C
TS Series	16U	6.0 GPM	1/2"	80 PSI	25°C

*Front air intake and rear exhaust applicable to 6U through 16U models only.

10 Immagini dei prodotti





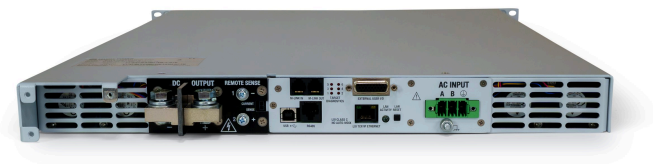




SLx Series with Blank Front Panel (+FP1) option



SLx Series, 1U, rear panel of unit with UI/UI2 1-phase input with protective cover attached



SLx Series, 1U, rear panel of unit with UI/UI2 1-phase input with protective cover removed



SLx Series, 1U, rear panel of 10 kW unit with 208 Vac 3-phase input with protective cover removed

11 Download

https://magna-power.com/it/products/magnadc/slx#downloads

12 Contatto

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